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**Socioemotional maladjustment among victims of
different forms of peer aggression**

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Flashman was adept in all his ways, but above all in the power of saying cutting and cruel things, and could often bring tears to the eyes of boys in this way, which all the thrashings in the world wouldn't have wrung from them

Hughes, T. (1857/1994).

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Abstract

Introduction. Peer victimisation among children is the experience of being a target of other children's aggressive behaviour. Three forms of victimisation - physical, subordinal, and relational - are defined with reference to social rank theory (Gilbert, 1992). This thesis aims to explore the nature of the relationship between these forms of victimisation and socioemotional maladjustment, which includes feelings of depression, loneliness, anxiety, low self-esteem and low social acceptance. Its results are interpreted in the context of social rank theory.

Method. Victimisation and socioemotional maladjustment, of the forms indicated above, were assessed in a short-term longitudinal prospective study of 177 British school children, in two age groups (initially aged between eight and nine, and between eleven and twelve years). The same variables (with the exception of social acceptance) were measured again at follow-up ten months later.

Results. Victimisation, particularly if assessed by self-report, was positively related to concurrent and future socioemotional distress, and primarily to depressed mood. Between baseline and follow-up, early victimisation led to increasing depression, and early socioemotional distress led to increasing victimisation. All these relationships between victimisation and distress were stronger for psychological (relational and subordinal) than for physical victimisation. There was limited evidence that psychological victimisation was more strongly related to distress among older than younger children, but no evidence for sex differences.

Conclusion. A new cyclical model is presented to account for the maintenance of peer victimisation. The model proposes that psychological victimisation causes increasing depression and general socioemotional distress for children. Their emotional distress makes them socially withdrawn and submissive, which makes them an easy target for subordinal and relational aggression, and so victimisation and distress are exacerbated. Physical victimisation is not strongly implicated in the cycle, although it is suggested that it is another possible consequence of psychological victimisation.

Part I: Literature Review and Methods

Chapter One

Victims and Social Rank Theory

Abstract

Victimisation, socioemotional adjustment, and related terms used in the thesis are defined, and the aims of the thesis outlined briefly. Peer victimisation can take several forms among children, but researchers disagree about how these forms are to be distinguished. Social rank theory (Gilbert, 1992) provides a framework for defining different forms of victimisation. This theory was not developed within the peer relations literature, but is relevant to the study of victimisation for four main reasons. First, social rank theory presents an approach to the causal relationship between social psychological and maladjustment variables which is plausible in the context of the clinical and peer relations literature. Second, it concerns the origins of socioemotional maladjustment. Third, it implicates two social psychological concepts which, together, are central to the experience of victimisation: power and belonging. Fourth, it distinguishes two modes of social interaction, which separate physical and psychological forms of victimisation. After a discussion of these aspects of social rank theory, it is applied to the classification of victimisation. Themes of power and belonging are used to distinguish physical, relational, and subordinal victimisation.

1.1. Introduction

Definitions

Victims of peer aggression are of growing concern for researchers and professionals who work with children. Aggression is normally defined as behaviour which is intended to harm another person or other people (Aronson, 1992; Baron & Richardson, 1994; Berkowitz, 1962; Crick, 1995; Dollard, Miller, Doob, Mowrer, & Sears, 1939; Geen, 1990; Parke & Slaby, 1983). Peer aggression is defined in this thesis as aggression which takes place among children, who are not siblings and not necessarily age-mates, and not between children and adults. Victims are the children who are targets of peer aggression. Peer aggression has been studied for decades (see Parke & Slaby, 1983), but only in recent years have its victims become a major focus for researchers, educators, and clinicians (Ambert, 1995; Besag, 1989; Dawkins, 1995; Elliott, 1991; Farrington, 1993; Hazler & Hoover, 1996; Hodges & Perry, 1996; Lowenstein, 1978; Olweus, 1978; Pierce & Cohen, 1995; Ross, 1996; Slee & Rigby, 1994; Smith, 1991).

Peer aggression is often equated with bullying, and its targets described as victims of bullying (e.g., Besag, 1989; Elliott, 1991; MacLeod & Morris, 1996; Olweus, 1993a; Roland & Munthe, 1989; Rigby, 1996; Sharp, 1995; Smith, 1991; Whitney & Smith, 1993). Bullying is generally seen by researchers as a form of aggression in which the victim is targeted repeatedly or over a prolonged period, and in which the aggressor is in some sense more powerful, or stronger, than the victim (Besag, 1989; Farrington, 1993; Olweus, 1993a; Ross, 1996; Schuster, 1996; Smith, 1991). In measuring "bullying" and identifying its victims, researchers have not always stressed these features which separate bullying from aggression (Schuster, 1996). This thesis is not concerned with distinguishing

victims of bullying from victims of aggression. A lot of bullying research is relevant to work on peer victimisation, and peer victimisation research has implications for work with bullies and their victims. Therefore arguments will be supported with reference to research into bullying, victims described as being bullied, and implications for anti-bullying work will be drawn from the research. But the experience of being a victim of peer aggression will generally be referred to as victimisation.

This thesis aims to explore the nature of the relationship between victimisation and socioemotional maladjustment. Socioemotional maladjustment is taken here to include emotional distress (such as feelings of sadness, depression, fear, anxiety, inadequacy, and low self-esteem) and feelings of having poor social relationships (such as feelings of loneliness, unpopularity, social inadequacy and social incompetence). In this thesis it will sometimes be referred to as *internalising maladjustment*. An exploration of the nature of victims' maladjustment is appropriate given that aggression is defined in terms of intent to *harm*, and that the effects of bullying on victims are central to children's concepts of bullying (LaFontaine, 1991; MacLeod & Morris, 1996; Madsen, 1996).

Overview of thesis aims

In recent years cross-sectional research on the socioemotional maladjustment of victims has boomed (e.g., Alsaker, 1993; Anderson & Harrison, 1996; Austin & Joseph, 1996; Boivin & Hymel, 1997; Boivin, Hymel, & Bukowski, 1995; Boulton & Smith, 1994; Byrne, 1994; Callaghan & Joseph, 1995; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Graham & Juvonen, in press; Haselager, 1997; Kochenderfer & Ladd, 1996a; MacDonald & O'Laughlin, 1997; Mynard & Joseph, 1997; Neary & Joseph, 1994;

O'Moore & Hillery, 1991; Rigby & Slee, 1992; Rivers & Smith, 1994; Sharp, 1996; Slee, 1994a, 1994b, 1995b, 1995c; Slee & Rigby, 1993b; Vernberg, 1990). But as yet there has been no systematic review of the literature; rather, some of the above studies have sometimes been listed as evidence of the "effects" of bullying, with little attempt at critical evaluation. The absence of evaluative reviews is unfortunate because many of the adjustment variables investigated separately in studies of the maladjustment of victims are conceptually and empirically related amongst themselves, and there are limitations in the way victimisation is measured in many studies. Chapters Two and Eight of this thesis will aim to overcome some of these weaknesses in previous research. The number of longitudinal studies of the outcomes for victims has also grown (e.g., Boivin, *et al.*, 1995; Craig & Pepler, 1997; Egan & Perry, 1997; Kochenderfer & Ladd, 1996a, 1996b; McLaughlin, Mejia, J.M. Price, & Yearwood, 1997; Olweus, 1993b; Vernberg, 1990), and this thesis will also aim to overcome some of their limitations.

Aggressive behaviour can take several forms (Crick, 1995; Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Olweus, 1993a; Österman, Björkqvist, Lagerspetz, Kaukiainen, Huesmann, & Fraczek, 1994; Rivers & Smith, 1994), and so its targets can be described as experiencing different forms of victimisation. For instance, Österman, *et al.* (1994) distinguished among physical, verbal, and indirect aggression, and among corresponding forms of victimisation: physical victimisation, verbal victimisation, and indirect victimisation. Studies of the adjustment of victims of different forms of aggression are becoming more numerous (e.g., Alsaker, 1993, 1997; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Grotpeter & Nukulij, 1997; Kochenderfer & Ladd, 1996b; Ku, 1997; MacLeod & Morris, 1996). None of these studies has made full comparison among

different forms of victimisation, a comparison made for the first time in the present thesis. Finally, the first prospective study of the maladjustment outcomes for victims of different forms of peer aggression is presented in this thesis.

1.2. Different forms of victimisation

As the present thesis is concerned with the adjustment correlates of different forms of victimisation, it is essential to determine how different forms of victimisation or aggression are to be distinguished. Many victimisation researchers have followed the lead of the pioneering research of Olweus (1978). Olweus was initially concerned with what he later came to call "direct" bullying behaviour (Olweus, 1993a), which included mainly physical aggression (such as kicking and hitting) and open, verbal attacks on the victim (such as teasing and name-calling). Children who are victims of these forms of aggression, and not necessarily of other forms, have been studied by many prominent researchers of the maladjustment of victims, such as Perry and colleagues, and those who have used their victimisation measures (Boivin & Hymel, 1997; Boivin, *et al.*, 1995; Egan & Perry, 1997; Perry, Kusel, & Perry, 1988; Pierce, 1990; Ray, Cohen, Secrist, & Duncan, 1997); Slee and Rigby (Rigby & Slee, 1992; Slee, 1994a, 1994b, 1995a, 1995b, 1995c; Slee & Rigby, 1993a, 1993b); Joseph and colleagues (Austin & Joseph, 1996; Callaghan & Joseph, 1995; Mynard & Joseph, 1997; Neary & Joseph, 1994); in the early work of Björkqvist and colleagues (Björkqvist, Ekman, & Lagerspetz, 1982; Lagerspetz, Björkqvist, Berts, & King, 1982); and in some of the work of Smith and colleagues (e.g., Boulton & Smith, 1994).

More recently there have been moves to alert investigators to the importance of another form, or perhaps other forms, of aggression. Björkqvist, Crick, Smith, Olweus, and their

colleagues (also see Kochenderfer & Ladd, 1996b; Matsui, Tsuzuki, Kakuyama, & Onglatco, 1996; McNeilly-Choque, Hart, Robinson, Nelson, & Olsen, 1996; Munthe, 1989; Rys & Bear, 1997; Warden, Christie, Kerr, & Low, 1996), have all recently begun to study what they consider a different form of aggression - described as relational aggression by Crick, and indirect aggression by the others. Their research shows that aggression can be of a different, more subtle, character than the physical and verbal aggression which have been studied previously. Relational and indirect aggression share the psychological features of other forms of aggression (Crick, 1995; Crick & Grotpeter, 1995; Crick, Bigbee, & Howes, 1996; Crick, Casas, & Mosher, 1997; Lagerspetz & Björkqvist, 1994), such as being seen as ways of intentionally harming others (Crick, *et al.*, 1996). But they appear to be used more by girls than boys (Björkqvist, Lagerspetz, & Kaukiainen, 1992a; Crick & Grotpeter, 1995; Olweus, 1994), and show different developmental trends from physical aggression (Lagerspetz & Björkqvist, 1994; Olweus, 1994). Many researchers now agree that aggression or victimisation can be relational or indirect (e.g., Alsaker, 1997; Cross & Madson, 1997; Kochenderfer & Ladd, 1996a; Matsui, *et al.*, 1996; Olweus, 1996; Rigby, 1996; Rys & Bear, 1997; Slee, 1995b; Smith & Sharp, 1994; Smith & Levan, 1995), and so it would be unwise to restrict the present study to traditional forms of physical and verbal victimisation.

Divergent opinions on distinguishing the forms of victimisation

Different researchers have distinguished among these forms of aggression or victimisation in different ways. Olweus (1993a, p10) defined **direct bullying** as characterised by "relatively open attacks on the victim", and **indirect bullying** as "social isolation and intentional exclusion from a group". This pair of definitions is conceptually untidy, because

the first suggests that Olweus made a quantitative distinction (of *relative* openness) between these two types of bullying, while the second implies that he made a qualitative distinction between them. Smith and his colleagues (e.g. Boulton & Underwood, 1992; Genta, Menesini, Fonzi, Costabile, & Smith, 1996; Rivers & Smith, 1994; Sharp, 1995; Whitney & Smith, 1993), drawing on Olweus's work, further distinguished among **physical** bullying (e.g., hitting) and (**direct**) **verbal** bullying (e.g., name-calling) as well as indirect bullying. Their definition of indirect bullying, as including ostracism and rumour-spreading, was not the same as Olweus's (Rivers & Smith, 1994).

More extensive studies of the distinctions among different forms of aggression have been carried out by Björkqvist and Crick and their colleagues. Björkqvist and his colleagues (e.g., Björkqvist, *et al.*, 1992a; Österman, *et al.*, 1994) distinguished among direct physical, direct verbal, and indirect aggression, in a different way from Olweus and Smith and their colleagues. Indirect aggression is defined (e.g. Björkqvist, 1994; Björkqvist & Niemelä, 1992; Lagerspetz & Björkqvist, 1994) as aggression which is enacted through a third party or so that the aggressor cannot be identified by the victim. The aggressor manipulates the social structure of a class in order to harm a target. Examples include, "shuts the other out of the group, becomes friends with another as revenge, ignores, gossips, tells bad or false stories, plans secretly to bother the other" (Österman, *et al.*, 1994, p415). Direct physical victimisation is defined operationally as, "hits, kicks, trips, shoves, takes things, pushes, and pulls"; examples of direct verbal aggression are "yells, insults, says (s)he is going to hurt the other, calls the other names, and teases" (*ibid*).

Crick (1995; Crick, *et al.*, 1996; Crick & Grotpeter, 1995) and her colleagues have

distinguished overt and relational aggression. In these papers, relational aggression is typically defined as behaviour which causes, or threatens to cause, damage to peers' relationships. Examples given include "threatening to withdraw friendship in order to get one's own way or using social exclusion as a form of retaliation" (Crick, *et al.*, 1996, p1003). Overt aggression is defined as behaviour which causes, or threatens to cause, physical damage, "e.g. pushing, hitting, kicking, or threatening to beat up a peer" (Crick, 1995, p313).¹

There are similarities among indirect aggression, relational aggression, and indirect bullying. According to Smith and colleagues (Rivers & Smith, 1994; Sharp, 1995), indirect bullying comprises both social exclusion and covert aggression, and according to Olweus (1994) it consists of social exclusion. To some extent, both indirect and relational aggression entail social exclusion, covert (or non-overt) aggression, and the manipulation of social relationships (Crick, 1995; Österman, *et al.*, 1994).

But Björkqvist's concept of indirect aggression and Crick's of relational aggression are fundamentally different (as acknowledged by N. Crick, personal communication, April 1997). Indirect aggression is seen primarily as behaviour which targets a victim covertly,

¹In some of Crick's studies (including Crick & Bigbee, in press), the operational definition of overt victimisation included items which might be described elsewhere as indexing "direct" verbal victimisation. The items were, "Gets yelled at", included in the peer-reported overt victimisation scale, and, "A kid threatens to beat them up unless they do what the kid says," included in the self-report overt victimisation scale. Although both items involve an aggressor speaking to a victim, one appears a particularly violent form of verbal abuse, and the second entails a threat of physical abuse - in other words, these are not prototypical examples of verbal aggression in the same sense as name-calling. Neither item was included in the self-report overt victimisation scale used by Crick and Grotpeter (1996), because each loaded on both the overt and the relational victimisation factors of a rotated principal components analysis solution. In general, prototypical forms of verbal victimisation (such as name-calling and teasing) have not been assessed in Crick's research (N. Crick, personal communication, April 1997).

so that (s)he cannot identify the aggressor. Relational aggression is seen primarily as behaviour which damages a victim's social relationships. Indirect aggression is considered a manifestation of the social intelligence of the aggressors (Björkqvist, Österman, & Kaukiainen, 1992b). Relational aggression is considered an effective means of harming its victims (Crick, 1995). Relational aggressors aim to manipulate and damage a victim's social relationships, and may attack them overtly, or anonymously through a third party. Indirect aggressors manipulate social structure to harm the victim, but it is not necessarily the victim's social relationships that they are supposed to affect. Thus indirect and relational aggression may overlap, but they are not identical.

Their differences are illustrated in the items used to measure indirect and relational aggression. Björkqvist's papers show a clear emphasis on covert aggression - e.g. "plans secretly to bother the other"; "writes notes in which the other is criticised"; "tries to get others to dislike the person"; "tells the other one's secrets to a third person" (Österman, *et al.*, 1994). All of these are, at least implicitly, done behind the victim's back. The last two examples may damage the victim's peer relationships, but it is not clear that the first two would. Examples of items in Crick's relational aggression scales (from Crick & Grotpeter, 1995) include, "when mad, gets even by keeping the person from being in their group of friends"; "tries to keep certain people from being in their group during activity or play time"; "when mad at a person, ignores them or stops talking to them"; and, "tells friends they will stop liking them unless friends do what they say". All of these entail damage (or the threat of it) to the victim's peer relationships - the friend is excluded from a peer group or activity, or from a dyadic relationship, or threatened with rejection. It is not clear that any of these examples imply that the aggressive behaviour is necessarily

covert; in fact, the fourth item is explicitly overt, in that the aggressor delivers a threat directly to "friends" who are the victims. No wonder that Crick and Grotpeter (1995, p711) felt Björkqvist's research group "confounded relational aggression with nonverbal aggression" - it might equally be argued that Crick's group confounded overt with covert aggression. Crick's and Björkqvist's groups have been measuring related, but distinct, forms of aggression.

Olweus's concept of indirect bullying is based on intentional exclusion, which is not necessarily covert but does harm victims' relationships (by excluding them). As such, Olweus's indirect bullying is closer to Crick's relational aggression than to Björkqvist's indirect aggression. Smith's measure of indirect bullying is perhaps split between Björkqvist's indirect and Crick's relational aggression. Spreading rumours is clearly covert, but may not necessarily damage relationships; it may, for instance, lead to overt name-calling by children who were not the victim's friends to start with. Conversely, if victims report that no-one will talk to them, their peer relationships are clearly damaged in that they are socially isolated; but it does not necessarily follow that one aggressor, or a single group of aggressors, organised their peers so that they would not talk to the victims.

Björkqvist's indirect aggression will be referred to henceforth as **covert aggression**, because it is so different from indirect bullying as referred to by Olweus and Smith. Covert aggression, then, is aggression which is enacted in such a way that the victim cannot identify the aggressor (usually through a third party). Its logical antonym, overt aggression, is aggressive behaviour which is not enacted through a third party, but aimed directly by the aggressor at the victim. Overt aggression in this sense is reminiscent of Olweus's

(1993a) concept of direct bullying (involving "relatively open attacks"). It is not the same as the type of overt aggression described by Crick (1995), which will be referred to henceforth as physical aggression (see also note 1).

Issues to be resolved in the distinction among different forms of victimisation

Olweus's and Smith's systems for distinguishing types of victimisation are not without their weaknesses: Olweus's appears to confound qualitative and quantitative distinctions; and Smith's confounds relational and covert victimisation. More suitable ways of distinguishing among forms of victimisation might be those outlined by Crick and Björkqvist and their colleagues. But there are at least four issues which remain unresolved by this conclusion.

(1) It is not clear whether distinctions which have been made primarily among types of *aggression* are also relevant for research on *victimisation*. Crick and Björkqvist's work is largely based on distinctions among forms of aggression (e.g., Björkqvist, 1994; Björkqvist, *et al.*, 1992a, 1992b; Crick, 1995, 1996, 1997; Crick, *et al.*, 1996; Crick, *et al.*, 1997; Crick & Grotpeter, 1995, 1997; Crick & Wellman, 1997; Grotpeter & Crick, 1996; Lagerspetz & Björkqvist, 1994; Lagerspetz, Björkqvist, & Peltonen, 1988; Österman, *et al.*, 1994; Wellman, 1997), although it has been extended to distinguish among corresponding forms of victimisation (Crick & Bigbee, in press; Crick & Grotpeter, 1996; Grotpeter & Nukulij, 1997; Ku, 1997; Österman, *et al.*, 1994). This thesis is concerned with the maladjustment of victims, and should distinguish among types of victimisation which are distinct in the experiences of victims.

(2) Previous research has not clarified the nature of "direct verbal" victimisation. The work of Crick and Björkqvist suggests a way of characterising covert victimisation, as being harmed by an unidentifiable aggressor (Björkqvist, 1994), and physical victimisation, as being harmed or threatened physically, and relational victimisation as involving harm or threat to relationships (Crick, 1995). These definitions reduce ambiguity when decisions are to be made about the category to which different examples of victimisation should belong. But what is the nature of harm in name-calling, teasing, and related forms of aggression (such as non-verbal ridicule)? The clearest way it has been defined is as direct verbal bullying or aggression (Björkqvist, *et al.*, 1992a; Rivers & Smith, 1994). The "verbal" aspect of this form of aggression distinguishes it from aggression in which there is physical contact, but does not clarify how to classify related forms of aggression which are not literally verbal (e.g., dirty looks, winks and nods, non-verbal ridicule). The "direct" tag is probably derived from Olweus's (1993a) designation of direct bullying as consisting of *relatively* open attacks (i.e., relative to less open attacks), and so is based on a quantitative distinction. Smith's and Björkqvist's definitions of direct verbal bullying or aggression are based on collections of items, and do not allow unambiguous classification of aggressive behaviour or experiences of victimisation. This thesis presents a new and less ambiguous definition of the form of victimisation which has been labelled as direct and verbal.

(3) While it seems important to assess physical and direct verbal victimisation, it is not clear whether relational or covert victimisation is more important to assess alongside physical and verbal victimisation - or whether both should be assessed. Which form of victimisation has the more severe implications for victims?

(4) The types of aggression considered here need not meet the criteria of bullying behaviour. But if victimisation research is to have any relevance for anti-bullying work, then there are advantages in accounting for some aspects of bully-victim relationships, such as the issue of a power imbalance between bully and victim. Schuster (1996) argued that most previous research on victims of "bullying" has not taken account of the power imbalance. Is there any way that measures of different forms of victimisation can take it into account, without necessitating a narrower definition of victimisation?

These issues will be resolved by drawing on social rank theory (Gilbert, 1992). Social rank theory was developed outside the field of children's peer relations, in an evolutionary and adult psychopathological context, by Gardner (1982), Gilbert (1990, 1992, 1993, 1994, 1997), J. Price (1972, 1988), and their colleagues (Gilbert & Lang, 1994; Lang & Gilbert, 1994; Price & Gardner, 1995; Price, Sloman, Gardner, Gilbert, & Rohde, 1994; Sloman, Price, Gilbert, & Gardner, 1994). There are four main reasons why it offers a rich context for interpreting victimisation experiences and explaining their relationship to socioemotional maladjustment. These have to do with the type of etiological model proposed by social rank theory (*transactional*); the type of maladjustment implicated (*depression* and related problems); the two social outcomes which are seen as causing emotional maladjustment (*powerlessness* and a *lack of belonging*); and the two modes of social interaction in which it is seen as operating (*agonic* and *hedonic* mode). Only after each of these features of social rank theory has been explained, will it be possible to explain why and how it can be used to distinguish among the different forms of victimisation which will be assessed in this thesis.

1.3. Types of etiological models of victims' distress

Social rank theory is useful first because it is a transactional model of the association between interpersonal relationship problems and intrapersonal maladjustment. Transactional models are the most complex of four alternative kinds of etiological models which were outlined by Parker, Rubin, J.M. Price, and DeRosier (1995), as a framework for thinking about the processes by which peer rejection comes to be associated with deviant outcomes. Parker, *et al.* suggested that this framework was implicit in, or useful for guiding, research into the adjustment correlates (contemporaneous and longitudinal) of a variety of peer relationship variables. In the present work it is applied to peer victimisation for the first time.

The types of models suggested by Parker and colleagues differed essentially in terms of the nature of environmental and genetic influences on the development of psychopathology. The first two classes of model (see also Parker & Asher, 1987) were termed, "simple main effects models", because in each of them there is a main effect (in a statistical sense) of either genetic or environmental variables on maladjustment.

In the first of these, the **simple causal model**, environmental factors have a main effect on maladjustment. Specifically, according to Parker, *et al.*, being rejected by peers (i.e., an experience of a negative *environment*) directly causes a maladjusted outcome for the rejected child. There is room for genetic factors in this model, as maladaptive behaviour (such as aggressiveness or social withdrawal) is seen as a cause of peer rejection (Parker & Asher, 1987; Parker, *et al.*, 1995). But it is only peer rejection which has a direct effect on later psychopathology.

In the second main effects model, termed the **simple incidental model**, genetic factors have a direct effect on the development of psychopathology. The example used by Parker and Asher (1987) was a model in which an underlying (inherited) disturbance is manifest first as maladaptive behaviour, and later as psychopathology which leads to a deviant outcome (such as dropping out of school early, or delinquency). In this model, as in the simple causal model, maladaptive behaviour leads to peer rejection, but peer rejection does not itself cause a deviant outcome. Hence the relationship between peer rejection and later psychopathology in this model is merely incidental.

How would these main effects models appear if applied to peer victimisation rather than peer rejection? In a simple causal model, victimisation would lead a child to become maladjusted, even if he or she were not disturbed before being bullied. In a simple incidental model, an underlying disturbed temperament in a child would tend to lead to victimisation, and to maladjustment which would occur even if victimisation did not. Simple causal and simple incidental models of this type have been contrasted by several authors (Boulton & Smith, 1994; Slee & Rigby, 1993a, 1994; Williams, Chambers, Logan, & Robinson, 1996) as alternative explanations for the maladjustment of victims. For instance, Boulton and Smith (1994, p325) wrote

It is widely claimed that a consequence of being a victim is low self-esteem, and we found some evidence to support this view...it remains possible that low self-esteem predates victimization.

The other two classes of etiological model outlined by Parker, *et al.* (1995) are more

complex than the simple main effects models. In **interactional models**, maladjusted outcomes are caused by an interaction (in a statistical sense) of genetic and environmental factors. Typical examples, according to Parker, *et al.*, are diathesis-stress models (e.g., Champion & Power, 1995; Lovell, 1994). In these models, psychopathology develops through a conjunction of genetic vulnerability with environmental stressors. An example of this kind of model applied to victimisation was provided in Sharp's (1996) suggestion that the negative effects of victimisation are restricted to those children who are not resilient to being bullied.

Parker, *et al.* (1995) argued that both simple main effects and interactional models fail to convey the complexity of the true relationship between peer relationship problems and psychopathology. They suggested that a more fruitful way of thinking about peer relationships and maladjustment is to use a **transactional model**. Transactional models were proposed originally by Sameroff (e.g., Sameroff, 1987, 1997), who contended that adaptive and maladaptive outcomes develop as a consequence of the mutual influence of environmental and temperamental factors on each other. In the type of transactional model outlined by Parker, *et al.*, factors in the child predispose him or her to develop maladaptive behaviour, peer relationship problems, and maladaptive cognitions about the self and others. Experiences of peer relationship problems reinforce the negative cognitions; negative cognitions reinforce maladaptive behaviour; and maladaptive behaviour leads to greater peer relationship problems. Thus all three domains of the child's behaviour and cognitions, and peers' behaviour, are caught up in a cycle which reinforces them over time, and eventually leads to maladaptive outcomes in affect, cognition, and behaviour.

Peer victimisation has hitherto not been identified explicitly as a variable in a transactional model. But a transactional model of the relationship between victimisation and maladjustment would probably resemble the following hypothetical model, or similar hypothetical models proposed by Besag (1989), Matsui, *et al.* (1996), O'Moore and Hillery (1991), and Smith, Bowers, Binney, and Cowie (1993).

...victimized children may be caught in a self-perpetuating cycle in which: (a) maltreatment leads to emotional difficulties for the victim, (b) the resultant distress that the child experiences makes peers believe that he or she is an easy mark, (c) the peers' views of the child result in heightened levels of victimization, and (d) the child's distress is exacerbated, etc.

Transactional models were seen by Parker, *et al.* (1995) as the class of models most likely to describe accurately the association of deviant outcomes with peer relationship difficulties. Others in the peer relations field have reached similar conclusions, and devised transactional models to explain how peer relationship difficulties can lead to maladjustment (e.g., Crick & Dodge, 1994; Rubin, LeMare, & Lollis, 1990). Transactional models are also commonly found in the clinical psychological literature as explanations of the relationship of internalising problems (particularly depression) with genetic and social psychological factors (e.g., Coyne, 1976; Gilbert, 1992; Gotlib & Whiffen, 1991; Hammen, 1992; Sameroff, 1987). As social psychological variables form a part of all of these models, all of them could be applied to peer victimisation. But one of them, social rank

theory (Gilbert, 1992), holds special relevance for study of the adjustment of victims, for the additional reasons mentioned at the end of section 1.2, and elaborated in the remainder of this chapter.

1.4. Social rank theory: Involuntary subordination

Social rank theory is primarily a theory about the etiology of depression (Gilbert, 1992; J. Price, 1972; J. Price, *et al.*, 1994). Social rank theorists have proposed that two aspects of social interaction, whose developmental significance has been discussed also by other authors (Birtchnell, 1996; Harris, 1995; Wolman, 1982), relate to the development of depression. These are what Gilbert (1992) called power and belonging. Power is discussed in this section.

Gilbert (1992) was interested in "why depression was possible as part of the human experience" (*pxii*). He and his colleagues argue that depressive behaviour and thought patterns are essentially the "miscarriage" (Sloman, *et al.*, 1994, p403) of what they call involuntary subordination, an evolved behaviour pattern that at one time was adaptive for members of primate groups. The involuntary subordinate strategy (ISS), according to social rank theorists, is the automatic (hence involuntary) behavioural response given by the weaker animal in a dominance struggle when it submits to the stronger. It "prevents the [weaker] individual from attempting to make a 'come-back' by inhibiting aggressive behaviour...and creating a subjective sense of incapacity...signals 'no threat' to rivals...and...puts the individual into a 'giving up' state of mind which encourages acceptance of the outcome of competition and promotes behaviour which expresses voluntary yielding" (Price, *et al.*, 1994, pp309-310). This involuntary subordination of the

weaker animal continues until the dominant animal accepts the submission of the weaker one by engaging in affiliative behaviour. This is why social rank theorists see the ISS as adaptive. It does not last long, and weaker animals are allowed to stay within the group, thus preserving their chances of breeding and reducing their chances of predation (relative to their other option, which would be to flee the group; Gilbert, 1992, see p158).

However, sometimes the ISS does not succeed in evoking appropriate submission signals in the losing animal, or eliciting affiliative, non-aggressive behaviour from the winner. If in these circumstances the loser is human, "the involuntary subordinate strategy may become intense and prolonged and may be recognised as depressive illness" (Price, *et al.*, 1994, p310). It is this maintenance of involuntary subordination which makes social rank theory a transactional model. As long as the ISS fails to bring to an end the dominating behaviour of the winner, it is continually reactivated by that behaviour, and subordinate status and depressed mood are exacerbated.

applied a transactional model of this kind in a case study of an adolescent victim of verbal and relational bullying:

We see here how a shaming loop can develop. Thus, the "put-downs" led to negative social comparisons, which in turn led to inferior perceptions of herself...[which] subsequently led to inhibited relationships and withdrawal and finally to submissive behaviour...submissive behaviour in turn may lead to the risk of further put downs and shaming experiences, and so the process may continue.

This kind of ISS was adaptive at one stage in evolution, according to social rank theorists,

but has become maladaptive as powerlessness in humans. It is argued next that the behaviour of winners which serves to maintain losers' powerlessness, has much in common with bullying behaviour.

Involuntary subordination among victims

Gilbert (1992) mentioned several forms of powerlessness, one of which was powerlessness in social interactions. It will be argued that this is the main sense in which victims of physical, verbal, and covert aggression are powerless.

According to social rank theorists, powerlessness results from being on the receiving end of what they term "ranking behaviour", or "catathetic signals". Price (1988, p167) first proposed the term "catathetic" to describe signals that are exchanged...to reinforce dominance...the function of catathetic signals...is to put the other individual down, in the sense of making them yield..." Gilbert (1992, p161) described catathetic signals in the following terms.

Signals that are emitted with the purpose of reducing rank/status or maintaining a conspecific in a subordinate position can be called catathetic signals. These involve various signals of threat, put-down, or non-recognition of another's attempts to achieve status/respect...At a behavioural level catathetic signals relate to signals of punishment and signals of non-reward.

Social rank theorists have written little about peer aggression or victimisation, or about children's peer relationships at all. But some of their writings suggest that they see bullying as a way of asserting social rank, and victimisation as the experience of being

down-ranked. For example, Gilbert and Lang (1994) stated that, "Signals of social attractiveness come from...peers and when these are reduced or turn into ridicule or put down our mood and confidence can take a tumble" (p27). Price and Gardner (1995) suggested that people of low rank are distressed only when the person ranking above them is a bully, and further stated explicitly that catathetic signals consist of physical or verbal aggression. Gilbert (1993) expanded in this fashion on the type of behaviour he saw as capable of being used to exert social power:

In some situations we can try to exert control via boosting our own power at the expense of others...These often take the form of put-downs, or control interactions. Put(ing)-down signals can take various forms: *physical attacks and threats*, such as violence, ritualized aggression (shouting, screaming, intimidating); *verbal insults and symbolic threats*, such as criticism, sarcasm, jokes and condescending verbal and non-verbal behaviour; *neglect*, ignoring, not listening to or taking notice of, lack of interest; *removal of investment signals*, such as actual or threats to withdraw love/attention/support/help, etc.

Support for a link between aggression and dominance ranking behaviour can be found even more strongly in the literature on dominance relations in children. In this literature dominance has often been defined through observations of behaviour which could be regarded as actual or threatened physical or verbal aggression (Jones, 1984; LaFrenière & Charlesworth, 1983; Pettit, Bakshi, Dodge, & Coie, 1990; Savin-Williams, 1979; Sluckin, 1980; Strayer & Strayer, 1976). Dominance hierarchies have also been defined through agreement among boys about the rank order of their peers' perceived relative physical

strength, at least after the age of five (Boulton & Smith, 1990; Omark & Edelman, 1975; Pickert & Wall, 1981; Sluckin & Smith, 1977; c.f. Strayer, Strayer, & Chapeskie, 1980), and this agreement suggests that some physical conflict must have taken place so that there is a consensus about who is strongest. Given the strong similarity between aggressive and dominant behaviour, it is not surprising that empirical evidence suggests that victims dominate their peers less than other children do (Björkqvist, *et al.*, 1982; Boulton & Smith, 1994; Crick & Bigbee, in press; Dodge, J.M. Price, Coie, & Christopoulos, 1990; Graham & Juvonen, in press; Lang, 1994; Lowenstein, 1978; Schwartz, Dodge & Coie, 1993).

Thus physical aggression is a means of exerting dominance, as it reinforces or reduces the victim's low position in a dominance hierarchy. Verbal aggression (called put-downs in the work of social rank theorists), such as name-calling or teasing, may be seen as reinforcing low dominance rank to the extent that the victim is not able to retaliate successfully and end the teasing. Victims may be told that they are weak, stupid, fat, ugly, soft, boring or slow (Lang & Gilbert, 1994) - each of these can be seen as a put-down which is used to show them that they are less important, powerful, or well-regarded, than their aggressor. Victims of physical and verbal aggression are powerless, or less powerful than their aggressors. Thus these forms of aggression qualify, at least in part, as bullying (Besag, 1989; Farrington, 1993; Olweus, 1993a; Ross, 1996; Schuster, 1996; Smith, 1991) because of the powerlessness they create.

1.5. Agonic and hedonic modes

Social rank theorists have made a useful distinction between two types of social ranking,

which they see as used within different social structural modes.² One mode, called agonistic, is present in those primate groups in which "the control of social behaviour is via threat/aggression" (Gilbert, 1992, p158). Within such groups, ranking is determined by an individual's *resource holding potential* (RHP), which has been described as their "strength and fighting ability" (Gilbert, 1989, p44). In other words, power is determined in agonistic social groups through physical aggression and strength. It follows that physically weaker animals, or victims of physical aggression, have low RHP. Social rank theorists see self-assessments of RHP as the origin of the ISS (Price, *et al.*, 1994), and hence of depression. So victims of *physical* aggression in particular should be more depressed than non-victims, at least in the agonistic mode.

The second mode of social structure has been described as hedonic, and is seen as more characteristic of chimpanzee and human groups. In these groups social behaviour "tends to be relaxed and affectionate...much of chimpanzee behaviour cannot be understood as aggressive since, often, it does not result in submission or withdrawal, but rather leads to forms of associative behaviour such as grooming, play, alliance formation, joint exploration, foraging, sexual and mothering behaviour" (Gilbert, 1992, p188). Among humans, the hedonic mode offers opportunities for seeking *reassurance* from others, in the form of nonverbal and verbal signals of *approval* (for examples, see Gilbert, 1992, p191), and the essential reassurance signal is "to know that others find us attractive" (*ibid*, p192). Thus, in hedonic mode, status is not gained so much by resource-holding potential, as by the ability to draw others' attention favourably to ourselves, and to persuade them to invest in us. Gilbert (1992, 1997) called this ability Social Attention-Holding Power (SAHP).

²See Chance (1988) for an earlier description of agonistic and hedonic mode.

Gilbert (1997) has described put-downs as causing a loss of SAHP. It seems plausible that much verbal aggression represents, in his terms, an attack on SAHP. Children who are told that they are fat, stupid, boring, or horrible, by their peers surely are being told that they are unattractive to others, and their SAHP (at least as subjectively evaluated by them) would probably be reduced. It seems likely that covert aggression also attacks SAHP. For example, lying to get someone into trouble, or spreading rumours, are surely very effective in reducing a victim's power. Such behaviour would damage victims' reputations - their SAHP - and (especially if done covertly) would make it hard for victims to defend themselves, as they would not know what had been said about them and who had said it. Covert aggression could be used to attack RHP as well as SAHP, or to harm dominance relations within a group; for instance, rumours might conceivably be spread that a boy had been beaten up by his younger sister.

What is fairly clear is that, while attacks on RHP are physical, attacks on SAHP are not. It follows, the present author suggests, that physical victimisation should lead to lowered RHP, and that "direct" verbal, nonverbal, or covert victimisation should lead to lowered SAHP. Low SAHP activates the ISS just as much as low RHP does; "Estimates of favourable and unfavourable SAHP seem to function in a similar way to estimates of favourable and unfavourable RHP in other animals" (Gilbert, 1992, p195), and are equivalent to "involuntary, subordinate self-perception" (*ibid*, p218). Thus, given the assumptions of social rank theory, physical and (most) non-physical victimisation should activate different but converging pathways to depression.

Thus several forms of victimisation appear to be associated with the concept of power in

social rank theory. But there is one form of victimisation which surely is less conceptually close to the concept of power than to the concept of belonging, and that is relational victimisation. It is not clear that relational victims are *essentially* powerless *within* social relationships, as it is in the nature of relational victimisation that they do not belong to such relationships. On the other hand, it would be difficult to claim that relational aggression has nothing at all to do with power. For instance, relational aggression is likely to reduce a victim's friendships and alliances, leading to lowered RHP. Relational victims, who are consistently excluded from social interactions, have surely been shown as unable to attract others, to have low SAHP. And Gilbert (1993) saw neglect and the removal of investment in people as a form of put-down. Nevertheless, relational victimisation seems inherently a matter of *not belonging* - the aspect of social rank theory which is elaborated in the next section.

1.6. Belonging and the lack of belonging

Gilbert's ideas about power are more fully developed than his ideas about belonging, and the two concepts are not always clearly distinguished in his work. The concept of belonging can be fleshed out by drawing on the work of researchers outside the social rank field (e.g., Asher & Coie, 1990; Baumeister & Leary, 1995; Coyne, 1976; Hartup, 1996; Parker, *et al.*, 1995; Rubin, *et al.*, 1990). Nevertheless, Gilbert (1992, 1997) did explicitly distinguish power and belonging, and accorded them equal importance in the development of psychopathology. For instance, in a recent article he wrote that, "It is when someone feels inferior, loses status...or loses attractiveness and becomes rejected, marginalised, or *excluded from a group or relationships they wish to be in*, that is the usual source of shame" (Gilbert, 1997, p130, italics in original). Elsewhere he stated that, "much of what

we do, feel, and think is related to our experience of ourselves as being part of, or becoming an ingroup member and avoidance of being an outsider" (Gilbert, 1992, p181).

What does Gilbert mean by belongingness? He described it as "a sense of belonging, being part of a relationship, network, group or gang...". Conversely, people who do not belong see themselves as part of an outgroup rather than an ingroup: "We can see ourselves as different from others...being made an outsider, or not fitting in" (Gilbert, 1992, p472). Power ranking, according to Gilbert, is based on people's evaluations of being inferior or superior to others; belongingness is based on their evaluations of being similar to others or different from them.

Social rank theorists have not specified clearly how self-appraisals of a lack of belonging cause and maintain depression. Gilbert's writings suggest that belongingness is not linked to the ISS, RHP, or SAHP. Rather, belongingness evaluations are seen as having evolved separately from rank-based evaluations, "possibly...from kin selection" (Gilbert, 1992, p153) and not from ingroup power struggles. That is, a sense of belonging is an integral part of living in groups, and is present in the agonistic mode: "outgroups are often persecuted and victimised...Group living, therefore, runs parallel with the need to feel part of a group, supported by a group, and hence free from potential persecution" (*ibid*, p181). Since belongingness is about affiliation with others, it should be an even stronger issue in the hedonic mode of social interaction, because "the motive for affiliative relationships is much stronger in chimpanzees than in other non-human primates" (*ibid*, p188).

Other perspectives on belongingness

Baumeister and Leary (1995) have independently developed a fuller argument about belonging than Gilbert's (1992), suggesting that the "need to belong" is a fundamental human motive. That is, they said, "human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships" (Baumeister & Leary, 1995, p497). Part of their argument was based on their review of the ill effects of not belonging - or being deprived of social bonds. They concluded that being "rejected, excluded or ignored" (*ibid*, p508), or deprived of good relationships, results in a variety of aversive consequences for those to whom these experiences happen.

In etiological terms, Baumeister and Leary's (1995) theory was a simple causal one, though perhaps only because they did not speculate about the circumstances that lead someone to be excluded. A transactional model relating depression to the experience of social rejection was outlined by Coyne (1976). He argued that depressed people become trapped in a state in which they cannot receive messages about their social acceptance from others. Their depressed mood causes negative affect in others, who try to provide unrealistic assurance or promises of love and acceptance. The depressed person guesses or suspects that these promises are not meant, and that the other would really rather not continue to offer support. This perpetuates feelings of rejection in the depressed person, which in turn perpetuate the depressed mood.

There is empirical support for Coyne's model among adults (see Marcus & Nardone, 1992, for a review), and to some extent in children (Peterson, Mullins, & Ridley-Johnson, 1985). It seems likely that the process suggested by Coyne does not operate in the same way

among children, who are probably more frank than adults in their evaluation of peers. If *covert* rejection exacerbates depression among adults, how much more should the experience of *overt* relational victimisation among children!

Baumeister and Leary (1995) and Coyne (1976) argued that not belonging, or being rejected or deprived of social bonds, has damaging affective consequences. Themes of not belonging, or being an outsider, are also more evident than power themes in research on friendship (Hartup, 1996), social withdrawal (Rubin & Asendorpf, 1993), and peer rejection among children (Asher & Coie, 1990), although the latter is also negatively related to attractiveness and the holding of others' attention (Vaughn & Waters, 1981). Victims are more likely to be rejected by their peers (Alsaker, 1993; Boivin, *et al.*, 1995; Boulton & Smith, 1994; Crick & Grotpeter, 1996; Lagerspetz, *et al.*, 1982; Olweus, 1978; Perry, *et al.*, 1988; Ray, *et al.*, 1997; Slee & Rigby, 1993a), more socially withdrawn or isolated (Boivin, *et al.*, 1995; Boulton & Underwood, 1992; Rivers & Smith, 1994), and may have fewer or less satisfactory friendships (Bierman & McCauley, 1987; Slee & Rigby, 1993a; Vernberg, 1990) than non-victims. Peer rejection, social withdrawal, and a lack of good friendships, are all variables which predict later maladjustment (Boivin, *et al.*, 1995; Coie, *et al.*, 1992; Hartup, 1996; Hymel, Rubin, Rowden, & LeMare, 1990; Morison & Masten, 1991; Parker & Asher, 1987; Parker, *et al.*, 1995; Rubin, Hymel, & Mills, 1989). The types of models advocated by leading researchers to explain such results are transactional (Parker, *et al.*, 1995; Rubin, *et al.*, 1990).

Thus where social rank theory does not specify mechanisms, other theoretical and empirical work points to ways in which a lack of belonging is implicated in a transactional

model. Baumeister and Leary (1995) argued that depression can result from an unfulfilled fundamental need to belong. Coyne's (1976) theory suggests that depressed children may be unpleasant company and made not to belong as a consequence. Peer relations research is rife with themes of not belonging, which tend to be implicated in transactional models, or at least in predicting future maladjustment.

If relational victimisation is anything to do with social rank theory at all, it is surely to do with being an outsider, being excluded from a relationship, being made to feel that one is different or does not belong. Victims of relational aggression are described as excluded from peer activities - from games, conversations, parties, friendship (Crick, 1995, 1996; Crick, *et al.*, 1995; Crick & Grotpeter, 1995, 1996). Others do not invest (to use Gilbert's terms) in relational victims - their aggressors ignore them or show they dislike them, or try to get others to dislike them. It is not their power within social relationships which is attacked primarily, but the extent to which they belong. There are instances of physical, verbal, and covert aggression which could be used to exclude children, or might make them feel like outsiders. But in themselves they do not necessarily represent attacks on victims' relationships or sense of belonging. Relational aggression can be overt or covert (c.f. Crick & Grotpeter, 1996), verbal or non-verbal, non-physical or possibly even physical. In the present author's judgement, what sets it apart from other forms of aggression is that relational aggression inherently attacks a victim's sense of belonging.

1.7. Definitions of different forms of victimisation

Previous researchers' attempts to distinguish among different forms of victimisation failed to resolve four issues which were discussed at the end of section 1.2. These issues

concerned

- the appropriateness of classification systems based on distinctions among forms of aggression for research on the maladjustment of victims;
- the absence of a clear definition of direct verbal victimisation and related forms;
- the relative advantages of assessing relational or covert victimisation; and
- the apparent absence of themes of powerlessness in the measurement of victimisation.

The present author proposes to resolve these issues by applying social rank theory to the definition of victimisation, as follows. Victimisation is (as defined in section 1.1) the experience of being a target of peer aggression. Three forms of victimisation are distinguished in this thesis: physical victimisation, relational victimisation, and subordinal victimisation. Also given below are terms used to refer to combinations of these forms of victimisation in the thesis.

- **Physical victimisation** is considered as any form of victimisation in which there is (actual or threatened) physical contact with the victim. In social rank terms, physical victimisation involves an attack on RHP or physically-based social power or dominance relationships.
- **Relational victimisation** is any form of victimisation in which the victim's affiliative relationships (or belongingness, in social rank terms) are attacked or threatened.
- **Subordinal victimisation** is any form of victimisation in which the victim's attractiveness-based (and non-physical) social dominance relationships are attacked or threatened. Its name reflects the subordinating, or putting-down, nature of subordinal victimisation.

- Neither subordinal nor relational victimisation³ can overlap with physical victimisation, and so together they represent two forms of **psychological victimisation**.⁴
- Any other combination of two or more of these forms of victimisation will be referred to as **composite victimisation**.
- When procedures used to assess victimisation do not specify its form (e.g., Lagerspetz, *et al.*, 1982, asking about children who were *harassed*), they are referred to as assessing **generic victimisation**.

Examples of physical and relational victimisation are the same as those which have been used in past research with these terms. Physical aggression consists of behaviour such as hitting, kicking, or pushing victims, and also throwing at them objects which would potentially make physical contact with the victim. Relational aggression consists of behaviour such as refusing to talk to, play with, or be friends with victims, or excluding them from other relationships or activities. Subordinal aggression includes the kind of behaviour which has been traditionally called direct verbal aggression - name-calling, teasing, verbal put-downs. Subordinal aggression can also be non-verbal (including laughing or making faces at victims) or covert. Covert subordinal aggression would include spreading rumours, or writing anonymous letters, to defame victims. Persuading peers to refuse to talk to the victim (in his or her absence) would be an instance of covert relational

³It is logically possible for a child to be a victim of physical relational aggression (e.g., if physically chased or pushed out of a group), but such instances are probably rare and have not been measured in previous research, and so are not considered here. Subordinal victimisation, in contrast, is intended to include only those forms of rank-based victimisation which are not physical.

⁴The term *psychological* is not intended to imply the use of subtle "psychological" strategies of aggression by aggressors. It refers to the experience of the *victim* as being psychological rather than physical.

aggression.

Thus social rank theory resolves the issues outlined at the end of section 1.2. Social rank theory relates maladjustment to powerlessness and a lack of belonging, concepts which together appear to describe well the experience of victims. The distinctions among physical, subordinal, and relational victimisation are based on social rank theory, and so are relevant to a study of the adjustment correlates of victimisation. The definition of subordinal victimisation is based on the concept of attractiveness-based power in social rank theory, and reduces ambiguity inherent in previous definitions of direct verbal victimisation. Social rank theory suggests that in research on victims' adjustment, relational and non-relational forms of victimisation are more important to distinguish than overt and covert forms, because only the former dichotomy separates the concepts of power and belonging. Finally, the application of social rank theory shows that themes of low power are intrinsic to the definitions at least of physical and subordinal victimisation (in that victims have lower RHP or SAHP than their aggressors), just as they are in research definitions of bullying.

These are the distinctions among forms of victimisation which are employed throughout the remainder of the thesis. Three reviews of separate aspects of the victimisation-maladjustment literature follow. Each one has implications for the design of the materials, procedures, and data analyses carried out within the thesis. These literature reviews are treated as separate because each is concerned with distinct questions. Chapter Two concerns the nature of socioemotional maladjustment experienced by victims, and the extent to which it may be over-estimated when victimisation and maladjustment are

assessed by certain methods. Chapter Three concerns the nature of the etiological relationship between victimisation and maladjustment. Chapter Four concerns the maladjustment correlates of different forms of victimisation. They are followed by Chapter Five, which indicates how the original research in this thesis was designed to build on, and to overcome some of the limitations of, past research.

Chapter Two

Meta-analysis of victims' distress

Abstract

Social rank theory, other related theories, and empirical research on the adjustment correlates of other peer relationship problems suggest that victims of peer aggression may experience greater socioemotional maladjustment than non-victims. This chapter includes a meta-analytic review of published studies of the contemporaneous associations between victimisation and socioemotional maladjustment. Studies relating to five types of maladjustment variable - depression, loneliness, anxiety, and global and social self-esteem - are reviewed separately. Mean effect sizes are calculated for the association between victimisation and each type of maladjustment. The review also evaluates the adequacy of previous research designs, and the evidence for gender and age differences in the correlates of victimisation. Its results suggest that victimisation is most strongly related to depression, and least strongly related to anxiety. Effect sizes are stronger when the same informants are used to assess both victimisation and maladjustment than when different informants are used. It appears unlikely that age or gender moderate the relationship between composite victimisation and maladjustment. There are several limitations of previous research, most notably that the strong inter-relationships among socioemotional maladjustment variables have not been controlled when their relationships with victimisation have been investigated.

2.1. Introduction

Theoretical perspectives on the nature of victims' distress

Social rank theory concerns the role of powerlessness and a lack of belonging in the development of depression (Gilbert, 1992; Price, *et al.*, 1994). In the previous chapter it was argued that these two social psychological variables are central to children's experiences of victimisation. It follows that victims of peer aggression should experience greater depression than non-victims. A similar hypothesis is advocated by other theories which relate social psychological factors to depression (e.g., Baumeister & Leary, 1995; Coyne, 1976; Hammen, 1992; Gotlib & Whiffen, 1991). Other forms of maladjustment are also considered important in social rank theory and related theories. For example, Baumeister and Leary (1995) suggested that threats to social bonds can lead to anxiety, loneliness, jealousy or guilt, as well as depression. Gilbert (1990) saw social anxiety, shame, rage, and envy as caused by being down-ranked.

Empirical perspectives from peer relations research

Empirical research has shown that a number of maladjustment variables are associated with such peer relationship difficulties as submissiveness, social withdrawal, and peer rejection, which themselves are correlated with victimisation (e.g., Boivin, *et al.*, 1995; Boulton & Smith, 1994; Perry, *et al.*, 1988; Rigby & Slee, 1993a; Rivers & Smith, 1994; Schwartz, *et al.*, 1993). Prominent among these maladjustment variables are:

- loneliness (Asher, Hymel, & Renshaw, 1984; Boivin & Hymel, 1997; Parkhurst & Asher, 1992; Renshaw & Brown, 1993; Sletta, Valås, Skaalvik, & Søbstad, 1996);
- other forms of social psychological maladjustment (Hymel, *et al.*, 1990; Morison & Masten, 1991; Rubin, Chen, & Hymel, 1993; Rubin, *et al.*, 1989);

- depression (Boivin, *et al.*, 1995; Cole & Carpentieri, 1990; Cole & Jordan, 1995; Panak & Garber, 1992; Tesiny & Lefkowitz, 1982; Vosk, Forehand, Parker, & Rickard, 1982);
- anxiety (McCandless, Castaneda, & Palermo, 1956; Strauss, Lahey, Frick, Frame, & Hynd, 1988; Trent, 1957); and
- low self-esteem (Hymel, Woody, & Bowker, 1993; Rubin, *et al.*, 1989; Walker & Greene, 1986).

Internalising problems

The variables listed above are similar to at least some of those which Baumeister and Leary (1995) and Gilbert (1992) saw as important outcomes alongside depression in their work. Empirical studies show that these variables are strongly intercorrelated (e.g., Eason, Finch, Brasted, & Saylor, 1985; W.H. Jones, Rose, & Russell, 1990; Leary, 1990; Norvell, Brophy, & Finch, 1985; Perlman & Peplau, 1981; Reynolds, Anderson & Bartell, 1985; Russell, Cutrona, Rose, & Yurko, 1984; Sartorius, Üstün, Lecrubier, & Wittchen, 1996; M.S. Smith, Mitchell, McCauley, & Calderon, 1990; Solomon, Greenberg, & Pyszczynski, 1991; West, Kellner, & Moorewest, 1986). When they occur in children these types of variables have often been called, collectively, "**internalising problems**" (Bee, 1992; Coie, *et al.*, 1992; Hymel, *et al.*, 1990; Morison & Masten, 1991; Rubin, *et al.*, 1989), because they express deviant behaviour which is largely internal to the child. They are contrasted with externalising problems (such as hyperactivity, excessive aggressiveness, and delinquency), in which deviancy is directed outward (Bee, 1992). Alternative labels for internalising problems are: "overcontrolled" syndrome (Achenbach & Edelbrock, 1978); emotional disturbance (Rutter & Garmezzy, 1983); or socioemotional maladjustment (c.f. Rubin, *et al.*, 1993; present title). The phrase **socioemotional maladjustment** expresses

the more social psychological nature of some of the internalising problems - such as loneliness - and the more emotional nature of others - such as anxiety and depression.

Problems suffered by victims

Together these theoretical and empirical perspectives suggest that victims should suffer greater internalising problems (or socioemotional maladjustment), particularly greater depression, than non-victims. The empirical research reviewed in this chapter is concerned with contemporaneous differences in emotional and socioemotional experience between victims and non-victims. In the studies reviewed, the associations between victimisation and adjustment (referred to here as contemporaneous victimisation-maladjustment associations) have been measured by correlational methods, or by tests of differences between mean scores for victims, non-victims, and other groups.

The socioemotional maladjustment variables investigated here are: depressed mood, loneliness, low social and global self-esteem, and general and social anxiety. These are the principal forms of socioemotional maladjustment which have been investigated in previous studies. It is beyond the scope of this chapter to review additional studies of the association of victimisation with other measures which might be described as socioemotional maladjustment. This review will *not* include generalised measures of internalising problems (such as general maladjustment and inadequacy, as assessed by Olweus, 1978), non-social, non-general aspects of children's self-concepts (such as academic, physical, or behavioural self-competence, as assessed by Austin and Joseph, 1996), measures related mainly to school adjustment (such as school liking, as assessed by Kochenderfer & Ladd, 1996a), forms of adjustment which have rarely been studied

(such as self-restraint, measured by Crick & Bigbee, in press), or behaviourally-oriented measures of internalising problems (such as social withdrawal or submissiveness).

2.2. Methodological issues

Meta-analytic procedure

In recent years many studies of the relationship between victimisation and different forms of socioemotional maladjustment have been published. But there has not yet been a systematic or meta-analytic review of these studies, although many of them have often been listed as evidence of victims' distress (e.g., by Crick & Grotpeter, 1996; Farrington, 1993; Hodges & Perry, 1996; Kochenderfer & Ladd, 1996a; Schuster, 1996). Meta-analysis offers a quantitative method of summarising studies, and of evaluating the weight of evidence for conclusions about the association between victimisation and each form of maladjustment. Results are combined across studies, thus increasing the overall power of statistical testing (Rosenthal, 1984).

This meta-analysis followed the procedures outlined by Rosenthal (1984) and Strube (1985) for calculating effect sizes, based on Pearson's correlation coefficient (r), and standard normal deviates (Z -scores), for each study, and one-tailed probability values (as recommended by Rosenthal, 1984) for mean effect sizes. Full details of the procedure are given in Appendix I. The valence of negative r s and Z s was reversed when these indicated a negative relationship between victimisation and maladjustment. Thus, the effect sizes presented in Tables 2.2 to 2.6, which were all positive, represented a positive association between victimisation and maladjustment.

Criteria for inclusion of studies

The scope of the literature reviewed was limited to that published before the end of June 1997. Some other unpublished research (e.g., Alsaker, 1997; Crick & Bigbee, in press; Deasy & Hennessy, 1997; Graham & Juvonen, 1997; Haselager, 1997; Ku, 1997; MacDonald & O'Laughlin, 1997) was considered as supporting evidence for arguments, but effect sizes were calculated for published research only.

Source of informants and shared method variance

The informants who have been asked to make assessments of victimisation in the research reviewed here have included not only the children in the cohort (giving self-reports), but also their teachers, parents or peers. In some of the studies reviewed, victimisation and adjustment have been assessed by asking questions of the same informants; for instance, both have been assessed by self-reports (e.g., Crick & Grotpeter, 1996). In other studies, separate informants have been used to measure separate variables; for example, Boivin and Hymel (1997) assessed victimisation by peer-report and loneliness by self-report.

Victimisation has most commonly been assessed by self-report or peer-report (e.g., Anderson & Harrison, 1996; Austin & Joseph, 1996; Björkqvist, *et al.*, 1982; Boivin & Hymel, 1997; Boivin, *et al.*, 1995; Boulton & Smith, 1994; Callaghan & Joseph, 1995; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Graham & Juvonen, 1997; Haselager & Van Lieshout, 1992; Kochenderfer & Ladd, 1996a; Lagerspetz, *et al.*, 1982; Mynard & Joseph, 1997; Neary & Joseph, 1994; O'Moore & Hillery, 1991; Rigby & Slee, 1992; Sharp, 1996; Slee, 1994a, 1994b, 1995b, 1995c; Slee & Rigby, 1993b; Vernberg, 1990). Peer-reports and self-reports of victimisation are only moderately correlated (Crick &

Bigbee, in press; Graham & Juvonen, 1997; Gottheil, 1996; Haselager, 1997; Österman, *et al.*, 1994; Perry, *et al.*, 1988). Internalising problems are usually measured by self-report (e.g., Austin & Joseph, 1996; Björkqvist, *et al.*, 1982; Boivin & Hymel, 1997; Boivin, *et al.*, 1995; Boulton & Smith, 1994; Byrne, 1994; Callaghan & Joseph, 1995; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Graham & Juvonen, 1997; Kochenderfer & Ladd, 1996a; Lagerspetz, *et al.*, 1982; McDonald & O’Laughlin, 1997; Mynard & Joseph, 1997; Neary & Joseph, 1994; O’Moore & Hillery, 1991; Rigby & Slee, 1992; Sharp, 1996; Slee, 1994a, 1994b, 1995b, 1995c; Slee & Rigby, 1993b; Vernberg, 1990).

Recently several studies have compared the adjustment correlates of peer-assessed and self-assessed victimisation (Crick & Bigbee, in press; Graham & Juvonen, 1997, in press; Haselager, 1997). In these studies, self-reported victimisation was more strongly associated than peer-reported victimisation with self-reported maladjustment, and peer-reported victimisation was more strongly associated than self-reported victimisation with peer-reported maladjustment. In other words, effect sizes were larger when informants were the same than when they were different. To explain such findings the investigators proposed a variety of explanations, which will be discussed at an appropriate point. The most parsimonious explanation, and the most useful for present purposes, was suggested by Crick and Bigbee (in press) and Haselager (1997) and that is that the results are due to **shared method variance**.

When the same method is used to assess outcome and predictor variables, any resulting correlation between outcome and predictor could be explained partly by the fact that measurement variance is shared between the two variables (e.g., Olweus, 1993b). Thus, a

correlation between how unhappy children feel, and how victimised they say they are, may represent not so much the association between victimisation and unhappiness *per se*, as how children who have negative feelings about one aspect of their life tend also to have negative feelings about another aspect; or it may reflect the tendency of depressives to selectively recall negative events (c.f. Hammen & Glass, 1975). In contrast, a correlation between children's own feelings of unhappiness, and their degree of victimisation *as assessed by the reports of other informants* is not so open to such alternative interpretation. Other investigators in the field of peer relations have made similar points (e.g., Kupersmidt & Patterson, 1991), and recommended that outcome and predictor variables be assessed from different (or multiple) sources. When victimisation is assessed by different informants from those assessing adjustment, in the studies reviewed here, it is assumed that shared method variance has been avoided as an alternative explanation of significant results. Mean effect sizes are reported separately for studies in which the shared method variance explanation has, and has not, been avoided.

Measurement of victimisation

According to the definition adopted in this thesis, victimisation can take physical, subordinal, or relational forms. In most of the studies reviewed, these forms have not been assessed separately; rather, victimisation has been measured as a composite of two or more of these forms (Austin & Joseph, 1996; Björkqvist, *et al.*, 1982; Boivin & Hymel, 1997; Boivin, *et al.*, 1995; Boulton & Smith, 1994; Byrne, 1994; Callaghan & Joseph, 1995; Kochenderfer & Ladd, 1996a; Lagerspetz, *et al.*, 1982; Mynard & Joseph, 1997; Neary & Joseph, 1994; Olweus, 1978; O'Moore & Hillery, 1991; Rigby & Slee, 1992; Slee, 1994a, 1994b, 1995b, 1995c; Slee & Rigby, 1993b; Vernberg, 1990). When more than one form

of victimisation has been measured (Alsaker, 1993; Crick & Grotpeter, 1996), the mean effect size across both forms is reported in this meta-analysis. Physical and subordinal victimisation (or at least a form of victimisation approximating their definitions in section 1.7) have generally been included in the assessment of victimisation in the studies reviewed here. Assessments of victimisation have included relational victimisation in only four of the published studies reviewed (Alsaker, 1993; Crick & Grotpeter, 1996; Sharp, 1996; Boulton & Underwood, 1992, in which data for the calculation of effect sizes were not published). Additionally, in some studies (Björkqvist, *et al.*, 1982; Lagerspetz, *et al.*, 1982; Slee, 1994a) only a generic form of victimisation has been considered, without further specification of the types of victimisation that are meant; for instance, Lagerspetz, *et al.* (1982) asked children to nominate those of their peers who were "harassed". The studies reviewed here will be considered as methodologically more adequate to the extent that their measurements of victimisation comprise all three of its forms.

Sample characteristics

The victimisation-adjustment association has been investigated among an impressive variety of populations. Both boys and girls have been considered in most studies, although only girls were included in Neary and Joseph's (1994) study, and only boys in four studies (Deasy & Carr, 1997; Deasy & Hennessy, 1997; Olweus, 1978; Slee & Rigby, 1993b). The age range of children studied is also broad: it has included infant and preschool children (Alsaker, 1993; Kochenderfer & Ladd, 1996a; Ku, 1997), and adolescents (Alsaker, 1997; Björkqvist, *et al.*, 1982; Deasy & Hennessy, 1997; Lagerspetz, *et al.*, 1982; Olweus, 1978; Rigby & Slee, 1992; Slee, 1994a, 1995b; Vernberg, 1990). But most of the participants have been in their middle childhood (aged between eight and thirteen: Austin & Joseph,

1996; Boivin & Hymel, 1997; Boivin, *et al.*, 1995; Boulton & Smith, 1994; Callaghan & Joseph, 1995; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Deasy & Carr, 1997; Haselager, 1997; Haselager & Van Lieshout, 1992; Mynard & Joseph, 1997; Neary & Joseph, 1994; O'Moore & Hillery, 1991; Sharp, 1996; Slee, 1994b, 1995c; Slee & Rigby, 1993b). Participants have been drawn from a variety of countries, such as Australia (e.g., Rigby & Slee, 1992), French Canada (e.g., Boivin & Hymel, 1997), Ireland (e.g., O'Moore & Hillery, 1991), Finland (e.g., Björkqvist, *et al.*, 1982), the Netherlands (Haselager, 1997), Norway (Alsaker, 1993) and Switzerland (Alsaker, 1997), Sweden (Olweus, 1978), the U.S.A. (e.g., Crick & Grotpeter, 1996), and mainland Britain (Anderson & Harrison, 1996; Austin & Joseph, 1996; Boulton & Smith, 1994; Mynard & Joseph, 1997; Sharp, 1996). These countries are largely western, and Scandinavian or English-speaking.

2.3 Meta-analytic review

Overview and description of tables

Tables 2.2 to 2.5 summarise published studies of the relationship between victimisation and each of the internalising adjustment variables. Characteristics of the sample are displayed, including the age range (or mean age, if range was not available) of children studied; the number of participants contributing to the effect size; and (if participants were not both male and female) the gender of the participants. In the column labelled, "Victimisation measurement" is an indication of the type of informants used to assess victimisation (to the left of the colon), and the forms of victimisation assessed. These are indicated in abbreviated form, as shown in Table 2.1.

Letters to the left of the colon		Letters to the right of the colon	
Letter	Meaning	Letter	Meaning
S	= self-assessed victimisation	G	= generic victimisation
P	= peer-assessed victimisation	P	= physical victimisation
T	= teacher-assessed victimisation	S	= subordinal victimisation
Par	= parent-assessed victimisation	R	= relational victimisation
		?	= form cannot be determined from published description

The presence of shared method variance in each effect size calculation is indicated in the column labelled, "Shared method variance?" A "Yes" in this column indicates that there was shared method variance in the effect (for example, if both victimisation and maladjustment were assessed by self-report). A "No" indicates that there was no shared method variance (for example, if victimisation was assessed by peer-report, and maladjustment by self-report). In the final columns the effect size r , and the corresponding Z -score are reported. Mean effect sizes and their overall significance levels are printed at the bottom of each table, separately for studies with and without shared method variance. Significance levels are calculated from taking the mean of Z -scores, but are not given for individual Z -scores because it is the overall significance level which is of interest. They are one-tailed, as recommended by Rosenthal (1984).

Depression

Table 2.2: Published studies of the contemporaneous association between victimisation and depression

Study	Sample age & size	Victimisation measurement	Shared method variance?	<i>r</i>	<i>Z</i>
Björkqvist, <i>et al.</i> (1982)	age 14-16 <i>n</i> = 67	P: G	Yes	.38	2.33
Slee (1994a)	age 12-15 <i>n</i> = 363	S: G	Yes	.31	5.72
Slee (1995b)	aged 12-17 <i>n</i> = 220	S: GPS	Yes	.26	3.86
Slee (1995c)	mean age 10.9 <i>n</i> = 290	S: GPS	Yes	.51	8.60
Neary & Joseph (1994)	girls age 10-12 <i>n</i> = 60	S: GPS	No	.36	2.79
		P: G	Yes	.81	6.27
Callaghan & Joseph (1995)	age 10-12 <i>n</i> = 120 <i>n</i> = 63	S: GPS	No	.26	2.85
		P: G	Yes	.53	4.21
Austin & Joseph (1996)	age 8-11 <i>n</i> = 425	S: GPS	Yes	.39	7.93
Boivin, <i>et al.</i> (1995)	age 9-12 <i>n</i> = 567	P: GPS	No	.24	5.41
Vernberg (1990)	age 12-14 <i>n</i> = 73	S: GPS	Yes	.23	1.80
Crick & Grotpeter (1996)	age 8-12 <i>n</i> = 438	S: PR	Yes	.42	8.79
Mean effect sizes	Shared method variance			.45****	
	No shared method variance			.29****	
				**** <i>p</i> < .0001	

It is clear from the studies presented in Table 2.2 that victimisation is positively associated with depression. Mean effect sizes were significantly greater than zero ($p < .0001$), whether or not there was shared method variance. Victims of peer aggression tended to be more depressed than non-victims. Effect sizes were smaller when shared method variance was avoided than when it was not. When victimisation was assessed by peers, and depression by self-report, the mean effect size was $r = .29$, representing 8.4% shared variance. When both victimisation and depression were assessed by self-report, the mean effect size was $r = .45$ (20.3% shared variance). Nevertheless, victimisation and depression were clearly associated independently of shared method variance.

Similar findings have been made in research which is not summarised in Table 2.2, such as work which is currently unpublished (e.g., Alsaker, 1997; Haselager & Van Lieshout, 1992; Haselager, 1997; Ku, 1997; Kupersmidt, Voegler, Sigda, & Sedikides, 1997; McDonald & O'Laughlin, 1997; Pierce, 1990), or which used slightly different dependent measures. MacLeod and Morris (1996) reported that over 4% of a sample of children who called a bullying telephone helpline had expressed suicidal thoughts (although no comparison was made to the prevalence of suicidal thoughts in the normal population, or among callers to helplines which are not specifically targeted at victims of peer aggression). Rigby (1996) found that among secondary school children victims were twice as likely as non-victims to report suicidal thoughts and other symptoms of depression.¹ Other researchers have also found that victims rate themselves as generally less happy (Rigby & Slee, 1992; Williams, *et al.*, 1996), or less happy in a school context (Boulton

¹Rigby's (1996) work is published but he did not report total depression scores which would allow computation of effect sizes.

& Underwood, 1992; Slee, 1995a, 1995c; Slee & Rigby, 1993a) than non-victims. Unpublished data, and data concerning unhappiness and parasuicidality are not included in Table 2.2, as there was an abundance of studies which used well-validated measures of depression, such as the Children's Depression Inventory (Kovacs, 1992 - used by Boivin, *et al.*, 1995; and Crick & Grotpeter, 1996), the Depression Self-Rating Scale (Birlleson, 1981 - used by Austin & Joseph, 1996; Callaghan & Joseph, 1995; Neary & Joseph, 1994; and Slee, 1995c).

The major limitation of depression-victimisation research is in its measurement of victimisation. Only in four studies - three of them unpublished - of the association of victimisation with depression (Alsaker, 1997; Crick & Grotpeter, 1996; Ku, 1997; Kupersmidt, *et al.*, 1997) was relational victimisation assessed, and in none of those was subordinal victimisation included in any of the tests of the victimisation-depression association. Additionally, there are only two studies (Boivin, *et al.*, 1995; Pierce, 1990) in which more than one item has been used in peer-assessment of victimisation.

Loneliness

Fewer studies have been published in which loneliness was the dependent variable, and the mean effect size from published studies was smaller for loneliness than for depression. Nevertheless, it is clear from the studies presented in Table 2.3 that loneliness is positively associated with victimisation. Mean effect sizes were significantly greater than zero ($p < .0001$), whether or not shared method variance was avoided. The tendency was, again, for effects to be smaller when shared method variance was avoided (mean $r = .25$) than when it was not (mean $r = .32$). On average, loneliness and victimisation shared 6.3% of

variance when there was no shared method variance, and 10.2% of variance when there was shared method variance.

Table 2.3: Published studies of the contemporaneous association between victimisation and loneliness

Study	Sample	Victimisation measurement	Shared method variance?	<i>r</i>	<i>Z</i>
Kochenderfer & Ladd (1996a)	<i>n</i> = 200 age 5-6	S: GPS	Yes	.31	4.76
Crick & Grotpeter (1996)	<i>n</i> = 438 age 8-12	S: PR	Yes	.49	10.25
Boivin & Hymel (1997)	<i>n</i> = 793 age 8-10	P: GPS	No	.34	9.57
Alsaker (1993)	<i>n</i> = 120 age 6-7	SPTPar: PSR	No	.15	1.66
			Yes	.14	1.50
Mean effect sizes	Shared method variance			.32****	
	No shared method variance			.25****	

**** *p* < .0001

Thus, victims were more lonely than non-victims, irrespective of shared method variance. Similar conclusions have been drawn from other unpublished data, reported by Boulton and Underwood (1992), Kochenderfer and Ladd (1997a), Kupersmidt, *et al.* (1997), Slee and Rigby (1994), Crick and Bigbee (in press), and Graham and Juvonen (1997, in press), and can be drawn from an analysis of Boivin and Hymel's (1997) data with a smaller sample (Boivin, *et al.*, 1995). Most of the studies (Crick & Grotpeter, 1996; Graham & Juvonen, 1997; Boivin & Hymel, 1995; Slee & Rigby, 1994) employed a well-validated measure of loneliness - the Loneliness and Social Dissatisfaction Scale (Asher & Wheeler, 1985), or its equivalent for younger children (used by Kochenderfer & Ladd, 1996a). It is possible that other measures of loneliness are not so strongly correlated with victimisation (c.f.

effect sizes calculated from Alsaker's (1993) data). But this research is not limited to the same extent as the victimisation-depression research, as both Alsaker (1993), and Boulton and Underwood (1992) included relational and subordinal victimisation in their measures.

Anxiety and Social Anxiety

Several authors have asserted that victims are typically fearful and anxious (e.g. Besag, 1989; Olweus, 1993a; Rigby, 1996; Ross, 1996; Tattum & Tattum, 1992). In the literature it is fairly common to find victimisation positively correlated with some measure of social anxiety (e.g., Alsaker, 1993; Boulton & Smith, 1994; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Graham & Juvonen, 1997, in press; Haselager & Van Lieshout, 1992; Slee, 1994b), or with constructs which are similar but probably not quite the same as anxiety (e.g., a composite of anxiety and depression - Crick & Bigbee, in press; and Deasy & Hennessy, 1997; neuroticism - Byrne, 1994; Mynard & Joseph, 1997; and Slee & Rigby, 1994; or anxious self-concept - O'Moore & Hillery, 1991).

Studies of the relationship between victimisation and generalised anxiety are less common. In two separate studies, Slee (1994a, 1995b) found that victimisation was positively correlated with anxiety, measured as a subscale of a published health symptom checklist. Using the same items from this checklist (but not combining them in a single index of anxiety), Rigby (1996) also found more symptoms of anxiety among victims than non-victims. Olweus (1978) and Lagerspetz, *et al.* (1982) found that victimisation was positively correlated with unvalidated anxiety scales they devised themselves. In unpublished studies Pierce (1990) and Kupersmidt, *et al.* (1997) have also shown that anxiety was related to victimisation.

Table 2.4: Published studies of the contemporaneous association between victimisation and anxiety (continued on the next page)

Study	Sample	Victimisation measurement	Dependent measure	<i>r</i>	<i>Z</i>	Shared method variance?
<u>General anxiety</u>						
Olweus (1978)	boys age 13 <i>n</i> = 64	T: PS	Q-sort anxiety	.24	1.67	No
Lagerspetz, <i>et al.</i> (1982)	age 12-16 <i>n</i> = 239	P: G	Q-inventory anxiety	.18	2.78	No
Slee (1994a)	age 12-15 <i>n</i> = 363	S: G	anxiety scale of General Health Questionnaire	.29	5.53	Yes
Slee (1995b)	age 12-17 <i>n</i> = 220	S: GPS	anxiety scale of General Health Questionnaire	.20	2.97	Yes
Mean effect sizes for general anxiety		Shared method variance		.25****	<i>p</i> <.0001	
		No shared method variance		.21**	<i>p</i> <.01	

Table 2.4 (continued)

Study	Sample	Victimisation measurement	Dependent measure	<i>r</i>	<i>Z</i>	Shared method variance?
<u>Social anxiety</u>						
Boulton & Smith (1994)	age 8-10 <i>n</i> = 57	P: GPS	peer-assessed shyness	.17	1.28	Yes
Alsaker (1993)	age 6-7 <i>n</i> = 120	PSTPar: PSR	self-assessed fear of peers	.13	1.03	Yes
				.14	2.50	No
Slee (1994b)	age 9-13 <i>n</i> = 114	S: GPS	fear of negative evaluation	.40	4.27	Yes
			social avoidance	.25	2.67	Yes
Crick & Grotpeter (1996)	age 8-12 <i>n</i> = 438	S: PR	social anxiety	.26	5.44	Yes
			social avoidance	.30	6.28	Yes
Mean effect sizes for social anxiety		Shared method variance		.25****		<i>p</i> <.0001
		No shared method variance		.14**		<i>p</i> <.01
Mean effect sizes overall		Shared method variance		.25****		**** <i>p</i> <.0001
		No shared method variance		.19****		

The studies are summarised separately for social and general anxiety in Table 2.4. Given that peer victimisation is a social experience, one might expect it to be more strongly related to social than to general anxiety. The data in Table 2.4 do not support this hypothesis, as the mean effect sizes for social and general anxiety were barely different from one another. Victims were more generally and socially anxious than non-victims, independently of shared method variance. The effect sizes were smaller than for other internalising problems measures, although they were again clearly greater than zero ($p < .01$). Across studies in which there was shared method variance, victimisation shared 6.3% of its variance with both social and general anxiety. When there was no shared method variance, victimisation shared 4.3% of its variance with general anxiety and 2.0% of its variance with social anxiety.

There are relatively few of these studies in which validated measures of general anxiety have been employed, and in which the breadth of victimisation experience has been assessed. Two studies (Alsaker, 1993; Kupersmidt, *et al.*, 1997) measured physical, subordinal and relational victimisation, but used single items to assess either anxiety or some of these forms of victimisation.

General or global self-esteem

It is widely asserted in the bullying literature that victims have low self-esteem (e.g., by Olweus, 1993; Besag, 1989; Carter, 1993; Farrington, 1993; Perry *et al.*, 1992; Ross, 1996; Tattum & Herbert, 1993; Kochenderfer & Ladd, 1996a, 1996b; and Randall, 1996). This hypothesis has probably been tested more frequently than any other reviewed in the present

chapter. The studies summarised in Table 2.5 suggest that it is true, as do results from unpublished studies (e.g., Anderson & Harrison, 1996; Deasy & Carr, 1997; Deasy & Hennessy, 1997; Graham & Juvonen, 1997). Victimisation was correlated with low self-esteem, independently of shared method variance² (mean $r = .21$, $p < .0001$, representing 4.4% shared variance), and more so in studies in which shared method variance was not avoided (mean $r = .39$, $p < .0001$, 15.2% shared variance). One of the strengths of these results is that they have been demonstrated with a variety of different, widely used, and empirically validated self-esteem inventories. One of the limitations is that relational victimisation has only rarely been assessed (except by Alsaker, 1993; Deasy & Carr, 1997; and Sharp, 1996; and perhaps by Byrne, 1994, though it was not clear in his report whether or not he measured it). Another is that, when shared method variance has been avoided, only one item has been used to measure victimisation (except by Byrne, 1994).

²Shared method variance may have been an even greater problem in Table 2.5 than in Tables 2.2 to 2.4, because of the results of four studies by Joseph and his colleagues (Austin & Joseph, 1996; Callaghan & Joseph, 1995; Mynard & Joseph, 1997; Neary & Joseph, 1994). Neary and Joseph (1994) developed a self-report peer victimisation scale, which was immersed in Harter's (1985) Self-Perception Profile for Children (SPPFC) such that children were asked to respond to its items in the same way as they did to other items in the SPPFC. The same peer victimisation scale was used in the other work published by Joseph and colleagues. In other words, the methods of assessing victimisation and self-concept used by Joseph have even more in common than they do in other studies where both variables were self-assessed (such as Alsaker, 1993; Deasy & Hennessy, 1997; O'Moore & Hillery, 1991; Rigby & Slee, 1992; Sharp, 1996; Slee & Rigby, 1993b). Sure enough, in Joseph's work, there are high correlations among the subscales of the SPPFC, and also between these and his peer victimisation scale. The mean r across his four studies summarised in Table 2.5 was .46 for social self-concept, and .48 for global self-concept. In contrast, the mean r s for the other published studies in which there was shared method variance (Alsaker, 1993; O'Moore & Hillery, 1991; Rigby & Slee, 1992; Sharp, 1996; Slee & Rigby, 1993b) were .20 for social self-concept and .31 for global self-concept. All mean r s remained highly significant ($p < .0001$).

Social self-concept

Measures of children's social self-concept index the extent to which they see themselves as being socially competent, well-accepted by their peers, or having good social relationships. It has generally been found that victims tend to have negative self-concepts in the social domain (see the fifth column of Table 2.5; also unpublished studies: Anderson & Harrison, 1996; Deasy & Carr, 1997; Deasy & Hennessy, 1997). Again, this pattern has been shown with a variety of widely-used and validated instruments. The mean effect size for published studies with shared method variance was .35 (12.3% variance shared between victimisation and social self-esteem - but see note 2), and .23 for those without (5.3% variance shared between the variables); both were highly significant ($p < .0001$). Unfortunately, there is only one study (Deasy & Carr, 1997) which has suggested that low social self-esteem was related to a composite measure of victimisation which included relational victimisation. Deasy and Carr's study is unpublished and was restricted to boys aged between eleven and twelve.

Table 2.5: Published studies of the contemporaneous association between victimisation and global and social self-esteem
(continued on the next page)

Study	Sample	Victimisation measurement	Shared method variance?	Social self-concept		Global/general self-concept	
				<i>r</i>	<i>Z</i>	<i>r</i>	<i>Z</i>
Boulton & Smith (1994)	age 8-10 <i>n</i> = 76	P: GPS	No	.07	.59	.17	1.51
O'Moore & Hillery (1991)	age 7-13 <i>n</i> = 783	S: G	Yes	.14	3.92	.12	3.36
Olweus (1978)	boys age 13 <i>n</i> = 64	T: PS	No	-	-	.26	2.08
Lagerspetz et al. (1982)	age 12-16 <i>n</i> = 239	P: G	No	-	-	.17	2.63
Slee & Rigby (1993b)	boys age 7-13 <i>n</i> = 87	S: GPS	Yes	.26	2.43	.52	4.85
Byrne (1994)	primary & secondary school age <i>n</i> = 177	TP: PS?	No	-	-	.23	3.00
Sharp (1996)	age 11-12 <i>n</i> = 377	S: PSR	Yes	-	-	.41	7.96
Rigby & Slee (1992)	age 12-18 <i>n</i> = 810	S: GPS	Yes	-	-	.22	6.26

Table 2.5 (continued)

Study	Sample	Victimisation measurement	Shared method variance?	Social self-concept		Global/general self-concept	
				<i>r</i>	<i>Z</i>	<i>r</i>	<i>Z</i>
Austin & Joseph (1996)	age 8-11 <i>n</i> = 425	S: GPS	Yes	.39	9.54	.38	7.70
Mynard & Joseph (1997)	age 8-13 <i>n</i> = 179	S: GPS	Yes	.52	6.96	.45	6.02
Callaghan & Joseph (1995)	age 10-12 <i>n</i> = 120 <i>n</i> = 63	S: GPS	Yes	.49	5.37	.55	4.26
		P: G	No	.23	1.83	.38	2.94
Neary & Joseph (1994)	girls age 10-12 <i>n</i> = 60	S: GPS	Yes	.43	3.33	.53	4.11
		P: G	No	.34	2.63	.22	1.70
Boivin & Hymel (1997)	age 8-10 <i>n</i> = 793	P: GPS	No	.26	7.32	-	-
Vernberg (1990)	age 12-14 <i>n</i> = 73	S: GPS	Yes	.19	1.47	-	-
Alsaker (1993)	age 6-7 <i>n</i> = 120	PSTPar: PSR	Yes	-	-	.24	5.13
			No	-	-	.03	1.75
Mean effect sizes	Shared method variance			.35****		.39****	
	No shared method variance			.23****		.21****	

**** $p < .0001$

2.4. Gender and developmental effects

Controlling for age and sex

Gender and age are often correlated with victimisation (Farrington, 1993), and sometimes with internalising problems (e.g., Barrios & Hartmann, 1988; Kazdin, 1988). It is plausible that some victimisation-adjustment effects are inflated by the influence of sex or age. The possible biasing effect of these demographic variables can be eliminated by including them as independent variables in statistical analyses, as Rigby and Slee (1992) noted. Unfortunately, this was not done in most of the studies reviewed in the present chapter. The effect of gender on dependent variables has been statistically controlled in five studies (Anderson & Harrison, 1996; Boivin & Hymel, 1997; Graham & Juvonen, 1997; Pierce, 1990; Rigby & Slee, 1992), and the effect of age in eight, mostly by the same authors (Pierce, 1990; Rigby & Slee, 1992; Slee & Rigby, 1993a; Slee, 1994a, 1994b, 1995a, 1995b, 1995c).

Sex differences

When victims have been asked to report the effects of bullying, researchers have generally found that female victims report greater distress than male victims (e.g., Anderson & Harrison, 1996; Crick, 1995 - though only for relational victimisation; Hoover, Oliver & Hazler, 1992; Sharp, 1995). Similarly, Balding, Regis, Wise, and Bish (1996) found that secondary school girls were more afraid of being bullied than secondary school boys. One might hypothesise from these results that victimisation is more strongly correlated with maladjustment in girls than in boys. This hypothesis, effectively, is that sex is a moderator of the association between victimisation and adjustment. It would be demonstrated by showing a statistical interaction effect (c.f. Baron & Kenny, 1986) of sex and victimisation

on internalising adjustment.

However, studies have generally failed to find such an interaction effect. Pierce (1990) found no interaction of victimisation with sex in predicting depression or anxiety. Neither did Anderson and Harrison (1996) or Boulton and Smith (1994) find such an interaction effect on social or global self-esteem. Graham & Juvonen (1997) found an interaction effect on social anxiety, but inspection of simple effects did not reveal any overall difference, for only one sex and not the other, between victims and non-victims. They found no interaction effect on loneliness or global self-worth. Kochenderfer and Ladd (1996a), and Boivin, *et al.* (1995) both included gender-by-victimisation interaction terms in their longitudinal analyses, and found no evidence that they were significant for any of the dependent variables (which included loneliness and depression). It is possible that, in studies of the reported effects of bullying, girls have been more willing to admit that they were distressed by bullying than boys. In contrast, when victimisation and adjustment have been assessed separately, it is possible that victimisation-maladjustment correlations have not been affected by a gender bias in the same way.

Age differences

The moderating effect of age has only been examined by Pierce (1990), who found that participants' age did not interact with victimisation to predict contemporaneous depression or anxiety.

2.5. Summary and conclusions

This chapter reviewed previous research into concurrent associations between peer victimisation and socioemotional adjustment. The research strongly suggests that victims of peer aggression experience more negative affect, and negative thoughts about themselves, than other children. The strength of previous research is in the number of studies which have been carried out, using a variety of methods and with participants drawn from diverse populations.

Table 2.6: Summary of published studies of the associations between victimisation and socioemotional maladjustment: Mean effect sizes (*rs*)

Dependent variable	for studies avoiding shared method variance	for studies not avoiding shared method variance
depression	.29	.45
loneliness	.25	.32
general self-esteem	.21	.39
social self-concept	.23	.38
social anxiety	.14 ⁺	.25
general anxiety	.21 ⁺	.25
anxiety overall (social & general)	.19	.25

⁺ $p < .01$; all other *rs* significant, $p < .0001$

This chapter included the first meta-analysis of the victimisation-maladjustment literature. Table 2.6 summarises the mean effect sizes for the published studies reviewed. Effect sizes were uniformly larger when there was shared method variance than when there was not. In other words, victimisation was more strongly correlated with internalising distress when both variables were assessed by asking the same informants (who were usually the

participants themselves), than when different informants were used to assess each variable. Although some have suggested that victims are typically anxious and have low self-esteem, the largest effect sizes were for depression, and the smallest for anxiety. Effect sizes for loneliness, and social and global or general self-esteem, were midway between these. Effect sizes for social and global self-esteem, in studies where there was shared method variance, may have been over-estimated because of the methods used by Joseph and colleagues to assess victimisation (see note 2). However, all mean effect sizes were significantly greater than zero, suggesting that victims are indeed more depressed, lonely, and generally and socially anxious, and have lower general and social self-esteem than non-victims. It has been assumed that shared method variance accounts for the larger effect sizes when the informants are the same than when they are different. Shared method variance is probably the most parsimonious explanation, because it does not imply that the different informants' reports represent different psychological entities. Other explanations for these effects have been suggested. For example, Crick and Bigbee (in press) and Haselager (1997) suggested that self- and peer-reports provide different, equally valid, types of information about victimisation. If this is true, it might be expected that both would be independently related to maladjustment when included together within the same statistical analysis. In this thesis these explanations will be investigated further as alternatives to the shared method variance hypothesis.

There is no evidence in the studies reviewed that either gender or age moderated the association between victimisation and adjustment. The possible moderating effect of age has only been investigated in one study, however (Pierce, 1990).

Limitations of previous research

Few previous studies have included relational victimisation, either in its own right (e.g., Alsaker, 1993; Crick & Grotpeter, 1996), or as part of an index of composite victimisation (e.g., Boulton & Underwood, 1992; Sharp, 1996). Even in some of those in which it was assessed, subordinal victimisation was not measured. It is possible that effect sizes have been exaggerated or under-estimated as a consequence.

No study using a well-validated measure of loneliness or anxiety has been carried out in Europe. While in several studies multiple items have been used in the self-assessment of victimisation, there is a shortage of studies which have used more than one item in peer-assessments of victimisation. Researchers have generally reported significance levels but not effect sizes.

Another major limitation of the literature is that all these internalising adjustment variables have been studied separately in terms of their associations with victimisation. But, as discussed in section 2.1, there are strong conceptual and empirical associations among different socioemotional maladjustment variables. Because of these strong associations, the extant literature on concurrent associations is limited in what it explains about the experience of victimisation, and the types of problems it is associated with. *The correlations of victimisation with all types of internalising problems considered in the present section has been investigated several times, but no-one has considered them together as predictors of contemporaneous victimisation.*³ *If one is to assess the type of*

³Pierce (1990) included both anxiety and depression in the same statistical analysis, but did not report effect sizes for each which controlled for their inter-correlation.

emotional maladjustment victimisation is most associated with, this is a serious omission.

It means that it is unclear whether victimisation is primarily related to children's negative thoughts about themselves and their lives (as indexed by depression or global self-concept scores) or socially-related concerns (loneliness, social dissatisfaction, or self-perceived unpopularity), or anxiety-related cognitions - or to some combination of these.

Implications

It is clear that, according to previous research, victims are socioemotionally less well-adjusted than non-victims. Two questions arise from this fact. The first is whether victims are at risk for later maladjustment. The second is how the contemporaneous association between victimisation and maladjustment can be explained in causal terms.

Chapter Three

Nature and causes of risk for victims

Abstract

Social rank theory predicts (1) that victims are at risk for future socioemotional maladjustment, and (2) that victimisation is both a cause and a consequence of maladjustment. The first prediction is supported by the results of longitudinal follow-up studies of victims, which have shown that victimisation was correlated with future distress. Prospective follow-up designs can be used to evaluate the alternative types of etiological model described in Chapter One, as explanations for the likely causal relationship between victimisation and maladjustment. Some prospective studies have supported the second prediction of social rank theory, by showing that victimisation led to increasing distress, and distress led to increasing victimisation. The results of other prospective studies are not so strongly suggestive of a transactional relationship between victimisation and maladjustment, but neither have they refuted it.

3.1. Introduction

In this chapter the literature is reviewed to discuss two questions: (1) to what extent are victims at risk for *future* maladjustment? and (2) what etiological model best accounts for the correlation between victimisation and maladjustment? Developmental risk is demonstrated to the extent that victims, at one time point, are shown to have greater maladjustment, at a later time point, than children who were not victims at the first time

point (c.f. Parker & Asher, 1987). Four types of etiological model were outlined in section 1.2 as potential explanations for the relationship between victimisation and maladjustment. Parker, *et al.* (1995), and Sameroff (1987), argued that transactional models probably provide the most accurate description of how peer relationship problems in general lead to maladjustment. In Chapter One it was argued that social rank theory, a transactional model (Gilbert, 1992), is an appropriate theory to apply to research into the etiological relationship of victimisation and socioemotional maladjustment. Several other models of the relationship between social psychological factors and internalising problems, in both the clinical and the peer relations literature, are also transactional (e.g., Coyne, 1976; Crick & Dodge, 1994; Gotlib & Whiffen, 1991; Hammen, 1992; Rubin, *et al.*, 1990). Diathesis-stress interactional models (e.g., Brown & Harris, 1978; Yanamoto, Soliman, Parsons, & Davies, 1987) can potentially be applied to victimisation and maladjustment (e.g., Sharp, 1996; Hodges & Perry, 1997). Victimisation researchers have sometimes advocated transactional models (e.g., Besag, 1989; Crick & Grotpeter, 1996; Matsui, *et al.*, 1996; O'Moore & Hillery, 1991; Smith, *et al.*, 1993), although some have advocated interactional models (e.g., Sharp, 1996), or apparently presented simple causal or incidental models as the only alternatives (e.g., Boulton & Smith, 1994; Williams, *et al.*, 1996). Parker and Asher (1987) suggested that, though implicit in much of the literature on aggression and peer rejection which they reviewed, these simple main effects models were probably too basic to be accurate. Broadly speaking, the weight of the theoretical, and empirical peer relations research is behind transactional models. But which sort of model is supported specifically by empirical research on the effects of peer aggression on its victims?

Research designs relevant to risk and cause

Four types of research design used in the previous literature might be considered relevant to this question:

(1) studies of the self-reported effects of victimisation (e.g., Mooney & Smith, 1995; Sharp, 1995), in which participants who say they have been bullied are asked to say how they felt at the time, or how it affected them;

(2) studies of the self-reported causes of maladjustment (e.g., Ambert, 1994; Reid, 1983), in which participants who are maladjusted in some way are asked to indicate what caused their distress;

(3) retrospective follow-back studies (e.g., Gilmartin, 1987; Matsui, *et al.*, 1996; see Parker & Asher, 1987 for a discussion of this type of design), in which adults who vary in their maladjustment are asked to report how frequently they were victims of peer aggression as children; and

(4) follow-up studies (e.g., Olweus, 1993b), in which victimisation is assessed at one time point, and used as a predictor of maladjustment at a later time point.

Space does not permit a full discussion of studies from all four categories, and only the studies with a follow-up design will be reviewed here, because they have the following advantages which are not shared by most or all of the other types of study.

- They can be used to assess developmental risk (Parker & Asher, 1987).
- They do not rely on the accuracy of retrospective recall.¹

¹In a recent follow-back study, Matsui, *et al.* (1996) argued that retrospective recall is more accurate than previously supposed, citing a review of the relevant literature by Brewin, Andrews, and Gotlib (1993). Brewin, *et al.* concluded that, while retrospective recall of factual information

- Prospective follow-up designs can be used to make inferences about causal relationships between predictor and outcome variables (Cohen & Wills, 1985).
- The evidence which they provide for the causes of maladjustment is not in the form of causal attributions (an advantage shared by follow-back designs, especially if precautions are taken - as they were by Gilmartin (1987) and Matsui, *et al.* (1996) - to prevent participants' inferring a connection between their experiences of victimisation and distress).
- They do not suffer from the possible bias in the methodology of the numerous studies of self-reported effects of victimisation, in which participants are asked questions which they are told relate to "bullying", in a way which implies that bullying has effects. For instance, Sharp (1995) asked children to report how bullying affected them. Use of the term "bullying" may increase socially desirable responding (Austin & Joseph, 1996; Olweus, 1978), while implying that effects are expected may increase the demand characteristics (Orne, 1962) of data collection.

Parker and Asher (1987) recommended that the quality of longitudinal research be judged by its use of follow-up studies, and school-based samples, which are more representative than clinic-based or high-risk samples. In all of the follow-up studies reviewed here, a measure of victimisation was used as a predictor of later maladjustment, among a school-based sample. The forms of victimisation assessed in each study are indicated in the review. The forms of maladjustment assessed in these studies were often, but not always,

from childhood appears to be accurate, there is less certainty that emotions are accurately recalled. They also recommended that retrospective self-reports be validated against other informants' reports. Both the published retrospective follow-back studies of victimisation (Gilmartin, 1987; Matsui, *et al.*, 1996) have relied on the recall of emotional data, and neither has investigated the validity of retrospective self-reports. So the accuracy of recall in these studies remains in doubt.

socioemotional. Evidence will be considered from analyses using other outcome variables in order to strengthen the overall evidence concerning how and why victims may be at risk.

3.2. Review of follow-up studies

Definitions of prospective and non-prospective analyses

Longitudinal associations between victimisation and adjustment may indicate that victims are at risk. But they do not necessarily provide strong evidence for causal effects (Cohen, Burt, & Bjorck, 1987). For instance, if victims are more likely than non-victims to grow up depressed, this may yet be for incidental reasons; that is, some children may have a genetically inherited disturbance which predisposes them both to develop internalising problems and to become victims while they are at school.

One way to reduce the plausibility of such alternative explanations is to use a prospective analysis, controlling for the effects of continuity of emotional problems (Cohen & Wills, 1985). This is done by statistically removing (in multiple regression analysis) from each time two adjustment variable the variance it shares with the corresponding time one adjustment variable. For instance, depression at time two (as a dependent variable) is initially regressed on depression at time one (as an independent variable), leaving a residual portion of variance in time two depression which is not shared with time one depression. If, after this procedure, victimisation at time one remains correlated with the residual variance in time two depression, then the zero-order correlation between victimisation and depression cannot be attributed solely to initial depression causing both later victimisation and further depression. A simple incidental model then becomes less

tenable (see Vernberg, 1990, for a similar argument), and it seems more plausible to suggest that being targets of aggression makes children less well-adjusted than they were before. This type of analysis will be referred to henceforth as an I-prospective (incidental-prospective) analysis, since it amounts to a Popperian test of the simple *incidental* model.

The converse prospective analysis can be used to question the validity of a simple causal model. For example, time two victimisation is the dependent variable, and is regressed first on time one victimisation, and then on time two adjustment. If time one adjustment is still associated with time two victimisation, after variance shared with time one victimisation has been removed, the simple causal model becomes less tenable. It is then plausible to suggest that being distressed makes children experience greater victimisation than they did before. This type of analysis will be referred to as a C-prospective (causal-prospective) analysis because it is a test of the simple *causal* model.

I-prospective analyses have been carried out in most of the studies reviewed in the present section. Boivin, *et al.* (1995), Kochenderfer and Ladd (1996b), and McLaughlin, *et al.* (1997) did not carry out prospective analyses, and so only provided data in terms of predictive risk.² Craig and Pepler (1997) and Olweus (1993b) carried out only I-prospective analyses. Both I- and C-prospective analyses were reported in the remainder of the studies reviewed (Egan & Perry, 1997; Kochenderfer & Ladd, 1996a; Vernberg,

²Boivin, *et al.* (1995) calculated change in each variable by regressing its time one values on its time two values, and taking the residual as a measure of change. This measure is not statistically equivalent to that used in prospective analyses, in which change is effectively represented as the residual from regressing time *two* values on time one values (c.f., Cohen & Cohen, 1975; Cohen & Wills, 1985). Kochenderfer and Ladd (1996a) carried out prospective data analyses on the same data set used by Kochenderfer and Ladd (1996b).

1990). If both I-prospective and C-prospective analyses are carried out, and both show significant results, then both simple main effects models become less tenable. The most obvious alternative model is then a transactional or reciprocal model, in which victimisation causes maladjustment and maladjustment causes victimisation.

Follow-up studies with no prospective analyses

In the largest follow-up study ($n = 567$) Boivin, *et al.* (1995) found that, among schoolchildren aged between nine and thirteen, peer-reported victims (generic, subordinal and physical) were at risk for loneliness and depression a year later. Kochenderfer and Ladd (1996b), studying 200 kindergarten children aged between five and six, found that self-reported victimisation (generic, subordinal and physical) in the autumn predicted self-reported loneliness, dislike of school and desire to avoid school in the spring (see the description of Kochenderfer and Ladd's (1996a) results later in this section). Victims were not significantly at risk for later poor academic progress or behaviour problems. These results suggest that victims are to some extent at risk for future maladjustment. In an unpublished study McLaughlin, *et al.* (1997) showed not only that victims were at risk, but (in partial support of a transactional model) that distressed children were at risk for victimisation. Studying unacquainted peers (aged four to five) in contrived play groups, they found that observed anxious behaviour in the first play session predicted observed relational victimisation over all eight sessions; and that this in turn predicted self-reported loneliness at the last play session. All these studies showed that victims were at risk, but because they did not include prospective analyses they are consistent with any of the four etiological models.

Prospective follow-up studies consistent with the simple causal or transactional model

Prospective analyses were included in the only long-term follow-up study that has been published to date (Olweus, 1993b). This study represented a follow-up of 71 23-year-old men, whose victim status had been determined, between the ages of thirteen and sixteen, by a combination of teachers' and peers' reports of subordinal and physical victimisation and unpopularity with peers.³ Adolescent victims were at risk for greater self-reported depression and lower self-reported self-esteem at follow-up than adolescent non-victims. In adulthood, former victims were also less involved than former non-victims in criminal activities (according to their own reports and official records). Victims were not at risk for later direct harassment; loneliness and social isolation; social anxiety; worrying in achievement-related situations; antisocial behaviour; aggression; or frustration intolerance. Neither was there any evidence for hormonal or personality differences between former victims and non-victims.

Olweus did not carry out a C-prospective analysis, but in I-prospective analyses he found that, after initial internalising maladjustment had been taken into account, initial victimisation predicted neither future depression nor future self-esteem. Despite these results, Olweus presented an interesting argument in favour of a simple causal model. Essentially the argument was this: (1) adolescent victimisation was correlated with adult depression; (2) adolescent maladjustment/inadequacy was not correlated with adult experience of harassment; (3) adolescent victimisation was not correlated with adult

³The face validity of the victimisation measure was limited by the inclusion of peer unpopularity. But Olweus reported that the measure of victimisation he used was correlated with several other measures of victimisation, and in this sense there was more evidence for its validity than for most of the measures of victimisation used in other follow-up studies.

experience of harassment; (4) it therefore seemed likely that "*the major causal influence is from victimization to depression-related variables, and not the other way around*" (p333, italics in original). In the present terms, however, these results were not so much supportive of a simple causal model, as hard to reconcile with a simple incidental model. As transactional models do not assume that peer relationship problems necessarily continue into adulthood (Parker, *et al.*, 1995), Olweus's results remain as consistent with a transactional as with a simple causal model.

Kochenderfer and Ladd (1996a) carried out both I-prospective and C-prospective analyses. They followed up 200 kindergarten children between the ages of five and six from the autumn to the spring of a single school year. Victimization (subordinal, generic, and physical) was assessed by self-report. Relative to children who were not victims in the autumn (autumn non-victims), autumn victims were at risk for greater loneliness, dislike of their school, and desire to avoid school, but not for poor academic achievement, in the spring. Changes in victim status over the period of study also covaried with changes in the first three of these variables.

Four I-prospective analyses showed that autumn victimisation explained 4% of the variance in spring loneliness, after autumn loneliness was controlled for, and 6% of the variance in children's desire to avoid school, as assessed in the spring, after autumn values of this variable had been controlled for. Victimization did not affect later dislike of school or academic achievement, after initial values of these variables had been controlled. In four C-prospective analyses, Kochenderfer and Ladd (1996a) found that spring victimisation was not predicted by autumn adjustment, after autumn victimisation had been controlled

for. In other words, Kochenderfer and Ladd found some evidence that victimisation increased school adjustment problems, but no evidence that school maladjustment increased victimisation. These results are difficult to reconcile with a simple incidental model. But the failure to find an effect of adjustment on later victimisation may have been due to low statistical power in the analyses (Cohen & Cohen, 1975). So the results are as consistent with a transactional model as with a simple causal model.

Thus, both Olweus (1993b) and Kochenderfer and Ladd (1996a) reached conclusions largely in line with the simple causal model. Craig and Pepler (1997), in an unpublished study, reached similar conclusions as a result of an I-prospective analysis. In all three cases, however, their results were equally consistent with a transactional model, and inconsistent with a simple incidental model.

Prospective follow-up studies inconsistent with both simple main effects models

A different conclusion was reached by Vernberg (1990), who followed up 73 adolescents (aged twelve to fourteen) over a period of six months. Measures were all self-reported, and included depression, self-perceived social acceptance, and a number of variables concerning peer experiences, including *contact* with peers, *closeness* in best friendship, and something he described as *rejection*, but which was in fact a composite of generic, physical and subordinal victimisation.

At follow-up, initial self-reported victims had greater depression and lower self-perceived social acceptance than initial self-reported non-victims. An I-prospective analysis showed that initial peer experiences (contact, closeness, and victimisation) had a joint effect on

later depression, explaining 13.6% of its variance after initial depression had been accounted for. Being concerned with other matters, Vernberg did not attempt to evaluate the unique contribution of victimisation to the outcomes. But the correlation matrix showed that, of the peer experience variables measured at time one, closeness ($r = .3$) and victimisation ($r = .26$) were significantly associated with later depression. So it is likely that victimisation experiences were part of the peer experiences that independently predicted future depression. If that is the case, these results are not easy to reconcile with a simple incidental model.

A second I-prospective analysis showed that initial victimisation predicted later social acceptance, over and above initial social acceptance, only among those adolescents who rated themselves as relatively less close to their best friend. Again, this result is hard to reconcile with a simple incidental model.

In six C-prospective analyses, initial self-perceived social acceptance did not predict any later peer experiences, after initial peer experience was taken into account. Initial depression predicted future victimisation, accounting for 8.7% of its variance after initial victimisation had been controlled for. All together, Vernberg's results are difficult to reconcile with simple main effects models of the maladjustment of victims. They are more consistent with a transactional model.

Vernberg's (1990) results are unique among published studies in being inconsistent with simple incidental and simple causal models, but similar results have recently been reported in an unpublished study. Egan and Perry (1997) studied children between the ages of eight

and thirteen between the spring and autumn of a school year. Victimization (generic, physical, and subordinal) was assessed by peer report, and maladjustment by self-report. In C-prospective analyses, they found that low self-perceived social acceptance and self-efficacy for assertion predicted increases in victimization during a school year. In I-prospective analyses they found that victimization predicted diminishing self-perceived social acceptance. These results, again, are hard to reconcile with simple main effects models, and more consistent with a transactional model.

3.3. Summary and conclusions

Several follow-up studies (Boivin, *et al.*, 1995; Craig & Pepler, 1997; Egan & Perry, 1997; Kochenderfer & Ladd, 1996a, 1996b; Olweus, 1993b; McLaughlin, *et al.*, 1997; Vernberg, 1990) have shown that victims are at risk for later problems - particularly problems which are internalising in nature. The results of four studies (by Craig & Pepler, 1997; Kochenderfer & Ladd, 1996a; Egan & Perry, 1997; and Vernberg, 1990) suggested that victimization led to increased future maladjustment; the results of two (Egan & Perry, 1997; Vernberg, 1990) suggested that maladjustment led to increased future victimization. In a fifth study, Olweus (1993b) argued that victimization led to greater depression, although there was no direct evidence for his conclusion from prospective statistical analyses. In these studies, non-significant results may be explained by low statistical power (Cohen & Cohen, 1975), and in any case cannot refute a theoretical statement of an etiological model. Considered together, the results of the studies appear to refute simple main effects models of the relationship between victimization maladjustment, and are more consistent with transactional models, such as social rank theory (Gilbert, 1992) or the types of transactional models outlined by Parker, *et al.* (1995). In the words of Vernberg (1990,

p195),

These findings together paint a picture of a cycle in which poorer experiences with peers lead to increases in depressive affect, and greater depressive affect increases the likelihood of rejection by peers.

Limitations of previous studies

The research reviewed has the following limitations which this thesis will aim to overcome.

- Relational victimisation has rarely been assessed in longitudinal research, and never in prospective studies. It was the focus of McLaughlin, *et al.*'s (1997) follow-up study, but these authors made no assessment of physical or subordinal victimisation.
- Few follow-up studies have made use of both I-prospective and C-prospective analyses. If C-prospective analyses are not used, it is not possible to discount simple causal models as explanations for the association between victimisation and adjustment. Without I-prospective analyses, simple incidental models cannot be discounted.
- Few follow-up studies have used reports of victimisation from more than one type of informant (Olweus, 1993b, was an exception), as recommended by Farrington (1993).
- No follow-up study has been carried out in the UK.
- No prospective study of victims of both sexes has been carried out with a follow-up period greater than approximately six months. Olweus's (1993b) study was restricted to boys, and Boivin, *et al.*'s (1995) was not prospective.
- The follow-up studies have shown through correlational methods that victims are at risk for later maladjustment. Parker and Asher (1987) recommended that researchers

should assess the degree of risk for children with different peer relationship problems in clinical terms - that is, of the percentage of children with poor peer relationships who later manifest mental health problems. Their recommendation has not been followed in any of the follow-up studies of victims.

Chapter Four

Sticks and stones, names, or sending to Coventry:

Distress and different forms of victimisation

Abstract

Only a handful of published studies have compared the maladjustment correlates of more than one form of victimisation, but their results suggest that socioemotional maladjustment may be more strongly correlated with psychological than with physical victimisation. Interpretation of these studies is complicated because children who are targets of one form of aggression are likely to be targets of another. More studies which control for the inter-correlations among different forms of victimisation are needed, but those which exist have suggested that victims of psychological aggression tend to be maladjusted whether or not they also experience physical victimisation. The chapter ends with a discussion of the implications of social rank theory in this context. From social rank theory it is predicted that psychological victimisation will be more strongly related than physical victimisation to maladjustment in the hedonic mode. It is suggested that middle childhood represents a transition period from the agonic to the hedonic mode, that girls tend to interact in the hedonic mode and boys in the agonic mode. It follows that psychological victimisation should be more strongly related to maladjustment in girls than in boys, and in late middle childhood than in early middle childhood.

4.1. Introduction

Are some forms of peer victimisation in some sense "worse" than others? There is evidence that some people see physical victimisation as worse than psychological, especially relational, forms of victimisation. Of the three types of aggression, physical aggression is considered by children and adults as the most prototypical of bullying (Arora, 1996; Boulton, 1997; Guerin, 1996; Hawker & Boulton, 1996b; MacLeod & Morris, 1996; Madsen & Smith, 1995), and relational aggression as relatively atypical (Boulton, 1997; Guerin, 1996; Hawker & Boulton, 1996b; MacLeod & Morris, 1996; Smith & Levan, 1995), although there are developmental changes in perceptions (Madsen & Smith, 1995). Warden, *et al.* (1996) found that children between the ages of ten and thirteen saw relational aggression as less "nasty" than physical or subordinal aggression. Their teachers and parents, moreover, saw relational aggression as a form of behaviour that was less important to discourage than physical or subordinal aggression. In legal terms, physical and verbal assault has been considered more serious than covert or relational bullying (Alderson, 1994; Hamilton, 1997). School behaviour policies sometimes prioritise physical antisocial behaviour for intervention, not mentioning relational victimisation (Elkins, 1993; Paley, 1992). Playground supervisors may be more concerned about physical aggression - even when there is no power imbalance - than about psychological aggression (c.f. Boulton, 1996). Even some researchers seem to share the bias towards seeing physical victimisation as worst. In two recent studies, an explicit assumption was made in data analysis that physical victimisation was more "severe" than subordinal or relational victimisation (Kochenderfer and Ladd, 1996b; Matusi, *et al.*, 1996).

This under-emphasis on belongingness themes in victimisation research is reflected in the

way victimisation has been measured in most studies of the adjustment of victims. At least thirty such studies have assessed victimisation which is only generic, physical or subordinal (Austin & Joseph, 1996; Björkqvist et al., 1982; Boivin & Hymel, 1997; Boivin, *et al.*, 1995; Boulton & Smith, 1994; Callaghan & Joseph, 1995; Deasy & Hennessy, 1997; Egan & Perry, 1997; Graham & Juvonen, 1997; Kochenderfer & Ladd, 1996a, 1995b; Lagerspetz, *et al.*, 1982; Lowenstein, 1978; Neary & Joseph, 1994; Olweus, 1978, 1993b; O'Moore & Hillery, 1991; Perry, *et al.*, 1988; Pierce, 1990; Ray, *et al.*, 1997; Rigby & Slee, 1992; Slee, 1994a, 1994b, 1995a, 1995c; Slee & Rigby, 1993a, 1993b, 1994; Vernberg, 1990; Williams, *et al.*, 1996), whereas far fewer - most of them unpublished - have included any measure of relational victimisation (Alsaker, 1993, 1997; Anderson & Harrison, 1996; Boulton & Underwood, 1992; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Ku, 1997; MacDonald & O'Laughlin, 1997; McLaughlin, *et al.*, 1997; Matsui, *et al.*, 1996; Sharp, 1996; Slee, 1995b). In social rank terms, the implicit assumption in this pattern is that rank-related victimisation is seen as more influential on development than relational victimisation.

Conversely, some researchers have recently argued that relational victimisation is more damaging than physical or subordinal victimisation (Alsaker, 1993; Crick & Grotpeter, 1996; Paley, 1992). The bias towards physical power is reversed in the peer relations literature, and in the theoretical work of authors such as Baumeister and Leary (1995) and Coyne (1976). Themes of not belonging are more prevalent in this research than low-rank themes (although, as noted in section 1.6, peer rejection is probably also related to low SAHP - c.f. Vaughn & Waters, 1981). Rank themes in peer relations research have been limited mainly to work with aggressive children (usually meaning physically aggressive;

Farrington, 1993; Parker & Asher, 1987; Pepler & Rubin, 1991) rather than on victims of aggression. Low social rank is probably more related to victimisation than to aggressiveness (e.g., Perry, *et al.*, 1992; Weisfeld, 1994). The rank-related equivalent of social withdrawal, peer rejection, or having no friends, other than victimisation, would be experiences such as holding a low rank in a dominance hierarchy within a class or clique (e.g., Parkhurst & Asher, 1992). But dominance hierarchies, and particularly their developmental effects on low rankers, have received little attention in recent years (Hawker & Boulton, 1996a; J. Parkhurst, personal communication, April 1997). In social rank terms, relatively little in the peer relations literature has been written on the consequences of having low RHP. The implicit assumption is that low physical power - or physical victimisation - is less important for maladjustment than a lack of belonging, or low SAHP.

The authors of the nine empirical studies reviewed in the next section investigated the adjustment correlates of more than one form of victimisation. The design of all but one of these studies (the exception being Kochenderfer and Ladd's, 1996b) was cross-sectional rather than longitudinal. Because of the small number of studies available, measures of adjustment are not restricted to internalising problems in this literature review.

4.2. Studies of the distress of different types of victims

Most of the studies reviewed here were not designed specifically to show whether one form of victimisation is more strongly associated with maladjustment than another. Rather, investigators have been concerned with showing that psychological victimisation may be a risk factor worth considering as well as physical victimisation, in that both are associated

concurrently with maladjustment, or that the former adds to the prediction of adjustment made by the latter (e.g., Alsaker, 1993, 1997; Crick & Grotpeter, 1996; Kochenderfer & Ladd, 1996b).

Independent and non-independent associations of different forms of victimisation with maladjustment

These aims do not preclude the investigation of the relative strengths of association of different forms of victimisation with maladjustment. Two ways of comparing adjustment for different forms of victimisation are available. One is to compare effect sizes for different forms of victimisation. This is possible to do with most of the data from published studies. The difficulty is that effects are not independent, as children's experiences of victimisation are highly correlated in these studies. An alternative comparison is between the *independent* associations of different forms of victimisation with adjustment. Independent associations can be determined statistically in a general linear model, in which the independent variables, different forms of victimisation, are adjusted for their effects on each other. It is then possible to determine the extent to which each form of victimisation is associated with adjustment (the dependent variable), independently of any other form of victimisation in the general linear model. The types of statistical models which allow such examination of independent effects include standard multiple regression (MR), where all independent variables are entered together in the equation, and (non-hierarchical) factorial analysis of variance (ANOVA), in which main effects are adjusted for each other (Howell, 1992; Norušis, 1990; Tabachnick & Fidell, 1996).

Table 4.1 summarises the results of most of the published (and *in-press*) studies of the association between adjustment and different forms of victimisation, in terms of effect sizes. Noted in the table are the informants used as a source for assessing victimisation and adjustment. Independent effect sizes, with inter-correlations between different forms of victimisation controlled, are displayed in bold typeface; all other effect sizes are non-independent. No effect sizes are presented for the results published by MacLeod and Morris (1996) and Ray, *et al.* (1997), because these could not be calculated from the data available.

Table 4.1: Effect sizes for associations between adjustment and different forms of peer victimisation (continued on next page)

Study and sample characteristics	Notes	Adjustment ¹	Different forms of victimisation assessed, with effect sizes (<i>rs</i>) ²	
			Physical	Relational
Crick & Bigbee (in press) <i>n</i> = 383 age 8-10	Victimisation assessed by self- and peer-reports	peer rejection (Peer)	.28	.39
		peer acceptance (Peer)	.21	≤.14
	All effect sizes independent	submissiveness (Peer)	.49	.21
		loneliness (S)	.30	.33
		social anxiety (S)	≤.15	.27
		social avoidance (S)	≤.14	.21
		emotional distress (depression & anxiety: S)	.24	.31
self-restraint (S)	.17	.26		
Crick & Grotpeter (1996) <i>n</i> = 474 age 8-12	Victimisation assessed by self-report	peer status (Peer)	(.17)	(.28)
		loneliness (S)	.00 (.32)	.10 (.33)
	Independent effect sizes in bold type; non-independent effect sizes in parentheses	depression (S)	.10 (.33)	.26 (.41)
		social anxiety (S)	.00 (.17)	.20 (.26)
social avoidance (S)	.00 (.20)	.22 (.30)		

¹ Source of informant in parentheses: T = teacher; S = self; Par = parent; Peer = peers.

²Taken from tables in the relevant papers, or calculated by the present author using formulae from Rosenthal (1984). Effect sizes for non-significant results are indicated as being less than (greater than, for negative effects) or equal to a value calculated from the Z-statistic equivalent to the relevant threshold probability level.

Study and sample characteristics	Notes	Adjustment	Different forms of victimisation assessed, with effect sizes			
			Composite Subordinal/Physical			Relational
Alsaker (1993) <i>n</i> = 120 age 6-7	Effect sizes not independent. Medians shown of effect sizes for girls and boys, and for victimisation assessed by teacher and parents	positive self-confidence (T)	-.24			-.45
		preference for contact with adults (T)	.00			.24
		unpopularity (T)	.52			.55
		stress (Par)	.19			.23
		social anxiety (S)	.22			.03
		loneliness (S)	.17			.06
		negative self-esteem (S)	.09			-.02
Kochenderfer & Ladd (1996b) <i>n</i> = 200 age 5-6	Effect sizes not independent. Victimization assessed by self-report		Generic	Physical	Overt subordinal	Covert subordinal
		loneliness (S)	.16	.28	.31	.23
		school liking (S)	-.08	-.03	-.25	-.30
		school avoidance (S)	.21	.23	.31	.24
		math readiness (T)	≤-.13	≤-.13	-.13	≤-.13
		overall academic progress (T)	≤-.15	≤-.15	≤-.15	-.15
		aggression (T)	≤.12	.14	≤.12	≤.12
		prosocial behaviour (T)	≤.12	.21	≤.12	≤.12
		hyperactivity/ distractibility (T)	≤.12	.15	≤.12	≤.12
cooperative participation (T)	≤.12	.15	≤.12	≤.12		

Studies demonstrating independent associations of more than one form of victimisation with maladjustment

Social or emotional adjustment indices have been dependent variables in factorial ANOVA models used by Crick and Bigbee (in press) and Grotperter and Nukulij (1997) to compare physical and relational victimisation, and by Ray, *et al.* (1997) to compare physical and subordinal victimisation. One may assume that these models were non-hierarchical, as the authors did not mention otherwise, and non-hierarchical models are the default in common statistics packages (Tabachnick & Fidell, 1996). It follows that, in these studies, the main effects of different forms of victimisation were independent of each other.

Crick and Bigbee (in press) assessed concurrent victimisation and socioemotional adjustment among 383 eight- to ten-year-olds. Physical and relational victimisation were assessed by a combination of self- and peer-reports. Peer-assessed social adjustment measures were peer acceptance and rejection, and submissive behaviour. Self-assessed socioemotional adjustment measures were: loneliness, social anxiety, social avoidance, emotional distress, and self-restraint.

A series of two-way ANOVAs was carried out, in which physical victimisation and relational victimisation were the two independent variables. In most of the analyses, both relational and physical victimisation had significant main effects on adjustment. The present author calculated (independent) effect sizes for each of these analyses from the *F*-values (and *p*-values for non-significant results) reported by Crick and Bigbee (in press), and these are displayed in Table 4.1. Although no attempt was made to test the significance of differences, the effect for relational victimisation was larger than the effect

for physical victimisation in six out of eight of the analyses; it was only for submissiveness and peer acceptance that the effect of physical victimisation was larger than that of relational victimisation.

In an unpublished study, Grotzinger and Niekirk (1997) used a similar ANOVA design to predict concurrent friendship quality and friendship satisfaction. Both relational and physical victims had lower quality, and less satisfying, friendships than non-victims. The present author noted that in this case the effect sizes appeared to be slightly larger for physical victimisation, but the data are not yet available for detailed analysis. There were also interaction effects - children who were victims of both forms of aggression had the worst friendships of all.

Ray, *et al.* (1997) studied 275 children between the ages of nine and twelve. Physical and subordinal victimisation were assessed by peer report. The relevant adjustment variables measured were sociometric status and the number of mutual friends. Effect size data were not available, but neither form of victimisation was more strongly associated with adjustment than the other. The number of mutual friends was not significantly associated with either form of victimisation. Rejected and average status children received more nominations for being victims of subordinal than of physical aggression, whereas popular children did not receive more nominations for one form of victimisation than another. But for both forms of victimisation, rejected children received more victim nominations than popular or average status children. In other words, sociometric status groups differed among themselves in terms of the relative amounts of victimisation they experienced; but victims of different forms of aggression did not differ in terms of sociometric status.

In what is already the most cited study of the adjustment of victims of different forms of aggression, Crick and Grotpeter (1996) assessed relational and physical victimisation and socioemotional adjustment among 474 eight- to twelve-year-old children. Adjustment indices were: social anxiety, social avoidance, depression, loneliness, and sociometric status. ANOVAs were carried out, separately for each form of victimisation, to examine the effect of sociometric status. The effect was somewhat larger for relational than for physical victimisation. Rejected children saw themselves as suffering more relational victimisation than did average status children, who saw themselves as more relationally victimised than popular and controversial children. But rejected children differed only from popular and controversial children in terms of the physical victimisation they said they experienced.

For the other adjustment indices, Crick and Grotpeter (1996) did not use ANOVA or standard MR to compare relational and physical victimisation, but the data from the analyses they used do show the independent contributions of these forms of victimisation to maladjustment. They carried out two sets of hierarchical MRs, in which socioemotional adjustment indices were the dependent variables. In one set of regressions, physical victimisation was entered at the first step, and relational victimisation at the second step. The contribution of relational victimisation to adjustment at this step was thus independent of physical victimisation. In the second set of regressions, the order of entry was reversed. Physical victimisation was entered after relational victimisation, and so its contribution to the prediction of adjustment was independent of relational victimisation. In other words, both sets of regressions, taken together, provided data on the independent contributions of both relational and physical victimisation to adjustment. The same data would have been

available had a single set of standard MRs (Tabachnick & Fidell, 1996), with both forms of victimisation entered in the same step, been carried out.

The independent and non-independent effect sizes for these analyses, calculated from R^2 values presented in Crick and Grotpeter's (1996) paper, are displayed in Table 4.1. R^2 changes at the second step of each hierarchical regression were used to calculate the relevant independent effect sizes, and R^2 s at the first step were used to determine the non-independent effect sizes. Both the independent and non-independent effects of relational victimisation on depression, loneliness, social anxiety and social avoidance, were greater than those of physical victimisation. The hierarchical regressions showed that relational victimisation accounted for all the variance that was explained by the independent variables in loneliness, social anxiety, and social avoidance. Depression was the only adjustment variable with which physical victimisation shared a significant portion of variance, after relational victimisation had been accounted for. In contrast, relational victimisation contributed significantly to the prediction of all four socioemotional adjustment indices, even after physical victimisation had been accounted for.

Crick and Grotpeter (1996) discussed two possible interpretations of their results. One was that relational victimisation is more strongly associated with maladjustment than physical victimisation is. An alternative, supported by their results, was that relational victimisation is more strongly associated with relational outcomes (loneliness, social anxiety, and social avoidance), while physical victimisation may be equally related to non-relational outcomes (such as depression). These two alternative explanations will be discussed later in the chapter.

In none of the other studies available is it possible to compare the independent contributions of different forms of victimisation to adjustment. But there are two further studies in which the *independent* contributions of *one* form of victimisation have been considered.

Studies demonstrating the independent associations of one form of victimisation with maladjustment

In an unpublished study, Alsaker (1997) investigated psychosomatic symptoms and emotional adjustment among victims of relational aggression. She asked a sample of 2,379 children between the ages of ten and sixteen to assess how frequently they were deliberately kept out of things, and not allowed to take part. This relational victimisation was associated with self-reported ill health, poor quality peer relationships, depression, and loneliness. Alsaker did not assess the association of these adjustment variables to any other form of victimisation. But this study is relevant in the present context because, although relational and "direct" (a composite of subordinal and physical) victimisation were correlated, she reported that controlling for the latter did not change the results. In other words, relational victims were maladjusted relative to children who were not relationally victimised, whether or not these victims were also targets of physical or subordinal aggression.

Kochenderfer and Ladd (1996b) used hierarchical regressions similar to those used by Crick and Grotpeter (1996). They are the only investigators who have compared more than two forms of victimisation, and the only ones to have looked at longitudinal predictions made by different forms of victimisation. Unfortunately they did not consider the

independent effects of different forms of victimisation, and did not assess relational victimisation. Their work was part of a larger longitudinal study (e.g., Kochenderfer & Ladd, 1996a, 1997b; see section 3.2) of 200 kindergarten children, aged between five and six. In Kochenderfer and Ladd's (1996b) paper, four forms of victimisation, measured in the autumn, were considered separately, as predictors of school and behavioural adjustment and academic progress, measured in the spring. The forms of victimisation measured were described by the authors as: general victimisation ("pick on you"); physical victimisation ("hit you"); direct verbal victimisation ("say mean things to you"); and indirect verbal victimisation ("say bad things about you to other kids"). In the terms used in the present work (and henceforth in the description of this study), these items represented (respectively) generic, physical, overt subordinal, and covert subordinal victimisation.

Each form of victimisation was considered separately as a predictor of later behavioural maladjustment. Autumn victims of physical aggression were rated in the spring as displaying slightly more aggressive behaviour and hyperactivity-distractibility, and slightly less prosocial behaviour and cooperative participation than children who were not initially victims of physical aggression. None of the other measures of victimisation had any significant effects on future behavioural adjustment. Non-independent effect sizes (calculated from *F*-values reported by Kochenderfer and Ladd, 1996b - or from threshold probability values for non-significant results) are shown in Table 4.1.

Hierarchical MRs were used to investigate the correlations of different forms of victimisation with later school adjustment and academic progress. In each regression, generic victimisation was entered at the first step, physical victimisation at the second,

overt subordinal victimisation at the third, and covert subordinal victimisation at the last. Kochenderfer and Ladd (1996b) felt that these priorities represented the "order of 'severity' or 'directness'" (p275) of the different forms of victimisation. For present purposes, this use of hierarchical regressions unfortunately means that early covert subordinal victimisation was the only form of victimisation whose *independent* effect on adjustment was assessed. Early covert subordinal victimisation had no independent effect on later loneliness or school avoidance; early general, physical, and overt subordinal victimisation each contributed significantly to the prediction of these variables. But the only significant contributions to the prediction of later school liking were made by overt and covert subordinal victimisation. These results showed that, overall, early subordinal victimisation had an effect on later loneliness, school avoidance and dislike of school, over and above early generic and physical victimisation. Autumn victimisation which was specifically subordinal predicted 4% of the variance in spring loneliness and school avoidance, and 12% of the variance in school liking, *after* general and physical victimisation had been taken into account. The non-independent associations (*rs* reported by Kochenderfer and Ladd, 1996b) between these variables and the different forms of victimisation are shown in Table 4.1. For all three variables, the largest effect sizes were for one or the other forms of subordinal victimisation.

Equivalent hierarchical regressions were carried out with ratings of spring academic progress and readiness as dependent variables. None of the forms of victimisation significantly affected any of these variables. Kochenderfer and Ladd (1996b) reported that the contributions made by early physical victimisation to future reading and maths readiness approached significance, but these effects were necessarily not independent of

any effects of subordinal victimisation, because of the hierarchical order of entry of variables. As shown in Table 4.1, the non-independent effects (r s reported by Kochenderfer and Ladd, or calculated from threshold significance levels for non-significant results) were, if anything, again larger for subordinal forms of victimisation than for generic or physical victimisation.

In Kochenderfer and Ladd's (1996b) study, non-independent victimisation-adjustment correlations make the best comparisons between different forms of victimisation. Similar comparisons are available from studies by Alsaker (1993), Ku (1997), and MacLeod and Morris (1996).

Other studies of the associations of different forms of victimisation with maladjustment

Alsaker (1993) studied 120 six-year-old children in day-care centres. Teachers' and parents' reports were used to assess relational and direct (a composite of physical and subordinal) victimisation. Parents also assessed their children's stress, fatigue, sadness, and clinging behaviour. Teachers reported the children's self-esteem, unpopularity with peers, and preference for contact with adults. Participants themselves assessed their own loneliness, social anxiety, and self-esteem.

Alsaker displayed a table of (non-independent) correlations between maladjustment and different forms of victimisation, separately for boys and girls, and separately for different informants. That is, four correlations were available for each adjustment measure and each form of victimisation, for parent-assessed vs teacher-assessed victimisation, and boys vs girls. The present author calculated the medians of each of these correlations, which are

presented in Table 4.1. In four cases (when adjustment was assessed by parents or teachers), the median effect size was larger for relational victimisation, and in three cases (when adjustment was self-assessed) it was larger for direct victimisation.

This observation raises the question of whether adults were biased towards seeing relational victimisation as more upsetting, or children biased in the opposite direction. There is some limited evidence that adults were so biased. The present author examined the direction of differences between effect sizes for the 28 pairs of correlations which were used to calculate the medians. In eight comparisons for which the same (adult) informants assessed both victimisation and adjustment, seven effect sizes were larger for relational than for direct victimisation. But when different informants assessed victimisation and adjustment, about half of the comparisons (eleven out of twenty) showed an effect size greater for direct than for relational victimisation. That is, it was only when victimisation and adjustment were assessed by the same informants that relational victimisation was more strongly associated than direct victimisation with maladjustment ($\chi^2(1) = 4.28, p < .05$). When there were different informants for victimisation and maladjustment, virtually as many effects were larger in magnitude for direct victimisation as were larger for relational victimisation.

In an unpublished study, Ku (1997) presented another comparison of the adjustment correlates of relational and physical victimisation. She adapted scales developed by Crick and Bigbee (in press), and assessed teacher-reported victimisation among 129 preschool children, aged between three and five. Ratings were based on three-item scales for each form of victimisation, and the two forms were highly inter-correlated. Both physical and

relational victimisation were significantly (non-independently) associated with social and emotional adjustment variables, particularly teacher-assessed peer acceptance, depressed affect, and prosocial behaviour, but also (to a lesser extent) peer-assessed social adjustment. Some of the effect sizes were larger for relational victimisation, while others were larger for physical victimisation; neither form of victimisation was clearly more strongly associated with maladjustment than the other.

Finally, MacLeod and Morris (1996) reported that, of 62 children who had discussed attempted suicide or suicidal feelings with counsellors on a bullying telephone helpline, just over half were experiencing exclusively psychological forms of abuse (mainly name-calling). In fact, a similar proportion of children in the whole sample of 1500 were experiencing bullying which was only psychological. But these findings do suggest that callers were at least as distressed by being bullied non-physically as they were by being bullied physically.

Summary and discussion

These results generally have shown that non-physical forms of victimisation were at least as strongly associated with social and emotional adjustment as was physical victimisation. Several studies have shown that relational, or subordinal, victimisation, was associated with maladjustment independently of physical victimisation (Alsaker, 1997; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Grotpeter & Nukulki, 1997; Kochenderfer & Ladd, 1996b). Kochenderfer and Ladd's (1996b) data suggested that subordinal victimisation may have been more strongly associated with future school maladjustment than physical or generic victimisation were. In Crick's studies (Crick and Bigbee, in press; Crick &

Grotmeter, 1996), relational victimisation was possibly even more strongly associated with internalising maladjustment than physical victimisation was. Some of Crick's colleagues (Grotmeter & Nukulki, 1997; Ku, 1997) have not found quite such relatively strong effects of relational victimisation, although their results are unpublished. Alsaker (1993, 1997) found no strong evidence that any form of victimisation was more strongly associated with maladjustment than any other form. Similarly, MacLeod and Morris (1996), and Ray, *et al.* (1997) did not find that either of physical or subordinal victimisation was more strongly associated with suicidal feelings or social status, although their exploration of the question was limited, and effect sizes are not available. Physical victimisation has also been shown to be associated with some adjustment variables independently of relational victimisation, in all studies which have investigated its independent role (Crick & Bigbee, in press; Crick & Grotmeter, 1996; Grotmeter & Nukulki, 1997).

So are different forms of victimisation equally related to internalising maladjustment? The present author suggests they are not, and rather that maladjustment is more strongly related to psychological than to physical forms of victimisation. This conclusion is based on the results presented in Table 4.1, for which effect sizes could be calculated. Crick's results (Crick & Bigbee, in press; Crick & Grotmeter, 1996) and Kochenderfer and Ladd's (1996b) suggest that some form of psychological (relational or subordinal) victimisation was more strongly related to maladjustment than physical victimisation was. Crick and Grotmeter (1996) and Alsaker (1993) suggested that relational victimisation may be more strongly related than physical or subordinal victimisation to maladjustment. But their hypothesis was not supported by Alsaker's (1993) findings that relational victimisation had no greater influence than direct (composite subordinal and physical) victimisation on

contemporaneous maladjustment. Alsaker (1993) contrasted one form of psychological victimisation (relational) with a composite of physical and psychological (subordinal) forms of victimisation. It is possible that if she had instead contrasted pure physical victimisation with a composite of subordinal and relational victimisation, she would have found that the latter had greater influence. Thus in general, when effect sizes for physical and psychological victimisation have been contrasted, psychological victimisation was more strongly related than physical victimisation to internalising distress; but when relational victimisation has been contrasted to a composite of physical and psychological victimisation, neither relational victimisation nor the composite was the more strongly related to maladjustment. It seems that the difference in adjustment correlates lies in the contrast between physical vs psychological victimisation, rather than relational vs rank-related victimisation.

Are certain forms of victimisation more strongly associated with specific types of maladjustment? As noted above, Crick and Grotpeter (1996) suggested that relational victimisation may have relational outcomes, whereas physical victimisation may have non-relational outcomes. Crick and Grotpeter's (1996) results supported this hypothesis, but others do not. In Crick and Bigbee's (in press) study, emotional distress and self-restraint, not obviously relational outcomes, were more strongly associated with relational than physical victimisation. Peer acceptance, which is surely relational, was more strongly associated with physical than relational victimisation. In Alsaker's (1993) paper, two self-assessed outcomes which might be seen as relational (social anxiety and loneliness) were more strongly associated with non-relational than with relational victimisation.

Limitations

What the current literature is lacking in is a full comparison of the three principal forms of victimisation (physical, subordinal, and relational) which are the focus of this thesis. In the studies discussed in this section, comparisons have been made between only two forms of victimisation (Crick & Bigbee, in press; Crick & Grotpeter, 1996; Grotpeter & Nukulki, 1997; Ku, 1997; Kochenderfer & Ladd, 1996b; Ray, *et al.*, 1997), or between one form and a composite of the other two (Alsaker, 1993, 1997; MacLeod & Morris, 1996). Crucially, Crick and her colleagues (Crick & Bigbee, in press; Crick & Grotpeter, 1996; Grotpeter & Nukulki, 1997; Ku, 1997) have not assessed subordinal victimisation, Alsaker (1993, 1997) has not separated subordinal and physical victimisation, and others (Kochenderfer & Ladd, 1996b; Ray, *et al.*, 1997) have not assessed relational victimisation. Crick's research shows empirically that it is important to assess relational victimisation as well as physical victimisation. Comparisons of her results with Alsaker's (1993) show that it is important to assess psychological victimisation, and to separate it from physical victimisation. From a social rank perspective, as applied at present, it is essential to consider all three of these forms of victimisation in relation to adjustment.

The current literature is also limited in the extent to which the *independent* associations of different forms of victimisation with adjustment have been investigated. Contrasts between independent effects have been made by Crick and Bigbee (in press), Crick and Grotpeter (1996), Grotpeter and Nukulki (1997), and Ray, *et al.* (1997), but are not available from other studies. Previously, investigators such as Alsaker (1993), Crick and Grotpeter (1996), and MacLeod and Morris (1996) have been concerned with showing that relational or psychological victimisation, as well as physical victimisation, may affect

children's maladjustment. They have demonstrated this point well, and it is time to move on. The approach taken in this thesis addresses directly the question of which form of victimisation is most strongly, independently associated with socioemotional maladjustment.

4.3. Social rank perspectives and gender/developmental differences

According to social rank theory, physical victimisation is associated with RHP-based ranking which is more prevalent in the agonistic mode, while subordinal victimisation is associated with SAHP-based ranking, in the hedonic mode (see section 1.5). Relational victimisation is probably important in both modes of social interaction, though more so in the hedonic mode (section 1.6). It follows that socioemotional maladjustment should be more strongly related to psychological than to physical forms of victimisation in the hedonic mode, and more strongly related to physical or relational victimisation than to subordinal victimisation in the agonistic mode. Gilbert (1992) suggested that the hedonic mode is more characteristic of human social interaction than the agonistic mode, and the results reviewed in section 4.2 show a pattern which would be predicted for the hedonic mode. But it is possible that the social context affects the relationship of power and belongingness variables with psychopathology (Gilbert, 1992).

The background to social rank theory, other than evolutionary psychology, is research in adult mental health rather than in developmental psychopathology, and it is conceivable that the agonistic mode is more characteristic than the hedonic mode of some children's social interaction (e.g., Wright, Giammarino, & Parad, 1986), particularly as physical aggression remains relatively prevalent in young children (see Loeber & Hay, 1997). The

age group in which the association between victimisation and socioemotional maladjustment has most frequently been investigated is eight- to twelve-year-olds. Among this age group, name-calling (subordinal victimisation) is generally found to be more prevalent than physical victimisation (Bentley & Li, 1995; Boulton & Flemington, 1997; Farrington, 1993; Keele University Partnership, 1997; O'Moore & Hillery, 1989; Österman, *et al.*, 1994; Rivers & Smith, 1994), although in a recent review Loeber and Hay (1997) noted that physical aggression does not drop in prevalence until adolescence. It seems possible that children in this age group straddle the agonistic and hedonic modes, perhaps with more of their interaction being in the latter. Such a suggestion is consistent with the developmental theory of aggressive strategies put forward by Björkqvist, *et al.* (1992b). This theory stated that as verbal skills develop, verbal aggression replaces physical aggression as the most prevalent strategy.

Developmental differences

It follows that in middle childhood subordinal victimisation should be slightly more strongly related than physical victimisation to internalising maladjustment. Furthermore, since relational victimisation is important in both the agonistic and hedonic modes (and more so in the latter), it should be even more strongly associated than physical or subordinal victimisation with internalising maladjustment. In younger children, for whom the agonistic mode may be more characteristic, it is possible that physical and relational victimisation would be the most strongly associated with maladjustment; while subordinal and relational victimisation would be most important in adults. But if the agonistic mode is dominant, relational victimisation should be no more strongly associated than physical victimisation with maladjustment; and if the hedonic mode is dominant, relational victimisation should

not be more strongly associated than subordinal victimisation with maladjustment. Therefore the strongest contrast between different forms of victimisation ought to be available when children's social interaction straddles the agonic and hedonic modes, but is more hedonic than agonic - that is (arguably) in middle childhood, where relational victimisation would be most strongly related to maladjustment, and physical victimisation least strongly related. It would be expected that the tendency for the relatively strong association of the psychological forms of victimisation with socioemotional maladjustment would increase with age from early to late middle childhood.

It must be noted that the success of these predictions depends on what is really the dominant mode of social interaction among children of different ages. It is not clear that the predictions are supported by the results of studies reviewed in section 4.2, which were based on data collected from participants whose ages ranged from four to sixteen. However, there were many methodological differences among these studies, and several different measures of maladjustment and victimisation were used. A more focused study is needed to test these implications of social rank theory.

Sex differences

Maccoby (1988) and Tannen (1990), among others, have argued that boys and girls grow up in different social cultures. These authors concluded from reviewing the literature on sex differences that boys tend to interact in large, hierarchical groups, using rough-and-tumble play and physical violence, and girls tend to interact in small groups or pairs, based on affiliation and intimacy rather than hierarchy, and using verbal means of persuasion and less physically rough forms of play. Thorne (1993) termed this argument the "different-

cultures" model (p90). Applied in the context of social rank theory, the different-cultures model states that boys' peer interaction mode is agonistic, and rank-based, whereas girls' interaction is hedonic, and based on belongingness. Consistent with the different-cultures model, physical victimisation is generally more prevalent among boys than among girls (Anderson & Harrison, 1996; Crick & Grotpeter, 1996; Genta, *et al.*, 1996; Perkins & Griffiths, 1994; Ray, *et al.*, 1997; Rivers & Smith, 1994), while at least some studies suggest that relational victimisation is more prevalent among girls (Crick & Bigbee, *in press*; Ku, 1997; Perkins & Griffiths, 1994). It might therefore be predicted that subordinal and relational victimisation (which are either belongingness-based or hedonic) should be more damaging for girls than for boys. However, Thorne (1993) concluded that similarities between boys' and girls' peer interaction styles outweighed the differences (see also Gilligan, 1988; Williams & Schaller, 1993). And many studies have failed to find sex differences in relational victimisation (e.g., Alsaker, 1993; Anderson & Harrison, 1996; Bentley & Li, 1995; Crick & Grotpeter, 1996; Munthe, 1989; Olweus, 1991). Thus it may not be wise to make strong predictions about the moderating effect of sex on the association of psychopathology with power and belongingness themes, or (at least on the basis of social rank theory) with different forms of victimisation.

Chapter Five

Aims and Design

Abstract

The preceding literature reviews revealed several weaknesses and strengths of previous research. The research in this thesis was designed to overcome some of these weaknesses and to build on previous findings. Therefore it is appropriate to explain the general rationale behind the methodology before describing it. The main aims of this research, which essentially concerned the nature of the relationship between victimisation and socioemotional maladjustment, are outlined in this chapter. They are followed by a description of how they influenced the design of the study with which the rest of the thesis is concerned.

5.1. General limitations and lessons of previous research

Forms of victimisation associated with socioemotional maladjustment

A major limitation of previous research is in the extent to which all three forms of victimisation have been assessed. Though social rank theory has not previously been applied to victimisation, many researchers have measured experiences which can be described as physical, subordinal, or relational victimisation. However, many studies of the contemporaneous correlates of victimisation have failed to include an assessment of relational victimisation (see Chapter Two). When follow-up studies (Chapter Three), and studies of the correlates of different forms of victimisation (Chapter Four), have included

a measure of relational victimisation, they have often omitted subordinal victimisation. Notably, there have been no studies which have compared the adjustment correlates of all three forms of victimisation, and no prospective follow-up studies comparing the outcomes for victims of different forms of aggression.

Forms of socioemotional maladjustment associated with victimisation

There has been limited investigation of the nature of socioemotional maladjustment which is most strongly related to victimisation. The meta-analysis summarised in Table 2.6 suggested that, as might be expected from the perspective of social rank theory, victimisation is more strongly related to depression than to any other specific form of internalising maladjustment. But never have the correlations of victimisation with more than one socioemotional maladjustment variable been investigated within a single statistical analysis.

Samples, methods, and gender/developmental effects

There have been limitations in the samples studied. No follow-up study has been carried out in the UK, and neither have any studies of the association between victimisation and anxiety or loneliness. There have been limitations in the methods employed. There are few prospective studies in existence, and only three of those have used both C-prospective and I-prospective analyses. Too few studies of the adjustment correlates of different forms of victimisation have controlled for the correlations of one form of victimisation with another. No study has calculated the relative percentages of victims and non-victims who go on to develop future psychopathology. Finally, there has been no investigation of the moderating

effects of gender or age on the association between different forms of victimisation and socioemotional maladjustment.

Different informants' reports

Previous research suggests that it is important to use reports of victimisation from more than one type of informant (Crick & Bigbee, in press; Farrington, 1993; Haselager, 1997; see Achenbach, McConaughy, & Howell, 1987, for a more general argument about the benefits of using multiple informants), if only because there may be shared method variance if self-reports are used to assess both victimisation and maladjustment (see Chapter Two). Self-reports and peer-reports have been the most common ways of assessing victimisation, and their differences have been the focus of some recent investigations (Crick & Bigbee, in press; Graham & Juvonen, 1997, in press; Haselager, 1997). Peer reports have advantages over self-reports of victimisation if maladjustment is assessed by self-report, as peer reports can reduce the shared method variance in contemporaneous correlations. A further advantage of peer reports is that they are aggregated across multiple informants and so are likely to be more reliable (Achenbach, *et al.*, 1987; Perry, *et al.*, 1988).

Self-reports have their advantages too. Shared method variance may be a less important consideration in prospective designs (Kochenderfer & Ladd, 1996a), and in studies of the adjustment correlates of more than one form of victimisation (because all three forms can be assessed by self-report and are therefore all equally open to self-report bias), than in the type of study reviewed in Chapter Two. Self-reports of victimisation are also important in

the context of social rank theory, which emphasises self-evaluations of RHP and SAHP (Gilbert, 1992), and it is accepted in the peer relations literature that the child's own perspective on his or her social relationships is important (*e.g.* Crick & Grotpeter, 1996; Hymel & Franke, 1985; Hymel, *et al.*, 1993).

Together, peer reports and self-reports have advantages over reports of other informants. The observational assessment of victimisation in naturalistic settings is hampered by the rarity of observable aggressive behaviour (Björkqvist, *et al.*, 1992b; Kochenderfer & Ladd, 1997b; McNeilly-Choque, *et al.*, 1996), and is in any case extremely time-consuming. Teachers' reports may be more affected than peer reports by social desirability (Perry, *et al.*, 1988). Finally, peer- and self-assessments are readily paired together, in they can both be collected in a single interview with the same child.

Cause and risk

A great deal can be learnt from previous research about the way to investigate cause and risk. When this is the goal, follow-up designs have the advantage over studies of contemporaneous correlates of victimisation, over studies of self-reported effects of victimisation and causes of maladjustment, and over follow-back studies. Stronger inferences about victims' risk status can be drawn from follow-up designs, and stronger inferences about the causal relationship between victimisation and maladjustment can be drawn if the design is prospective. An implication of Vernberg's (1990) and Egan and Perry's (1997) results is that both I-prospective and C-prospective analyses should be used to investigate this relationship. If prospective analyses are carried out only in one possible causal direction there is a risk of drawing false conclusions about the types of etiological

models supported by results.

Comparability to previous studies

There are also advantages in designing a study which, while overcoming some of the limitations of previous studies, is not so methodologically distinct that it cannot be compared to them. For instance, it would be advantageous to study participants in middle childhood (approximately eight to thirteen years), an age range which has predominated in the research reviewed. There are also advantages in using widely recognised measures of socioemotional maladjustment such as those which have been used in previous research.

5.2. Thesis aims

There were seven major aims of the research carried out in this thesis. These aims were intended to overcome some of the limitations of previous research, and guided the design of the present research.

Aim 1. To develop a measure which can be used to assess physical, subordinal, and relational victimisation and their composite, and provide some data establishing its validity.

Aim 2. To investigate the relative extent to which different types of socioemotional maladjustment are related to victimisation.

Aim 3. To investigate the extent to which self- and peer-reports of victimisation are associated with self-reported socioemotional maladjustment.

Aim 4. To investigate the risk status for victims over a follow-up period as long as is allowed by time constraints.

Aim 5. To investigate the etiological relationship between victimisation and maladjustment, using both I-prospective and C-prospective analyses.

Aim 6. To investigate the relative extent to which different forms of victimisation are associated with maladjustment.

Aim 7. To investigate the possible moderating effects of gender and age on the maladjustment correlates of different forms of victimisation, at a time of possible transition from the agonic to the hedonic mode of social interaction.

Several hypotheses were tested in relation to these aims, and are presented in the "Aims and hypotheses" sections of results chapters.

5.3. Design plan

The design of the research presented in this thesis had to meet several requirements so that these aims could be satisfied.

Sample choice

School-based samples were chosen because they allow a comparison of deviant (e.g., victimised) and normal children (Parker & Asher, 1987). Unlike in some previous research,

the sample was based in the UK, and included participants of both sexes. Participants were selected from the beginning and end of middle childhood (i.e., ages 8-9, followed up to ages 9-10, and ages 11-12 followed up to ages 12-13), because

- data from participants in this age range would be comparable to those collected in previous studies;
- the choice of just two age groups would allow generalisation of research results to more than one age group, without creating too much heterogeneity in the sample;
- middle childhood may represent a transition period from agonistic to hedonic mode; and
- the same materials could be used with eight-year-old as with thirteen-year-old participants.

Follow-up prospective design

Measurements of both victimisation and maladjustment were taken from participants at two time points. This prospective follow-up design offered greatest scope for investigating the risk status of victims and the etiological relationship between victimisation and maladjustment.

Dependent measures

Socioemotional maladjustment variables, of the forms investigated in Chapter Two, were assessed with self-report inventories which have been used widely in previous research, and for which published psychometric data were available. A new instrument was devised to assess physical, subordinal and relational victimisation among children of the ages studied, by both peer- and self-report. It was rooted in the definitions of these forms of victimisation outlined in Chapter One, but items were chosen to represent children's

experience of victimisation, from previous British research (Arora & Thompson, 1987; K. Madsen, personal communication, October 1994; Madsen & Smith, 1995; Madsen, 1997; Rivers & Smith, 1994; Whitney & Smith, 1993). Items representing experiences of being a target of prosocial behaviour were included in this instrument, in order to balance the negative tone of victimisation items (c.f. Smith & Levan, 1995) and to help establish that the participants were not responding in an automatic fashion to items but were paying attention to item content.

Chapter Six

Method

Abstract

This chapter describes the methodology of the research carried out in this thesis. Data were collected by the present author from 177 participants who were members of six different teaching groups, three in primary or junior schools (aged eight to nine years old), and three in secondary schools (aged eleven to twelve years old), during the winter of 1994-95 (Time One). Participants were first interviewed individually about their experiences and perceptions of physical, subordinal and relational victimisation. On a separate occasion they completed a battery of questionnaires concerning their socioemotional adjustment - specifically their depressed mood, loneliness, anxiety, self-worth and social acceptance. Approximately ten months later, in the autumn of 1995 (Time Two), 150 of the original participants repeated these procedures. The sample size was reduced at Time Two largely because one of the schools withdrew from the study. The chapter ends with an overview of the methods used in the results chapters - largely based on multiple regression techniques - to address the aims of the thesis.

6.1. Participants

Children from two age groups were chosen to participate. At the start of the study participants were aged either between eight and nine years old, or between eleven and twelve years old. The younger children were first interviewed when they were in the

second year of junior school (Year Four/Y4), and were followed up into the third year (Year Five/Y5), when they were aged between nine and ten. The older children were first interviewed in their first year at secondary school (Year Seven/Y7), and were followed up into their second year there (Year Eight/Y8), when they were aged between twelve and thirteen.

Recruitment of participants

The author contacted secondary, primary, and junior schools in North Staffordshire and South Cheshire, in November 1994, and visited head teachers who expressed interest in allowing their pupils to participate in a study of the effects of bullying and related problems. Schools whose head teachers approved of the outlined procedure and materials to be used were selected for participation according to pragmatic criteria (e.g., having available a class group of children who were taught together for most of the school week, and who were solely from the appropriate year group; having a suitable space available for interviewing participants). Once an agreement was made to start research at a particular school, the head teacher was asked to choose a convenient class for participation in the study. Then a letter was sent out to the parents of all children in the chosen class, outlining the project and requesting that any parent who did *not* wish their child to participate to make their request known.¹ It was explained to parents in the letter that the research concerned the nature and effects of children's social relationships, that the methods would include interviews both one-to-one and in groups, that children's responses would be confidential, and that the parents had the right to refuse their children's participation.

¹Only two children from the six classes were withdrawn by parents - one boy from Y7 at the start of the study, and a second girl from Y7 (who had refused to be interviewed on her own at Time One) at Time Two.

Table 6.1: Characteristics of participating schools and school classes

School	Type of school	Class composition (<i>n</i>)		Anti-bullying policy	Catchment area (according to head teacher's description)	Changes at Time Two
		Boys	Girls			
A	Secondary	12	13	developed prior to study	Largely working-class former mining community, also some professional families	School withdrew at Time Two owing to policy decision of new head teacher
B	Secondary	15	15	none developed before or during study	Semi-rural, some socioeconomically deprived backgrounds, but mostly professional families	Time One class dispersed to different teaching groups at Time Two
C	Secondary	16	8	developed during study	Largely working-class inner-city area	Time One class dispersed to different teaching groups at Time Two
D	Junior	19	12	developed during study	Mixed working-class/professional suburban area	Time One class split between two classes at Time Two ²
E	Primary	18	11	developed prior to study	Mixed working-class/professional suburban area	Time One class intact at Time Two ³
F	Primary	20	18	none developed before or during study	Mixed working-class/professional suburban area	Time One class intact at Time Two

²At Time Two, peer-report data were collected from 17 additional participants in School D. These data suggested that the dispersion of participants across different classes at Time Two did not reduce the reliability of peer-reported victimisation (see Appendix VI).

³At Time Two, peer-report data were collected, and used to calculate peer-assessed victimisation in the analyses reported, from an additional participant who joined the class at the beginning of Y5.

Description of sample

The characteristics of the schools which took part in the study are described in Table 6.1. At least 150 participants were thought to be necessary in order to fulfil the requirements of the multivariate statistical analyses planned in the present research. All schools were based in North Staffordshire (Stoke-on-Trent or Newcastle-under-Lyme). All of the classes were mixed ability groupings, except for the class in School C, which was from a middle ability group. All participants were white, as are most inhabitants of the area, and spoke English as their first language.

Unfortunately, School A withdrew from the study before follow-up data could be collected, following a policy decision by a new head teacher to reduce time spent by his pupils on activities which were not central to their education. Additional obstacles presented at Time Two are indicated in Table 6.1, and discussed later in the chapter.

The nature of the sample was complicated also by fluctuations in the composition of classes over the course of the research. During the course of the study, two of the children included in Table 6.1 joined the school classes, while nine (as well as all the children from School A; otherwise no more than three children per class) left the schools concerned. Some participants exercised their rights to refuse to answer some of the questions asked, and some failed to complete the questionnaires, owing to long periods of absence or other reasons. Therefore sample sizes vary slightly for different measures, and different analyses in the chapters which follow. The ranges of sample sizes at both time points is shown in Table 6.2, separately for each sex, and mean ages are shown in Table 6.3.

Table 6.2: Range in sample sizes (smallest to largest *n*) for different dependent measures

	Boys		Girls	
	Primary	Secondary	Primary	Secondary
Time One	54-57	40-43	40-41	34-36
Time Two	52-56	25-27	35-39	21-22

Table 6.3: Participants' ages (years)

Age group		Time One	Time Two
Primary	mean	8.9	9.7
	s.d.	0.3	0.3
	range	8.3 to 9.4	9.1 to 10.2
Secondary	mean	11.9	12.8
	s.d.	0.3	0.3
	range	11.3 to 12.5	12.2 to 13.2

6.2. Dependent measures

6.2.1. Behaviour Target Questionnaire

Development

The Behaviour Target Questionnaire (BTQ) was developed for the purposes of this study to assess participants' experiences of victimisation. The BTQ items are presented in Table 6.4, along with the operational definitions of categories in which they were classified to generate peer reports of different forms of victimisation. Most of the items were based on categories of responses of British children who were asked to give examples of bullying, as reported by Madsen (1997; Madsen, personal communication, October 1994). Items representing each form of victimisation were chosen from those which were among the

most frequently elicited (on the assumption that more frequently elicited examples would be more salient to participants) in Madsen's research (Madsen, 1997, Table 5.1). Several of these were common also to other previous measures of victimisation used in the UK (e.g., Arora & Thompson, 1987; Whitney & Smith, 1993). One item, "Another child says you're no good at something", was designed as a prototypical example of subordinal victimisation. The first three relational victimisation items in Table 6.4 were not generated from Madsen's research, in which there was a shortage of examples of commonly cited relational aggression. In pilot studies they seemed to represent concepts of relational victimisation understood by children aged seven and older. That is, when presented with the relational victimisation items, children in Y3 and Y4 could give examples of other ways of being "left out". For instance, one boy gave an example as a "team of eleven, ten picked, me not picked." Variants of at least the first two relational victimisation items are also found in previous bullying research (see Rivers & Smith, 1994).

Four prosocial filler items (e.g., "Someone gives you a sweet") were included in order to balance the negative tone of the questions (c.f. Smith & Levan, 1995). Alternative non-victimisation "nasty" items (e.g., "You get in a fight"; "You come last in a race") were dropped after pilot work with seven- to nine-year-old children, which suggested that their inclusion would make the interview too long for younger children who were becoming restless. The pilot work suggested that children as young as seven could understand the questions they were asked. Although pictures illustrating aggressive behaviour have been used in research with nine- to fourteen-year-old children with moderate learning difficulties (Warden, *et al.*, 1996), the pilot work suggested that words would be sufficient within a normal sample of children aged seven or older.

Table 6.4: Victimization items in the Behaviour Target Questionnaire

Category abbreviation, and operational definition (for peer-reported victimisation)	Items (* subsequently omitted from self-report scales for different forms of victimisation)
Relational victimisation	No-one will talk to you
LEAVE OUT: "Where you get left out of things"	People won't let you play with them Someone says, "You're not my friend" Everyone has a secret and they won't tell you Another child tells you to do something you don't want to do *
Physical victimisation	You get kicked
TOUCH: "Where you get hurt by being touched"	Someone pushes you You get punched Another child throws something at you *
Subordinal victimisation	You get called names
PUT DOWNS: "Where you don't get touched, but someone tries to show that they're bigger or better than you and that you're smaller or not as good as them."	Another child says you're no good at something You get teased Another child laughs at you Someone steals something from you *

Procedure for BTQ

Full details of the BTQ procedure are given in Appendix II. BTQ items were used to assess self-reported and peer-reported victimisation, and also to investigate perceived distress responses to victimisation and definitions of bullying. Because of constraints on space, and their centrality to thesis aims, only the data concerning self- and peer-reported experiences of victimisation are analysed in this thesis.

Participants were informed that they would be asked about "things that might sometimes happen to you when you're with other children in school", and it was emphasised that they should refer to experiences with peers, rather than with siblings or adults. **Self-rated experience of victimisation** was assessed by asking participants to rate on a three-point scale how often they were targets of the behaviour described (3 = a lot; 2 = sometimes; 1 = not much), with the eighteen BTQ items presented in a fixed random order. After participants had been asked about their perceived distress responses, the fourteen victimisation items were used to define the three forms of victimisation. Each form of victimisation was explained to the participants using the description in the left hand column of Table 6.4, and then the corresponding items (in the right hand column of Table 6.4) were used as examples of the relevant form of victimisation. For instance, participants were told that "TOUCH" meant "Where you get hurt by being touched", and included examples such as the four items in the middle row of Table 6.4. Pilot work suggested that children as young as seven could understand the different forms of victimisation when they were defined in this way, in that they could give other examples of victimisation appropriate (in the present author's judgement) to the relevant category. After all three forms of victimisation had been defined in this way, participants were presented with a list

of their classmates (including themselves) and asked to nominate any of them who were targets of one of the forms of victimisation (**physical victim**, **subordinal victim**, or **relational victim** nominations). This procedure was repeated for the other two forms of victimisation, and the order in which participants were asked for the three types of nomination was partially counterbalanced. Participants were allowed to nominate themselves as targets or perpetrators. At Time Two, in order to provide data for tests of discriminant and convergent validity, participants from schools D and E were also asked to nominate peers who were "bullies" (**bully** nominations) and who "get bullied" (**generic victim** nominations).

Different forms of the BTQ

There were two forms of the BTQ: the BTQ-I (individual), used for individual interviews, and the BTQ-G (group), used for group administration. At Time One all BTQ data were collected in individual interviews with the participants, and items were presented to participants on stimulus cards. The protocol for the BTQ-I is given in Appendix II, and responses were recorded by the interviewer on a response sheet, also given in Appendix II. The BTQ-G was developed when it became clear that it was not possible to interview individually all the participants at follow-up, because of constraints placed on the research timetable by developments in some of the schools.⁴ These constraints became clear after the BTQ-I had been used in follow-up data collection at Schools D and E, and so the BTQ-G was used only in Schools B, C, and F at Time Two. The BTQ-G came in two

⁴School F asked that all the follow-up data be collected within a single day. Children were dispersed across different teaching groups in Schools B and C at follow-up. This meant that individual interviews would have presented far greater organisational problems than single whole-group sessions of data collection.

parts (see Appendix II). The first part was a booklet in which participants ticked boxes to indicate their self-rated experience of victimisation. The second part was a double sided sheet presenting a list of the children in the participant's class, and participants gave peer nominations of the three forms of victimisation by placing a tick against the name of each classmate nominated. Essentially the same information given to the participants in the BTQ-I was transferred in written form to the BTQ-G, and was read out to the participants before they were permitted to complete each part of the instrument.

Deriving measures of victimisation from the BTQ

Participants' BTQ responses were used to produce scales to measure self-reported and peer-reported composite and different forms of victimisation. The development of these scales is discussed in the context of an investigation of their psychometric properties which would not be appropriate to present at this stage, and is described, with the procedures used in producing the scales, in Chapter Seven.

6.2.2. Socioemotional maladjustment battery

Participants completed a battery of socioemotional adjustment questionnaires to assess their **depressed mood, loneliness, anxiety, and global self-worth**. At Time One only, the battery also included measures of social comparisons (not analysed in this thesis because of space constraints), and **self-perceived social acceptance**. All the instruments in this battery which were analysed in the present thesis have been used in previous studies of the maladjustment of victims (e.g., Boivin, *et al.*, 1995; Boulton & Smith, 1994; Kupersmidt, *et al.*, 1997). Internal consistency (which was generally high, Cronbach's α s >.8), and the possible range of scores, for each scale in the present sample is presented in Table 6.5.

Table 6.5: Possible and actual range of scores, descriptive data and internal consistency of socioemotional maladjustment scales in present sample

Scale and possible range of scores	Time point	Mean	s.d.	Actual minimum	Actual maximum	<i>n</i>	Internal consistency (Cronbach's α)
CDI (Depression) 0-52	Time One	9.30	7.25	0	31	175	.85
	Time Two	9.21	7.23	0	28	137	.84
RCMAS (Anxiety) 0-28	Time One	9.73	5.82	0	24	175	.85
	Time Two	8.91	6.45	0	26	137	.89
LADS (Loneliness) 16-80	Time One	30.96	10.19	16	59	171	.86
	Time Two	30.81	11.01	16	66	136	.88
GSW (Global Self-worth) 1-4	Time One	3.03	0.63	1.17	4.00	174	.71
	Time Two	3.20	0.61	1.17	4.00	136	.74
SOCACC (Social Acceptance) 1-4	Time One	3.01	0.65	1.17	4.00	174	.70
	Time Two	-	-	-	-	-	-

Depression

Depressed mood was assessed with the Children's Depression Inventory (CDI; Kovacs 1992; originally developed by Kovacs, 1981), a 27-item self-report inventory, based on a checklist of symptoms and designed for use with children between the ages of seven and seventeen. For each item, respondents are asked to choose which of three statements describes best "how they have been over the past two weeks". The choices indicate either the absence of a depressive symptom (e.g., "I feel like crying once in a while"), scored 0; the presence of a mild depressive symptom (e.g., "I feel like crying many days"), scored 1; or the presence of a definite symptom (e.g., "I feel like crying everyday"), scored 2. Scores are summed across items to produce a total depression score, which Ollendick and Yule (1990) found was positively correlated with other measures of internalising maladjustment in a British sample. In the present research, the published guidelines for the administration of the CDI were followed (see Kovacs, 1992), and one of the CDI items referring to suicide was omitted.⁵ Thus scores could range from 0 to 52, with higher scores representing greater depression.⁶

Anxiety

Anxiety was assessed with the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985). The RCMAS is a 37-item self-report instrument designed

⁵This item was answered initially by some of the participants, but was crossed out on later questionnaires because of the ethical problems presented when a number of participants endorsed the response, "I want to kill myself". The author followed up all these participants and informed the head teacher about their feelings when appropriate (see Appendix III).

⁶It is convenient and a common practice (Fristad, Emery, & Beck, 1997) to describe children with high CDI scores as depressed. But the reader should bear in mind the limitations of the CDI, which cannot diagnose clinical depression and whose results may not generalise to clinical samples (Fristad, *et al.*, 1997; Kovacs, 1992).

to measure trait anxiety among children between the ages of six and nineteen. 28 of the items are statements which describe anxiety symptoms (e.g., "I worry about what other people think about me"), and are interspersed by a nine-item lie scale. Participants are asked to respond "Yes" (scored 1) if a statement is true about them, and "No" (scored 0) if it is not. The total anxiety score, summed across anxiety items, can range from 0 to 28, higher scores indicating greater anxiety. The RCMAS has shown good internal consistency, test-retest reliability, and concurrent validity among white, English speaking children between the ages of eight and thirteen in the United States (Reynolds & Richmond, 1985). In the present research, Reynolds and Richmond's (1985) published instructions for administering the RCMAS were followed. The lie scale was not significantly correlated with RCMAS scores, or indeed with scores on any of the socioemotional adjustment inventories.

Loneliness

Loneliness was assessed with the Loneliness and Social Dissatisfaction Scale (LADS; Asher & Wheeler, 1985), a sixteen-item self-report instrument designed for use with children aged between approximately eight and twelve.⁷ Respondents are presented with statements like "I feel alone at school", and asked to indicate on a five-point scale how true each statement is of them (5 = always; 4 = most of the time; 3 = sometimes; 2 = hardly ever; 1 = not at all). There are also eight filler items (to which an additional three were added in the present research). Scores on the sixteen loneliness items are summed to

⁷Minor modifications to the wording of the questions (such as making questions refer to "your classes" rather than "your class") have been made for its use with older children (Asher, Parkhurst, Hymel, & Williams, 1990), but in order to promote consistency in measurement these were not applied here.

produce a total loneliness score (with several items reversed scored - see Asher, Hymel, & Renshaw, 1984), so that loneliness scores can range from 16 to 80, with 80 representing extreme loneliness. High scores are related to lower popularity and fewer friendships than low scores (Asher, *et al.*, 1984).

The LADS is not published in manual form, unlike the other socioemotional maladjustment inventories. The protocol which was used in the present research is presented in Appendix IV. The procedure for administration was adapted from Asher, *et al.* (1984), participants being trained to respond to the items before completing the questionnaire. The items were those used by Asher and Wheeler (1985), with minor modifications (to make the wording more appropriate for use with a British sample), which referred to experiences specifically *at school*.

Global Self-worth and Social Acceptance

These constructs were measured as two subscales of the Self-Perception Profile for Children (SPPFC: Harter 1985). The SPPFC is a 36-item self-report inventory, designed to assess judgements of self-competence and an overall sense of self-worth (Harter, 1985) among children aged between eight and fourteen years. Only the six-item subscales measuring self-perceived social acceptance (SOCACC) and global self-worth (GSW) were completed by the participants in the present study, but otherwise the procedure for administration of the SPPFC followed that recommended by Harter (1985), with minor modifications to make its wording more appropriate for a British sample (see Appendix V). Each item consisted of a statement which expressed a contrast between two types of

children with greater or lesser self-competence or self-worth. Each type of child was described in a different half of the statement, and separated by the conjunction, "but" (e.g., "Some kids are often unhappy with themselves BUT other kids are pretty pleased with themselves", for GSW, and "Some kids find it hard to make friends BUT other kids find it's pretty easy to make friends", for SOCACC). Respondents were asked to make two choices: first they were to decide which half of the statement was more true for them (i.e., which type of child was more like them); then they were to decide whether the chosen statement was "a bit true", or, "very true" for them. Responses were scored on a four-point scale, with higher scores indicating greater identification with the more competent category of children. The mean of scores was taken across items, and so scores on each subscale could range from 1 to 4. At Time One, participants completed global self-worth items interleaved with social acceptance items; at Time Two, they were presented only with the global self-worth items.

Less extensive data exist concerning the validity of the SPPFC than for the other indices of socioemotional maladjustment used here. For instance, in an evaluative review of measures of self-esteem, Blascovich and Tomaka (1991) could not find any data concerning the discriminant validity or the test-retest reliability of the instrument or its subscales. However, the subscales have been used widely in the peer relations literature, particularly in British research with victims of peer aggression (Anderson & Harrison, 1996; Boulton & Smith, 1994; Callaghan & Joseph 1995; Mynard & Joseph, 1997; Neary & Joseph, 1994). Although internal consistency was lower for these subscales than the other socioemotional maladjustment inventories in the present sample (Table 6.5), the global self-worth subscale had high test-retest reliability ($r = .89$) in a sub-sample of 25

primary school participants, over a mean period of 4.8 days.

6.3. Procedure

The investigator (the present author) was introduced to participants by a teacher known to them, and subsequently carried out all the interviews and administered all the questionnaires. At both time points, the BTQ-I interviews were completed with most participants before they completed the **test battery** (i.e., the socioemotional maladjustment tests and, in schools B, C, and F at Time Two, the BTQ-G). As part of a wider study, the investigator collected data from participants concerning their affiliative and dominance relationships on at least one other occasion, but there is no space in this thesis to report those data.

Before each data collection session, participants were told what kind of questions they were to be asked; that they had the right to refuse to answer any question if they wished not to; that there were "no right or wrong answers"; that their responses were confidential ("private", for primary school children); that in consequence they should not discuss their responses with their peers; and that they should ask for an explanation if they did not understand a question.

The BTQ-I was administered in a one-to-one interview, with only the participant and the investigator present. Each interview took place in a quiet area of the school where (in order to fulfil ethical requirements) the investigator and participant could be observed by passing adults or children.

The test battery was administered in group sessions with most of the participants. In primary schools, most groups consisted of three to six participants of equivalent reading ability. In secondary schools the test battery was administered to the whole class at once. Some participants who were initially absent or were identified by the investigator as slow readers completed some of the tests in the battery in smaller groups or alone.

At Time One, the order of administration of tests was fixed as followed: first the SPPFC, then the CDI, then the scale for assessing social comparisons, then the LADS, and finally the RCMAS. This order was fixed in order to facilitate participants' understanding of the procedure of completing questionnaires. At Time Two, in Schools B, C, and F, the BTQ-G was placed last in the test battery, its first part being presented before its second part. At Time Two, participants had already encountered the more complex questionnaires, and so the order of administering questionnaires in the battery was reversed for approximately half the participants (including administering the second part of the BTQ-G before the first part). Because the battery often took more than an hour to administer, it was sometimes completed over more than one session.

6.4. Strategy and design of data analysis

Multiple Regression

Multiple regression (MR) was chosen as the main procedure for data analysis. In MR, scores on two or more independent variables are used as predictors of scores on a continuous dependent variable, sometimes known as the outcome variable. It is said that the outcome variable is *regressed on* the predictors. The terms "predictor" and "outcome"

do not necessarily mean that the independent variables temporally precede the dependent variable. MR demonstrates the extent to which variability in the outcome variable is *explained (accounted for/ predicted)* by variability in the predictors - separately and jointly. A single value of multiple R , or multiple R^2 , is produced at the end of a regression, and shows the extent to which the predictors *jointly* account for variance in the outcome (R^2 being the percentage variance shared between the predictors and outcome). Regression coefficients, standardised (β s) or unstandardised (b s), and semi-partial correlations (srs) are produced separately for each predictor, and show the extent to which each predictor is *uniquely* related to the outcome, independently of its correlations with other predictors. Zero-order correlation coefficients (Pearson's r s) can also be produced with regression statistics. Post-hoc tests of the significance of these r s from regression tables (Larzelere & Mulaik, 1977), adjusting for Type I error, show the extent to which each predictor is related to the outcome *without* controlling for the correlations among predictors.

The reasons for choosing MR are as follows.

First, multivariate analyses such as MR reduce Type I error, by reducing the number of statistical analyses. In contrast, use of multiple univariate tests (such as t -tests, correlations, χ^2 s) inflate Type I error and make "significant" results less valid.

Second, in their raw form, most of the variables were continuous rather than categorical. Continuous variables can be converted to categorical variables. For example, Boulton and Smith (1994) converted continuous bullying and victimisation scores to categorical variables which contrasted bullies with non-bullies, and victims with non-victims.

Categorising continuous variables tends to reduce the power of the data (Cronbach, 1968), unless there are curvilinear relationships among variables (Hinde and Dennis, 1986), and low power makes Type II errors more likely, so that true relationships between variables are overlooked. MR is based on correlations among continuous, rather than categorical variables, and thus preserves the power of data. Preliminary attempts were made to create categorical variables in the present data set. Many of these resulted in small sample sizes within each category, or cut-off points which may have been perceived as too lenient, and led to non-significant results, which would be expected if power is low.

Third, MR is well suited to the aims of the study (section 5.2). It is ideal for prospective follow-up analyses (Aim 5; Cohen & Wills, 1985); for investigating the unique contributions of socioemotional maladjustment to predicting contemporaneous victimisation (Aim 2), and of different forms of victimisation to predicting maladjustment (Aim 6); and for controlling for third variables such as gender or age (Cohen & Wills, 1985) and investigating their moderation effects (Aim 7).

Finally, the use of MR is consistent with the emphasis on effect sizes introduced in Chapter Two. Bivariate zero-order correlations (Pearson's r s), available from MR programs, are directly comparable to the r s displayed in Tables 2.2 to 2.6, and describe the nature of the relationship between two variables.

The types of MR chosen were hierarchical and standard multiple regression (Tabachnick & Fidell, 1996), and combinations of these. Stepwise (or forward, or backward selection) multiple regression is inappropriate when the purpose is to *explain* the nature of the

relationship between variables, as it is in this thesis, rather than simply to find the best statistical predictor (Kerlinger & Pedhazur, 1973). Stepwise regression's statistical criteria for the entry of variables into a regression equation can cause serious misinterpretations of results. In **standard** multiple regression, all independent variables are entered simultaneously as predictors of the dependent variable, so that the inter-correlations among independent variables are controlled for, and semi-partial correlations indicate the degree to which each independent variable is uniquely associated with the dependent variable. In **hierarchical MR** independent variables are entered as predictors of the dependent variable in a sequence planned by the researcher. Change in R^2 at each step indicates the extent to which the variables entered at that step are related to the dependent variable, independently of the variables entered in previous step. Other types of statistical analysis, and the specific MRs designed, are described and justified within each chapter.

Checking of assumptions

Data were checked for violations of MR assumptions of normality, linearity, homoscedasticity, multicollinearity, and for the presence of outliers, according to the procedures recommended by Tabachnick and Fidell (1996). First, exploratory data analysis (Tukey, 1977) was routinely applied to each variable. Stem-and-leaf plots were examined in an initial search for skewness and outliers. Mathematical transformations (Hartwig & Dearing, 1979) were applied when these were straightforward and were able to normalise the distribution of skewed variables.

In initial multiple regression runs, plots of standardised residuals against standardised values predicted by the regression equation, were examined for evidence of a pattern

among the residuals (indicating curvilinearity or homoscedasticity). The influence of outliers was determined through examination of values of Cook's D , leverage, and Mahalanobis distance. Attention was paid to the distributions of the first two statistics (including cases with extreme values) and to cases with values of Mahalanobis distance greater than chance. This latter statistic is distributed as χ^2 , with degrees of freedom equal to the number of variables. Type I error rate (α) for its evaluation was set at .001, as recommended in Tabachnick & Fidell (1996). Plots of residuals against leverage were examined in order to identify possible outliers in the solution of the regression. Attention was paid to outliers with high standardised residuals (greater than 3.29 in magnitude, $p < .001$) or for which relatively high residuals were combined with high leverage.

Multicollinearity was checked using conditioning indices and variance proportions produced by the SPSS REGRESSION procedure. These statistics are produced in association with components (roots) of the equivalent of a principal components analysis on the independent variables. According to Tabachnick & Fidell (1996), multicollinearity may be present when at least two variables have variance proportions greater than .5 on a root which has a conditioning index greater than 30. Multicollinearity inflates correlations and reduces the overall power of statistical analysis. It is only when correlations between independent variables exceed .9, however, that statistical solutions become unstable. In some of the analyses reported in this thesis there were *a priori* reasons for including specific independent variables as predictors in MR, whose importance had to be weighed against the loss of power resulting from mild multicollinearity. Occurrences of multicollinearity are noted in the text, and reasons are given for removing or retaining variables which caused it.

When regression assumptions other than multicollinearity were violated, outliers were deleted in order to satisfy them. The assumptions were then checked again, and further modifications to the data were made if necessary, until there was no evidence that assumptions remained violated. Unless indicated otherwise in the description of the results of MRs, assumptions were judged to be satisfactorily met, and all available cases were retained for analysis. Similarly, suppressor variables (indicated by the presence of significant β s which are opposite in direction or greater in magnitude than zero-order correlations) were mentioned only if found. Unless otherwise indicated, there were sufficient participants in each regression (according to the formulae provided by Tabachnick and Fidell, 1996) after all outliers are deleted.

Overview of data analysis and results chapters

Each of the results chapters focuses primarily on at least one of the specific aims detailed in section 5.2, although the pattern of results across all these chapters is taken as empirical evidence for hypotheses connected to the aims.

Chapter Seven focuses on Aim 1, presenting psychometric data concerning the reliability and validity of the measures of victimisation developed from the BTQ.

Chapter Eight focuses on Aims 2 and 3. MR analyses are reported which compare different socioemotional maladjustment variables in terms of their contemporaneous correlations with composite victimisation; and different informants' reports of composite victimisation in terms of their contemporaneous correlations with maladjustment. It is far more straightforward to investigate these two aims with respect to composite victimisation than

in analyses with all three forms of victimisation taken as separate variables.

Chapter Nine focuses on Aims 4 and 5, using a measure of the predictive risk sustained by victims of composite peer aggression, and both types of prospective analysis to investigate the etiological relationship between composite victimisation and maladjustment. Again it is far easier, and creates fewer statistical problems, to investigate these aims with respect to composite victimisation than it is to investigate them with measures of different forms of victimisation.

Chapter Ten focuses on Aims 6 and 7. Different forms of victimisation are used as predictors of contemporaneous maladjustment, and moderating effects of gender and age are included as interaction terms in some analyses. This is not a replication of Chapter Eight, because there is no direct investigation of Aims 2 or 3; neither are different forms of maladjustment nor are different informants' reports of victimisation included within the same statistical analyses.

Chapter Eleven combines Aims 4, 5 and 6 in a follow-up prospective study of the longitudinal relationship between different forms of victimisation and maladjustment. It builds on the previous two chapters but does not undermine their unique contributions, because composite victimisation is of interest in its own right (c.f., Kochenderfer & Ladd, 1996a), and there are fewer statistical problems in the interpretation of the results of those chapters.

Format for presentation of results

Essentially a standard format is used to present the results. Each group of multiple regressions is preceded by descriptive data (including means and standard deviations for variables in the analyses, after any mathematical transformations applied), and a table of bivariate zero-order Pearson's correlations, which is displayed as a preliminary illustration of the relationship among variables. Unless indicated, all probability values displayed are two-tailed.

The final regression statistics for each MR - that is, with all independent variables entered into the regression equation - are normally displayed in a separate table (except for a handful of non-significant results, which are not tabulated, and for some of the MRs which were not central to thesis aims). The statistics shown were all produced directly or indirectly by the SPSS REGRESSION procedure, and are those which Tabachnick and Fidell (1996) encouraged researchers to report in order to give a complete picture of the results of a regression. They include:

- unstandardised regression coefficients (*bs*) for each independent variable and for the intercept (constant) term in the regression equation - the values by which independent variable values are multiplied to calculate predicted values of the dependent variable;
- 95% confidence limits around the *bs* ($p = .95$ that the true value of the population regression coefficient is within these limits - c.f. Howell, 1992);
- standardised regression coefficients (β s) - *bs* converted to *Z*-scores;
- zero-order correlations (Pearson's *rs*) between each independent variable and the

dependent variable;⁸

- squared semi-partial correlations (sr^2 s) indicating the unique relationship between each independent variable and the dependent variable, with variance shared with other independent variables partialled out - these are the best indicators of the importance of independent variables in standard MR (Tabachnick & Fidell, 1996);
- multiple R - the multiple correlation of the dependent variable with the combination of all the independent variables;
- R^2 - the square of multiple R , indicating (when multiplied by 100) the percentage variance shared between the dependent variable and the independent variables;
- R^2 adjusted for sampling error - the estimate of the population R^2 ; and
- n (sample size used for the regression).

The following is additionally presented in some tables as appropriate:

- change in R^2 at specific steps of a hierarchical regression, usually expressed in terms of percentage variance explained by the variables entered at that step;
- the percentage variance in the dependent variable uniquely explained by specific predictors (based on summing appropriate sr^2 s and multiplying the result by 100); and
- the percentage variance shared by a combination of predictors with the dependent variable (based on subtracting the previous value from the percentage change in R^2 for the appropriate predictors).

⁸Post-hoc significance tests (Larzelere & Mulaik, 1977) were based on the r s taken from regression tables, rather than from correlation matrices, because the former related uniquely to the sample for the regression, with influential outlying values deleted. Because of variations in Type I error rate and sample size, the magnitude and significance of these r s may differ from those of r s displayed in correlation matrices.

Descriptions of results

This method of data analysis was based on correlations among variables, but correlations are not always as easily understood as are differences between distinct categories. For example, a statement that victims are more distressed than non-victims arguably expresses more about human behaviour than a statement that victimisation is positively correlated with distress. Therefore it will be convenient sometimes to describe results in terms of differences between victims and non-victims, or distressed and non-distressed children, even though they are based on correlational analyses. Such descriptions do not imply that categorical analyses were conducted. Rather, they are used as a convention to simplify the description of results.

Coding of demographic variables

The gender and age group each participant belonged to was coded dichotomously (unless otherwise indicated, 0 = male; 1 = female; 0 = primary school age, 1 = secondary school age). Thus positive correlations between a variable and gender meant that girls scored higher on the variable than boys, and positive correlations with age meant that secondary school children scored higher than primary school children.

Part II: Results and Conclusions

Chapter Seven

Psychometric properties of victimisation scales

Abstract

This chapter addresses aim 5.1 of the thesis. Scales were developed from the BTQ to measure the three forms of victimisation and their composite. Scales for self-reported relational, physical and subordinal victimisation showed generally moderate internal consistency and test-retest reliability, good subscale-specific stability over ten months, and were moderately inter-correlated. There was acceptable agreement among participants' peers about whether they were targets of each form of aggression. Peer-report subscales for each form of victimisation showed good subscale-specific stability and convergent and discriminant validity, and were relatively strongly inter-correlated. Self- and peer-report measures of a composite of the three forms of victimisation showed high internal consistency. Different informants' reports of composite, subordinal and physical victimisation were moderately inter-correlated. The chapter ends with a discussion of the implications of these psychometric data for the remaining empirical chapters.

7.1. Self-assessed victimisation

Developing self-report victimisation scales from BTQ items

Table 7.1: Internal consistency and range of scores for self-reported victimisation composite scale and subscales

Type of Victimisation Scale	Item combinations used	Cronbach's α s		Range of possible scores	
		T1	T2	Min.	Max.
Composite Victimisation	All victimisation items from Table 6.4	.78	.86	14	42
Subordinal Victimisation	You get called names You get teased Another child laughs at you Another child says you're no good at something	.65	.75	4	12
Physical Victimisation	You get kicked Someone pushes you You get punched	.61	.66	3	9
Relational Victimisation	No-one will talk to you People won't let you play with them Someone says, "You're not my friend" Everyone has a secret and they won't tell you	.52	.65	4	12

Participants' self-ratings on the fourteen victimisation items of the BTQ were summed to produce a measure of self-reported composite victimisation, with possible scores ranging from 14 to 42. Subscales were created for each form of victimisation, and were based on the groups of items in Table 6.4, with one item omitted from each group because its inclusion reduced internal consistency of the relevant subscale. For this reason the item,

"Someone steals something from you" was omitted from the subordinal victimisation subscale; "Another child throws something at you" was omitted from the physical victimisation subscale; and "Another child tells you to do something you don't want to do" was omitted from the relational victimisation subscale. The items which were used to create the composite and specific measures of self-rated victimisation are displayed in Table 7.1, together with their Cronbach's α s at Time One (T1) and Time Two (T2), and the possible range of values they could take, higher values representing greater self-assessed victimisation.

The measure of self-reported composite victimisation showed good internal consistency at both time points. But despite the omission of some items from subscales, the subscales for the different forms of victimisation had relatively low internal consistency, none having Cronbach's α s $> .75$. Consistency was greater at Time Two than at Time One. Overall, internal consistency was best for Subordinal Victimisation and worst for Relational Victimisation. Cronbach's α s for Subordinal and Physical Victimisation were acceptable, all exceeding $.6$, with some approaching or exceeding $.7$. Relational Victimisation at Time One showed the poorest internal consistency.

Unfortunately, the internal reliability of the subscales could not be improved by deletion of items or cases. Internal consistency did not improve substantially with the deletion of univariate or multivariate outliers. Cronbach's α s calculated separately for each sex, and for each age group, suggested a number of patterns in reliability which differed according to these variables. Subordinal and Physical Victimisation were more internally consistent for boys than for girls, and Relational Victimisation was more internally consistent for girls

than for boys, though only at Time One. Similarly, the subscales were more internally consistent in the older than in the younger age group. These results suggested that demographic variables needed to be considered carefully in analyses including these subscales, but variations in internal reliability were not consistent enough to warrant separate analyses by age group. For instance, even among Year Seven children α was only .50 for Relational Victimization.

The relatively low internal consistency of the subscales must be borne in mind in interpreting the results of analyses of self-rated experience of different types of victimisation. But, as will be shown,¹ there were other data supportive of the reliability and validity of these subscales, and they were retained for analysis as part of the multi-method approach to the research questions investigated in the present study.

Descriptive data and inter-subscale correlations

Descriptive data for the self-assessed victimisation subscales are presented in Table 7.2. Subscale scores indicate the extent to which participants saw themselves as targets of peer aggression, with greater scores representing greater self-reported victimisation. Participants scores took the full range of possible values for each subscale, with mean scores being generally lower at Time Two than at Time One. On average, participants saw themselves as the equivalent of between never and sometimes being targets of aggression.

Zero-order inter-subscale correlations are displayed in the bottom part of Table 7.2. These were positive, moderate at Time One and greater at Time Two. Previous researchers

¹See also Appendix VII.

(Alsaker, 1993; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Haselager, 1997; Kochenderfer & Ladd, 1996b; Ku, 1997) have also reported moderate to high correlations among different forms of victimisation, suggesting that victims of one form of aggression are probably also victims of another form.

Table 7.2: Self-rated victimisation experiences: Descriptive data

Subscale		Mean	S.D.	Min.	Max.	<i>n</i>
Composite	Time One	20.46	4.69	14	36	173
	Time Two	19.86	5.39	14	38	135
Subordinal	Time One	6.21	1.93	4	12	173
	Time Two	6.04	2.03	4	12	135
Physical	Time One	4.38	1.49	3	9	173
	Time Two	4.23	1.48	3	9	135
Relational	Time One	5.85	1.75	4	12	173
	Time Two	5.52	1.74	4	12	135

Correlations among subscales

*** <i>p</i> < .001	Time One (<i>n</i> = 173)		Time Two (<i>n</i> = 135)	
	TOUCH	LEFT OUT	TOUCH	LEFT OUT
PUT DOWN	.44***	.33***	.50***	.62***
TOUCH		.44***		.53***

Test-retest reliability

Limited test-retest reliability data were available for self-rated experiences of victimisation. At Time Two, eighteen participants from School B were asked to fill in the BTQ-G a second time, seven days after they first completed it. Test-retest reliability coefficients (Pearson's *r*s) were calculated for the three subscales of self-rated experience of

victimisation. Encouragingly, test-retest reliability was greatest for Relational Victimization ($r = .78$), and also quite respectable for Subordinal Victimization ($r = .65$). Physical Victimization had test-retest reliability value so low ($r = .43$) that a significance test was called for. When the significance of bivariate correlations is tested, it is appropriate to examine a scatterplot of the two variables for curvilinearity (Howell, 1992). There was no strong evidence for a curvilinear relationship, but the r was of only borderline significance ($p < .08$). At least in this sub-sample, children's self-reports of subordinal and relational victimisation were reliable but their self-reports of physical victimisation were not.

Stability of self-rating scales

Data were also available to show the stability of the self-report victimisation subscales over the period of the study. 133 participants responded to all the items included in the subscales at both time points. All three subscales were moderately stable over ten months (r s ranging from .34 to .36), and measures of one form of victimisation at Time One were sometimes moderately related to measures of a different form of victimisation at Time Two. For example, the zero-order correlation between Time One Subordinal Victimization and Time Two Physical Victimization was .38.

Subscale-specific stability was assessed with partial correlations. These were calculated between each pair of subscales at the two time points by controlling for their correlations with all other subscales.² For instance, the partial correlation between Time One and Time

²This was achieved through three hierarchical multiple regressions, in which each Time Two subscale in turn served as dependent variable. The other two Time Two subscales were entered as predictors at the first step of these regressions. Thus, at this step, variance shared with other types of victimisation was removed so that the remaining variance potentially represented a "purer" measure of the criterion. The three Time One subscales were entered at the second step of each

Two measures of Subordinal Victimisation was calculated by removing from their correlation the variance shared with Time One and Time Two Relational and Physical Victimisation subscales. Thus partial correlations indicated the unique proportion of variance that each Time One subscale shared with each Time Two subscale, independently of other subscales.

Table 7.3: Ten-month stability of self-rated experience of different forms of victimisation: Partial and (in parentheses) zero-order correlations

		Time One self-report subscales		
		Subordinal	Physical	Relational
Time Two subscales	Subordinal (<i>n</i> = 133)	.33*** (.34***)	-.32*** (.02)	-.02 (.16)
	Physical (<i>n</i> = 126)	.03 (.38***)	.33*** (.34***)	-.20* (.19*)
	Relational (<i>n</i> = 130)	-.06 (.26**)	-.00 (.19*)	.28*** (.36***)

Partial and (in parentheses) zero-order correlations and are shown in Table 7.3. The partial correlations showed that, after controlling for every other subscale, the only significant *positive* associations were those between subscales which measured the same form of victimisation (highlighted in bold typeface in Table 7.3). When variance shared with other forms of victimisation was removed, self-rated Time One Subordinal Victimisation showed

regression. Seven outliers were deleted from the regression predicting Time Two self-rated Physical Victimisation, and three outliers were deleted from the regression predicting Time Two self-rated relational victimisation. No other violations of the regression assumptions remained after these modifications, although in this instance multicollinearity assumptions were not examined because of the need to include all the variables.

a *unique* positive association with self-rated Time Two Subordinal Victimization; self-rated Time Two Physical Victimization showed a unique positive association with self-rated Time Two Physical Victimization; and self-rated Time One Relational Victimization was uniquely associated with self-rated Time Two Relational Victimization. The only significant partial correlations between *different* forms of victimization at different time points were negative (e.g., Time One Physical and Time Two Subordinal Victimization). In other words, the self-report subscales showed strong subscale-specific stability. Children's reports of experiencing one form of victimization at Time One were related uniquely to their reports of experiencing the same form ten months later.

7.2. Peer-assessed victimisation

Internal consistency

Considerable manipulation of the data was necessary to develop measures of peer-reported victimisation. Each participant was asked to say, in effect, whether or not each of his or her peers experienced being left out, put down, and being hurt by being touched. The raw data were input as a series of matrices. For instance, subordinal victim nominations for one class at Time One were entered in a single A by B matrix, where A (rows) represented the number of participants who gave nominations, and B (columns) represented the number of participants who were given nominations. Usually A and B had the same value, but B was sometimes greater than A when data were missing. Each data point in such a matrix was coded as 1 (nomination given) or 0 (no nomination given). There was an equivalent matrix for each type of victim nomination, within each class, at each time point.

The author first assessed whether participants agreed about which of their peers were targets of each form of aggression. There does not appear to be an accepted measure of agreement for peer nominations. Cronbach's α is arguably not an appropriate agreement statistic for data of this type. It is based on the covariance (c.f. correlations; Norušis, 1990) among items, and could be calculated within each peer nomination matrix by treating the rows of the matrix as separate items (thus in SPSS, the matrices would be transposed before calculating α s). Correlations among dichotomous items are ϕ coefficients (Howell, 1992), and are artificially lowered if the dichotomous split is extreme (Gorsuch, 1974), for instance if fewer than 10% of participants choose one of the two responses (Richardson, 1989). But most participants nominated only a minority of their peers as victims, as might be expected, and several nominated fewer than 10%. In fact, at Time One, 48.4% of the rows (*i.e.*, the items for calculating α s) in the data matrices contained nominations of fewer than 10% of peers. These proportions would likely have artificially lowered the α s, suggesting that agreement did not exist when it did.

Similarly, while Cohen's κ (Cohen, 1960), extended to multiple observers (Fleiss, 1971), is a useful statistic for measuring agreement in nominally scaled data (Siegel & Castellan, 1992), its values also vary with the proportions in each nominal category, and are especially low when the proportion of positive cases is low, (Uebersax, 1987), as it was in the peer nominations data.

Table 7.4: Agreement among participants about the extent to which their peers were targets of different forms of victimisation

Nomination type	School	Time One			Time Two ³		
		<i>W</i>	χ^2	<i>p</i>	<i>W</i>	χ^2	<i>p</i>
Subordinal victim	A	.21	127.92	<.0001	-	-	-
	B	.25	218.84	<.0001	.28	222.29	<.0001
	C	.19	106.25	<.0001	.17	64.1	<.0001
	D	.10	84.65	<.0001	.09	76.69	<.0001
	E	.22	168.66	<.0001	.19	151.29	<.0001
	F	.03	48.76	<.1	.08	88.38	<.0001
Physical victim	A	.22	129.09	<.0001	-	-	-
	B	.09	76.51	<.0001	.07	58.27	<.001
	C	.23	126.77	<.0001	.11	42.30	<.003
	D	.06	51.40	<.007	.05	42.62	<.005
	E	.13	99.43	<.0001	.12	85.61	<.0001
	F	.06	83.01	<.0001	.10	112.41	<.0001
Relational victim	A	.18	105.10	<.0001	-	-	-
	B	.15	131.33	<.0001	.28	217.26	<.0001
	C	.28	154.89	<.0001	.23	88.07	<.0001
	D	.05	46.34	<.025	.14	112.12	<.0001
	E	.14	105.57	<.0001	.22	174.79	<.0001
	F	.09	124.60	<.0001	.19	222.84	<.0001

An alternative statistic for use was Kendall's coefficient of concordance (*W*: Siegel & Castellan, 1992). *W* is a statistic for agreement among judges ranking a number of stimuli. In the present case, judges were represented as the participants giving nominations, and the stimuli were their peers to whom they were asked to give nominations. When there are

³For an investigation of the possibility of bias due to the splitting of classes in schools B, C, and D at Time Two, see Appendix VI.

more than seven stimuli to be ranked, the significance of W is tested by converting it to χ^2 , distributed with degrees of freedom one less than the number of stimuli. It might be objected that the data were not ranked. But this χ^2 value is computationally equivalent to the Friedman rank statistic (Siegel & Castellan, 1992), which is a preferred statistic for use with related samples in which the variables are at least ordered, even when there are numerous tied ranks, as in the present case.

Kendall's W s for the matrices at both time points, together with associated χ^2 and p -values, are presented in Table 7.4. Self-nominations were coded as zero in the calculation of W statistics, as they were to be in the summing of peer nominations. Significant values of W show that the participants were applying essentially the same standard in judging their peers (c.f. Siegel & Castellan, 1992). On the whole, the values of W were highly significant ($p < .0001$ in most cases), and in only one matrix (School F, Time One subordinal victim nominations) was W not significant at the 5% level. As all other W s for subordinal victim nominations, and for School F otherwise, were significant at $p < .0001$, it was concluded that participants generally agreed overall about which of their peers experienced each form of victimisation.

This conclusion justified the summing of nominations as a single index within each matrix. The peer nomination matrices were used to calculate the **mean number of nominations received** by each participant, for each variable at each time point. Self-nominations were coded as zero for these calculations, so the means represented the proportion of classmates nominating each child as a target of the relevant form of aggression (c.f. Boulton & Smith, 1994; Lagerspetz, *et al.*, 1982; Perry, *et al.*, 1988). For instance, the total number of

subordinal victim nominations received by participants from School A at Time One was divided by the total number of participants who gave the nominations, with the resulting numbers representing the proportion of participants from School A who nominated each of their peers as targets of subordinal aggression. Nominations received from classmates of both sexes were used because these made possible a greater range of total nominations received, than would have been possible had nominations been taken only from same-sex classmates. The power of correlational-based analyses is enhanced by maximising the range of variable scores (Howell, 1992).

Table 7.5: Peer-rated victimisation experiences (percentage of peers nominating each participant as a target of aggression): Descriptive data

Form of victimisation		Mean	S.D.	Min.	Max.	<i>n</i>
Subordinal	Time One	13.2	13.4	0	65.5	175
	Time Two	23.2	17.5	0	88.9	144
Physical	Time One	13.1	11.9	0	83.3	175
	Time Two	21.9	20.0	0	80.7	144
Relational	Time One	13.9	12.6	0	66.7	175
	Time Two	18.1	18.8	0	87.1	144

Zero-order correlations among subscales

*** <i>p</i> <.001	Time One (<i>n</i> = 175)		Time Two (<i>n</i> = 144)	
	Physical	Relational	Physical	Relational
Subordinal	.58***	.73***	.66***	.80***
Physical		.54***		.58***

The mean proportions, converted to percentages, are presented in Table 7.5. The average participant was nominated as a victim of each form of aggression by 13-14% of his or her peers at Time One, and by 18-23% of them at Time Two. Participants at Time Two

received nominations from a higher percentage of peers than at Time One in being subordinal ($t(142) = 9.17, p < .001$), physical ($t(142) = 5.73, p < .001$) and relational ($t(142) = 3.59, p < .001$) victims.⁴

For further analyses of peer reports of different forms of victimisation (including the correlations between subscales, which are displayed in the bottom half of Table 7.5), the proportions of peer nominations received were standardised within each class group, creating *Z*-scores. Standardising peer-report variables within a class (or a similar intact social group) is a common practice in the peer relations literature (see, e.g., Crick, 1996; McNeilly-Choque, *et al.*, 1996; Parker, *et al.*, 1995; Terry & Coie, 1991) and is often carried out with peer nominations of victimisation (e.g., Boivin & Hymel, 1997; Boivin, *et al.*, 1995; Crick & Bigbee, *in press*).

Most of the zero-order correlations among peer-reported victimisation subscales were higher than those among self-reported victimisation subscales (Table 7.2), ranging from .54 to .80. Crick and Bigbee (*in press*), in the only previous study of correlations among peer reports of different forms of victimisation, reported a correlation between physical and relational victimisation within the same range ($r = .68$), although they found that self-reports of these forms of victimisation were also highly correlated ($r = .69$).

A peer reported scale for composite victimisation was developed by first standardising within each *same-sex group in each class*. Standardising within gender as well as within

⁴See Appendix VIII for a discussion of the increase in peer-reported victimisation between Time One and Time Two.

class is another common practice in the peer relations literature (see Asher & Dodge, 1986; Finnegan, Hodges, & Perry, 1996; Parker & Asher, 1993), and corrects "for biases that may exist when children are asked to rate opposite sex classmates" (Parker, *et al.*, 1995, p118). It was desirable to correct for such biases in the measure of composite victimisation in order to remove the possible confounding effects of sex as a moderator, but not in the scales measuring specific forms of victimisation, because the latter were used to investigate moderating effects of sex and age (Aim 7). After standardising within class and gender, each scale was standardised a second time across the whole sample, and then the three scales were summed (Cronbach's $\alpha = .83$, Time One; $\alpha = .89$, Time Two), and the result standardised a third time to produce the measure of composite peer-assessed victimisation. This measure indicated the extent to which each participant was seen by his or her peers as a target of peer aggression.

Stability of peer nominations

Composite peer-reported victimisation was highly stable over the period of the study ($r = .70, p < .001$). The stability of peer-reports of different forms of victimisation over the same period was determined in the same way as it was for self-rating subscales.⁵ Partial and

⁵Specifically, three multiple regressions were carried out in which each Time Two peer-report subscale in turn served as dependent variable. The other two Time Two peer-report subscales were entered as predictors at the first step, so that the remaining variance in the criterion was not shared with other forms of victimisation at Time Two. The three Time One peer-report subscales were entered at the second step of each regression. All the variables originally showed extreme positive skews, with a number of outliers. Logarithmic transformations of the variables (after adding 10 to each value, as logarithms cannot be calculated for values of zero or less) reduced the skewness and the number of outliers, and so the transformed variables were used in multiple regressions. Three outliers were omitted from each of the regressions in which Time Two Subordinal and Relational Victimization were dependent variables; one outlier was deleted from the regression in which Time Two Physical Victimization was the dependent variable. Because of the need to include all predictors, multicollinearity assumptions were not examined, but all other MR assumptions were satisfactorily met after these outliers were deleted.

zero-order correlations between pairs of subscales are displayed in Table 7.6. Zero-order correlations, in parentheses, showed that nominations of subordinal and relational victimisation were highly stable, and physical victimisation moderately stable, over the period of the study. As with self-report scales, Time One peer reports of one form of victimisation were sometimes strongly correlated with Time Two peer reports of a different form (e.g., Time One Relational Victimisation with Time Two Subordinal Victimisation).

Table 7.6: Ten-month stability of peer-nominated experience of different forms of victimisation: Partial and (in parentheses) zero-order correlations

		Time Two peer-report subscales		
		Subordinal	Physical	Relational
Time One peer nominations	Subordinal (n = 140)	.30*** (.63***)	-.16 (.34***)	.16 (.71***)
	Physical (n = 142)	.00 (.43***)	.21* (.37***)	-.07 (.46***)
	Relational (n = 140)	-.14 (.54***)	.03 (.35***)	.41*** (.74***)

Each partial correlation represented the unique variance shared between two peer-report subscales at two time points, with variance shared with all the other peer-report subscales removed. The partial correlations on the diagonal of Table 7.6, in bold typeface, indicate the specific stability of each subscale, independently of its correlations with other subscales. Like self-reports, peer reports of victimisation showed subscale-specific stability. After controlling for variance shared with Time Two peer reports of other forms of victimisation, the only significant predictors of Time Two peer reports were the corresponding Time One peer reports. Time Two Subordinal Victimisation was uniquely predicted by Time One Subordinal Victimisation; Time Two Physical Victimisation was

uniquely predicted by Time One Physical Victimization; and Time Two Relational Victimization was uniquely predicted by Time One Relational Victimization. Although no test-retest reliability data were available over a shorter period for peer-report subscales, these results strongly supported the contention that each subscale assessed a form of victimisation which was distinct from that assessed by other subscales.

Convergent and discriminant validity

Table 7.7: Comparison of zero-order correlations between bully and generic victim scales and the three different forms of victimisation (peer reports)

	Victim	Bully	<i>t</i> (<i>df</i> = 58)	<i>p</i>
PUT DOWN	.65	-.13	5.32	<.001
TOUCH	.61	.23	2.69	<.01
LEFT OUT	.65	-.18	5.82	<.001

Generic victim and bully nominations collected from schools D and E at Time Two (see section 6.2.1, under the heading of *Procedure for BTQ*) were used to assess the convergent and discriminant validity of the peer-reported measures of different forms of victimisation. Although participants were not given a definition of bullying, these data allowed an evaluation of the extent to which their definitions of being a bully, and a victim, were related to their understanding of the different forms of victimisation. Peer-reported generic victim and bully scales were calculated in the same way as were the other peer-reported scales, and were standardised within class. Bivariate correlations between these scales and the peer reports of different forms of victimisation (not logarithmically transformed in this instance, as no assumption of normality is necessary here, Howell, 1992) are displayed in Table 7.7. There were strong associations between the generic victim scale and each peer-

assessed victimisation scale, and low (non-significant) associations between the bully scale and each peer-reported victimisation scale. The *t*-values displayed show that each correlation with the generic victim scale was significantly different from the corresponding correlation with the bully scale (Howell, 1992). These results supported the contention that peer reports of each form of victimisation assessed experience which had more to do with being bullied than with bullying others.

7.3. Cross-informant correlations

Table 7.8: Cross-informant correlations between self- and peer-report victimisation scales

Form of victimisation	Time One (<i>n</i> = 173)	Time Two (<i>n</i> = 135)
Composite	.35***	.18*
Subordinal	.42**	.21*
Physical	.27**	.18*
Relational	.17	.14

* *p*<.05; ** *p*<.01

Zero-order correlations between self- and peer-report measures of different measures of victimisation are displayed in Table 7.8. In previous research (Crick & Bigbee, in press; Österman, *et al.*, 1994) correlations between self- and peer-reports of different forms of victimisation have ranged from .30 to .39, and correlations between self- and peer-reports of composite or generic victimisation measures have ranged from .03 to .47 (Alsaker, 1993; Gottheil, 1996; Graham & Juvonen, 1997; Perry, *et al.*, 1988). The sizes of these correlations compare favourably to the mean correlation ($r = .26$) between self- and peer-ratings of a great variety of children's behavioural, emotional, and temperamental

problems, that was found in a meta-analysis of over 100 studies (Achenbach, *et al.*, 1987). In the present research most of the cross-informant correlations were also moderate, though lower at Time Two than at Time One. Cross-informant correlations were non-significant, however, for relational victimisation at both time points.

7.4. Summary and discussion

This chapter aimed to develop reliable and valid measure to assess the three forms of victimisation and their composite. This aim was met as far as was possible in the present research. Both the self- and the peer-reported composite victimisation scales showed good internal consistency, suggesting that the items which comprised them all measured the same construct, and there was generally acceptable agreement among classmates about the forms of victimisation their peers experienced.

The internal consistency of self-reports of different forms of victimisation was not as high as might be desired. Children's self-reports of subordinal and relational victimisation were acceptably reliable at retest over seven days (at least among older, Y8 children), but the test-retest reliability of self-reported physical victimisation was very poor. These findings raised doubts about to the extent to which the different subscales really indexed distinct and reliable experiences. However, in the whole sample, each form of self-assessed victimisation showed form-specific stability over ten months. After controlling for every other subscale, the only significant positive associations between subscales were those between subscales which measured the same type of victimisation. This subscale-specific stability means that each specific form of victimisation, measured at Time One, converged

with the corresponding form of victimisation, and diverged from the different forms measured at Time Two. For example, children who reported relational victimisation at Time One tended to report experiencing relational victimisation at Time Two, whether or not they also reported experiencing physical or subordinal victimisation; while the same children tended to report experiencing these other forms of victimisation, only if they also reported relational victimisation. In other words, children were consistent over ten months about the forms of victimisation they said they experienced. Thus, despite the limited internal consistency and test-retest reliability of some of the self-report subscales, they seemed to measure equivalent experiences at both baseline and follow-up.

Peer reports of different forms of victimisation also showed subscale-specific stability over ten months. Each form of peer-reported victimisation, at Time One, was correlated only with the equivalent form of Time Two peer-reported victimisation, after variance shared with other forms of Time Two peer-reported victimisation had been removed. Thus children were consistent over ten months about the forms of victimisation they said their peers experienced, and each peer-report subscale appeared to measure the same experience at both time points. Convergent validity of the peer-report scales was demonstrated by their strong correlations with a peer-reported generic victim scale, and discriminant validity by their low correlations with a peer-reported bully scale. These results showed that, while "bullying" was not mentioned when children were asked to nominate peers for each form of victimisation, they tended in each case to nominate peers who they saw as victims of bullying, and not as bullies. In other words, each peer-report subscale seemed to measure a form of victimisation, and each was distinct from the other.

Self-report scales for different forms of victimisation were moderately inter-correlated, as previous research has found. Correlations among different forms of peer-assessed victimisation were somewhat higher, though again of a magnitude similar to that found in previous research (Crick & Bigbee, in press). The pattern of correlations suggested that participants distinguished among different forms of victimisation in their own experience more than they did in observing the experience of their peers. The high correlations between peer-report subscales, particularly between relational and subordinal victimisation, challenged the assumption that participants saw these forms of victimisation as separate in their peers' experience. However, as noted earlier, these peer-report subscales also showed form-specific stability. For instance, Time One peer-assessed relational victimisation was only correlated with Time Two peer-assessed subordinal victimisation to the extent that Time Two peer-assessed subordinal and relational victimisation were correlated with each other. Thus children who were seen as targets of one form of aggression were likely to be seen as targets of another form, but this did not mean that their peers failed to distinguish between one form of victimisation and another.

Correlations between self- and peer-reports of subordinal, physical, and composite victimisation were moderate and in a similar range to those reported in previous research, but were non-significant for relational victimisation. These suggested that children who saw themselves as victims often tended to be seen as victims by their peers, unless they saw themselves as victims of relational aggression.

All together these results suggest that, while there is room for improvement in the measures of victimisation if they are to be used in future studies, there was some evidence

- most notably from findings of subscale-specific stability - that they were reliable and valid in the present sample. The moderate to low level of cross-informant correlations suggests that self- and peer-reports should be kept separate in statistical analyses, rather than being combined as a composite of self- and peer-reported victimisation. Four aims of the present study (Aims 2, 3, 4, and 5) are to investigate the nature of the association between victimisation and maladjustment, without specifying the form of victimisation. The composite victimisation scales, having highest internal consistency, were psychometrically more satisfactory than the subscales for different forms of victimisation. Therefore it is primarily the composite scales which are used to investigate Aims 2 to 5 in the remaining results chapters. Similar conclusions concerning these aims may be drawn from analyses including different forms of victimisation, but greater weight is attached to results for composite victimisation.

One aim of this thesis (Aim 5) is to investigate the causal relationship between victimisation and maladjustment. To address this aim it was necessary to assess victimisation at two time points. Unfortunately the procedure for assessing victimisation changed at some schools from Time One to Time Two. The change in procedure may potentially have affected the extent to which victimisation data from the two time points were comparable. *But it is important to note that subscales for different forms of both self- and peer-assessed victimisation were stable between the two time points despite the change in procedure* (see Tables 7.3 and 7.6). Although the change still represents a limitation, there were good empirical reasons for assuming that the victimisation subscales measured equivalent experiences at both Time One and Time Two. (See Appendix VI for an investigation which suggests that the reliability of peer-reported victimisation was not

reduced by the dispersion of some participants across teaching groups at Time Two.)

Finally, two of the aims of the present research (Aims 6 and 7) concern the nature of the relationship between maladjustment and specific forms of victimisation. The subscale-specific stability of self- and peer-reported measures of different forms of victimisation suggested that they could be distinguished from one another, and the concurrent and divergent validity data suggested that at least the peer reports measured victimisation. But the lower internal consistency, test-retest reliability, and cross-informant correlations for some of these subscales suggested that caution would be appropriate in interpreting results for different subscales. Therefore when different forms of victimisation are included in statistical analyses, the emphasis in interpretation is on identifying consistent patterns in results - patterns which are replicated across different informants' reports or different maladjustment measures, or in analyses with composite victimisation. Finally, the internal consistency of self-report subscales varied with age group and gender, suggesting (1) that it is important to control for age and gender effects in analyses involving these subscales, and (2) that conclusions about moderating effects of age or gender (Aim 7) should also be drawn from consistent replicable patterns in results.

Chapter Eight

Contemporaneous correlates of victimisation

Abstract

This chapter presents a series of cross-sectional analyses (at Time One) of the correlates of composite victimisation. The analyses primarily address two central aims of the thesis: (1) the relative extent to which different types of socioemotional maladjustment were correlated with victimisation (Aim 2); and (2) the relative extent to which different informants' reports of victimisation were correlated with socioemotional maladjustment (Aim 3). Both peer- and self-reported victims tended to be more depressed and lonely than non-victims, whether or not they were also distressed in other ways. Self-reported victims tended also to be more anxious and to see themselves as less well accepted than self-reported non-victims. Of all the forms of maladjustment, low self-worth was least strongly related to victimisation. These findings were consistent with previous empirical research, while overcoming some of its limitations, and with predictions made from social rank theory about the forms of maladjustment which should be associated with victimisation.

8.1. Aims and hypotheses

Empirical evidence reviewed in Chapter Two has shown that, compared to non-victims, victims tend to be more lonely, depressed, anxious, and have lower self-worth and see themselves as less well accepted by their peers. These forms of internalising maladjustment

are the types of problems which, according to social rank theory, ought to be associated with victimisation. This chapter examines how, in the present study, victimisation was related concurrently to these forms of maladjustment. It is concerned primarily with aims 2 and 3 outlined in Chapter Five. The Time One data set is used for analysis, owing to its greater sample size.

Victimisation and different types of maladjustment

Aim 2 of this thesis is to investigate the extent to which different types of socioemotional maladjustment are related to victimisation. In no previous study have investigators used more than one adjustment variable in the same analysis to predict contemporaneous victimisation. It is therefore difficult to see whether victimisation is related primarily to one form of socioemotional maladjustment (see section 2.5). MR is used in this chapter to combine five types of socioemotional maladjustment as predictors of contemporaneous victimisation. The largest effect sizes in previous research have been for depression (Table 2.6), and so it was predicted that depression would be the primary form of maladjustment associated with victimisation. The smallest effect sizes were for anxiety, and it was predicted that this variable would show the weakest tendency to be independently related to victimisation.

Maladjustment and different informants' reports of victimisation

Aim 3 is to investigate the relative extent to which different informants' reports of victimisation are associated with socioemotional maladjustment. Self-assessed maladjustment has been shown to be more strongly related to self-assessed victimisation

than to peer-assessed victimisation (Crick & Bigbee, in press; Graham & Juvonen, in press; Haselager, 1997). This may be a finding that can be at least partly explained in terms of shared method variance (section 2.2), self-assessed maladjustment sharing more method variance with self-assessed victimisation than with peer-assessed victimisation. In this thesis the shared method variance explanation is investigated across a series of analyses in which both self- and peer-reports of victimisation are included as predictors of contemporaneous maladjustment. It was predicted that self-reported maladjustment would tend to be more strongly related to self-reported than to peer-reported victimisation.

Crick and Bigbee (in press) and Haselager (1997) have suggested that both peer- and self-reported victimisation have important and separate contributions to make to the prediction of contemporaneous maladjustment. It is consistent with this hypothesis that both self- and peer-reports of victimisation, though not highly intercorrelated, are significantly related to self-reported maladjustment (as shown in Tables 2.2 to 2.5). But do reports of victimisation by one type of informant add anything to the variance in self-assessed maladjustment above that which is explained by other informants' reports of victimisation? This is a question which is not only interesting for theoretical reasons (Haselager, 1997; Pierce & Cohen, 1995), but for pragmatic reasons too; peers' reports of victimisation are by nature more time-consuming and expensive to collect than self-reports (Crick & Bigbee, in press). Only Haselager (1997) has conducted analyses to examine the question, and these were limited in power by dichotomising of variables (Cronbach, 1968). This chapter investigates the relationship of peer- and self-assessed victimisation with self-assessed maladjustment, after controlling for cross-informant correlations. It was predicted, following Crick and Bigbee's suggestion, that both informants' reports of victimisation would explain some of

the variance in adjustment variables independently of each other.

Additional aims

A subsidiary aim of this chapter is to replicate previous findings, overcoming some of the limitations of measurement and statistical analysis in previous research, and showing that peer- and self-assessed measures of victimisation are positively correlated with depression, loneliness, and anxiety, and negatively correlated with social acceptance and positive self-worth.

Limitations of measurement and samples in previous work

An important limitation of previous studies is in the measurement of victimisation. Too few investigators have included relational victimisation in their operational definitions of composite victimisation. Even in some of those studies which have included relational victimisation, subordinal victimisation has been largely overlooked (e.g., Crick & Bigbee, in press; Crick & Grotpeter, 1996; Ku, 1997; MacDonald & O'Laughlin, 1997). Some studies have been criticised (Schuster, 1996) for using a definitional-based measure of victimisation (e.g., Boulton & Smith, 1994; Olweus, 1978). Finally, it has been recommended that multiple informants be used to assess victimisation (e.g., Crick & Bigbee, in press; Farrington, 1993), but this has been done relatively rarely. The composite victimisation scales developed in Chapter Seven were used in this chapter. These overcame the limitations of previous measures because they were based on multiple item scales; they were internally consistent; they had at least some degree of construct validity, in that they represented physical, subordinal and relational victimisation; and together they presented a multiple-informant perspective on victimisation.

A limitation of previous samples is that relatively few data have been drawn from British children - the population from which the present data were taken - especially with loneliness or anxiety as adjustment variables. It is important to investigate how findings from North American and Australian studies generalise to other samples.

Limitations of data analysis in previous work

Several limitations in the statistical analyses of previous studies were overcome by the use of multiple regression in this chapter (see section 6.4 for its advantages). One limitation of many previous statistical analyses is that victimisation (or sometimes adjustment), though often measured in its raw form as a continuous variable, has often been recoded as a categorical variable for ANOVAs or other category-based statistical analyses (e.g., Alsaker, 1997; Björkqvist, *et al.*, 1982; Boulton & Smith, 1994; Crick & Bigbee, in press; Graham & Juvonen, 1997; Haselager, 1997; Lagerspetz, *et al.*, 1982; Mynard & Joseph, 1997; Olweus, 1978; O'Moore & Hillery, 1991; Pierce, 1990; Sharp, 1996; Williams, *et al.*, 1996). This procedure can result in a loss of statistical power, which is retained in this chapter by the use of continuous composite victimisation scores.

Some previous research has made use of multiple significance testing of separate correlations or differences between means (e.g., Björkqvist, *et al.*, 1982; Byrne, 1994; Callaghan & Joseph, 1995; Lagerspetz, *et al.*, 1982; Mynard & Joseph, 1997; Neary & Joseph, 1994; Slee, 1994b), leading to a probable inflation of Type I error. MR partially controls Type I error rate, which is controlled further here by setting it below .05 for some analyses.

Confounding effects of gender and age have rarely been controlled in previous research. These variables will be taken into account in this by entering them first as predictors in each regression (c.f. Kerlinger & Pedhazur, 1973).

Some previous investigators have been more concerned with significance levels than effect size. This chapter extends the emphasis instigated in Chapter Two on effect size and statistical power. Zero-order correlations are displayed here as part of the regression statistics. Additionally, when correlations expected to be significant are not significant, calculations are carried out to show whether there was significant power for the significance test of r , and, if not, how many participants would be needed for a test of sufficient power. Power of .80 was deemed to be sufficient (Cohen & Cohen, 1975). Power and sample size calculations were based on d , which was calculated from r (Howell, 1992, p258), after adjusting for sampling bias (Howell, 1992, p230).

Summary

The research reported in this chapter aimed to overcome the limitations of previous research by

- examining whether peer-assessed victimisation added anything to the variance in self-assessed maladjustment explained by self-assessed victimisation;
- considering all adjustment variables within the same analysis as predictors of contemporaneous victimisation;
- using a measure of victimisation comprising all its forms (physical, subordinal and relational);
- drawing on the opinions of more than one type of informant to assess victimisation;

- using multiple-item scales for assessment of victimisation by each type of informant;
- examining victimisation-adjustment associations among British schoolchildren;
- a multiple regression approach to data analysis;
- using continuous scores on each variable;
- reporting effect sizes;
- taking precautions to avoid Type I error;
- calculating statistical power when zero-order correlations did not differ significantly from zero;
- and controlling for possible bias in victimisation-adjustment associations due to age and sex.

The hypotheses and main aims of this chapter are as follows.

Hypotheses concerning the type of maladjustment associated with victimisation (Aim 2)

Hypothesis 8.1. Victimization is most strongly associated with depression, after variance shared between depression and other forms of socioemotional maladjustment is controlled.

Hypothesis 8.2. Victimization is least strongly associated with anxiety, after variance shared between anxiety and other forms of socioemotional maladjustment is controlled.

Hypotheses concerning maladjustment and different informants' reports of victimisation (Aim 3)

Hypothesis 8.3. Socioemotional maladjustment is more strongly related to self-assessed victimisation than to peer-assessed victimisation.

Hypothesis 8.4. Peer-assessed victimisation is positively related to socioemotional maladjustment, after its correlation with self-assessed victimisation is controlled.

Hypothesis 8.5. Self-assessed victimisation is positively related to socioemotional maladjustment, after its correlation with peer-assessed victimisation is controlled.

Additional aims

Other than investigating these hypotheses, the aim of the study in this chapter was to replicate previous findings concerning victimisation and maladjustment, while overcoming some limitations of the studies on which those findings were based. Specifically,

Aim 8.1. is to investigate the extent to which, in the present sample, both peer- and self-reported victimisation were positively correlated with depression, loneliness, and anxiety, and negatively correlated with global self-worth and social acceptance.

Table 8.1: Descriptive data for variables used in analysing the contemporaneous relationship between composite victimisation and socioemotional maladjustment

Variable	Label	Mean	s.d.	Minimum	Maximum	<i>n</i>
Peer-assessed victimisation	P-VICTIM	0.00	1.00	-1.53	3.53	175
Self-assessed victimisation (logarithm)	S-VICTIM	1.30	0.10	1.15	1.56	173
Global self-worth	GSW	3.03	0.63	1.17	4.00	174
Depression (square root)	CDI	2.76	1.30	0.00	5.57	175
Loneliness and social dissatisfaction	LONELY	30.96	10.19	16.00	59.00	171
Anxiety	RCMAS	9.73	5.82	0.00	24.00	175
Self-perceived social acceptance	SOCACC	3.01	0.65	1.17	4.00	174

Table 8.2: Correlation matrix of variables used in analysing the contemporaneous relationships between composite victimisation and socioemotional maladjustment

	P-VICTIM	S-VICTIM	GSW	CDI	LONELY	RCMAS	SOCACC	
S-VICTIM	.35*** (173)							
GSW	-.15 (172)	-.27*** (170)						
CDI	.31*** (173)	.38*** (171)	-.51*** (173)					
LONELY	.34*** (169)	.38*** (167)	-.41*** (169)	.56*** (170)				
RCMAS	.17* (173)	.36*** (171)	-.40*** (174)	.63*** (174)	.55*** (170)			
SOCACC	-.26** (172)	-.34*** (170)	.38*** (174)	-.42*** (173)	-.69*** (169)	-.41*** (174)		
SEX	.00 (175)	-.08 (178)	-.02 (174)	-.06 (175)	.02 (171)	.11 (175)	.10 (174)	
AGE	-.00 (175)	-.10 (173)	.02 (174)	-.14 (175)	-.12 (171)	-.28*** (175)	.11 (174)	.04 (178)

* $p < .05$, ** $p < .01$, *** $p < .001$, all two-tailed. *ns* in parentheses.

8.2. Preliminary and descriptive analysis

Transformations

The distributions of raw self-assessed composite victimisation (S-VICTIM) and depression (CDI) scores were initially positively skewed. These distributions were normalised by applying a square root transformation to the CDI and a logarithmic (base 10) transformation to S-VICTIM. Descriptive statistics for the variables used in this chapter (other than age and sex) are shown in Table 8.1.

Correlations among variables

The matrix of bivariate zero-order correlations among variables is displayed in Table 8.2. Victimization was positively associated with maladjustment, and as predicted (Hypothesis 8.1), the correlations of victimisation with depression were among the highest victimisation-adjustment associations, although correlations with loneliness were also quite high. As predicted, the correlations between self-assessed victimisation and self-assessed adjustment variables were all larger in magnitude than those between peer-assessed victimisation and adjustment (Hypothesis 8.3). Contrary to prediction (Hypothesis 8.2), of all the internalising problems variables, global self-worth was the least highly correlated with victimisation.

8.3. Types of socioemotional maladjustment and victimisation

Two standard¹ MRs were carried out to test hypotheses 8.1 and 8.2, and investigate the relative extent to which different types of maladjustment variables were associated with victimisation. Peer-assessed victimisation was the dependent variable in one MR, and self-assessed victimisation was the dependent variable in the other. The independent variables in both MRs were: sex, age, depression, loneliness, anxiety, self-worth, and social acceptance. In order to keep familywise error rate below .05 across these two MRs, Bonferroni adjustment procedures were applied to the critical significance level (Howell, 1992) for each MR, setting it at .025 instead of .05. There was evidence for slight multicollinearity among the maladjustment variables. No correlations among them exceeded .9, and so statistical solutions were stable (Tabachnick & Fidell, 1996); there was also an over-riding *a priori* reason (Aim 2) to include all the maladjustment variables in these regressions. Therefore no variable was deleted. The effect of this multicollinearity was, however, a slight loss of statistical power (Tabachnick & Fidell, 1996).

Hypotheses 8.1 and 8.2 are evaluated primarily by the squared semi-partial correlations in Tables 8.3 and 8.4, which indicate the extent to which each independent variable was related to victimisation, with inter-correlations among independent variables held constant. The shared variability reported in each table shows the extent to which contemporaneous victimisation was predicted by a combination of more than one independent variable.

¹In preliminary hierarchical multiple regressions, sex and age were entered as predictors at step one, and adjustment variables at step two (c.f., Kerlinger & Pedhazur, 1973). However, sex and age did not contribute significantly to the prediction of victimisation in these regressions, and so results are reported here for standard multiple regressions, in which all independent variables were entered at a single step.

Socioemotional maladjustment and peer-assessed victimisation

In Table 8.3 are shown the statistics for the regression of peer-assessed victimisation on the demographic and socioemotional maladjustment variables. The demographic and maladjustment variables together explained a significant proportion (15.2%) of the variance in victimisation ($F(7,158) = 4.07 p < .001$). Only two independent variables had regression coefficients which differed significantly from zero. These were depression and loneliness, each of which uniquely accounted for approximately 3% of the variance in peer-assessed victimisation. Moreover, none of the other adjustment variables was significantly correlated with peer-assessed victimisation. Both depression and loneliness were positively associated with peer-assessed victimisation, with peer-reported victims expressing greater depression and loneliness than non-victims.

Table 8.3: Standard multiple regression of standardised peer-assessed victimisation on demographic and maladjustment variables

Variable	<i>b</i> and 95% confidence limits	β	<i>r</i>	<i>sr</i> ²
SEX	.12 ± .29	.06	.03	.004
AGE	-.01 ± .30	-.00	-.03	.000
CDI	.19 ± .16	.26	.29*	.030*
LONELY	.02 ± .02	.26	.34**	.028*
GSW	.10 ± .27	.07	-.13	.003
RCMAS	-.03 ± .03	-.17	.16	.013
SOCACC	-.13 ± .30	-.09	-.27	.004
Intercept	-1.03 ± 2.70	Multiple <i>R</i> = .39*** <i>R</i> ² = .152 Adjusted <i>R</i> ² = .115		

Unique variability = .082
 Shared variability = .070
n = 166
 * *p* < .05; ** *p* < .01; *** *p* < .001

Socioemotional maladjustment and self-assessed victimisation

Table 8.4 displays the results of the regression of self-assessed victimisation on demographic and maladjustment variables. These independent variables explained a significant proportion (21.1%) of the variance in self-assessed victimisation ($F(7,156) = 5.79, p < .0001$). None of the variables in the regression made a significant unique contribution to the prediction of self-assessed victimisation (t s all $< 1.65, p > .1$). So most of the explained variance (17.2%) was shared among the independent variables.

Table 8.4: Standard multiple regression of self-assessed victimisation on demographic and maladjustment variables

Variable	<i>b</i> and 95% confidence limits	β	<i>r</i>	sr^2
SEX	-.02 ± .03	-.09	-.08	.007
AGE	-.00 ± .03	-.01	-.11	.000
CDI	.01 ± .01	.08	.36*	.003
LONELY	.00 ± .00	.16	.39***	.010
GSW	-.01 ± .03	-.06	-.27	.002
RCMAS	.00 ± .00	.17	.37*	.014
SOCACC	-.02 ± .03	-.10	-.34*	.005
Intercept	1.29 ± .26	Multiple R = .46*** R ² = .212 Adjusted R ² = .177		
Unique variability = .041				
Shared variability = .171				
<i>n</i> = 164				
* <i>p</i> < .05; *** <i>p</i> < .001				

Post-hoc tests of zero-order correlations showed that self-assessed victimisation was positively related to depression ($F(7, 156) = 3.45, p < .05$), loneliness ($F(7, 156) = 4.0$,

$p < .001$, anxiety ($F(7, 156) = 3.53, p < .05$), and negatively related to self-perceived social acceptance ($F(7, 156) = 2.91, p < .05$). It follows that it was a combination of two or more of these variables which explained significant variability in self-assessed victimisation. With the conservative post-hoc test used to reduce Type I error rate, global self-worth was not significantly related to self-assessed victimisation, unlike in Table 8.2, where no attempt was made to control for Type I error.

Summary

In both these regressions, victimisation was positively associated with at least some measures of socioemotional maladjustment - victims tending to report greater distress than non-victims. Depression and loneliness were the only adjustment variables which were uniquely associated with victimisation, independently of other maladjustment variables, shared method variance, sex and age. Anxiety and social acceptance were also related to victimisation, but these relationships were not independent of shared method variance or of their correlations with other independent variables (including depression and loneliness). Global self-worth was not related to victimisation, according to post-hoc tests correcting for multiple correlations. Hypothesis 8.1 was partly supported, in that depression and loneliness were the variables most strongly related to victimisation. As self-worth, rather than anxiety, showed the least tendency of the maladjustment variables to be related to victimisation, hypothesis 8.2 was not supported.

8.4. Socioemotional adjustment and different informants' reports of victimisation

Five hierarchical multiple regressions were carried out to test hypotheses 8.3 to 8.5 and to examine the relative extent that different informants' reports of victimisation were associated with each adjustment variable. Dependent variables were: global self-worth, depression, loneliness, anxiety, and self-perceived social acceptance. Participants' age group and sex were entered as independent variables at the first step of each regression (because they causally precede victimisation, c.f. Cohen & Wills, 1985; Kerlinger & Pedhazur, 1973). Self-assessed and peer-assessed victimisation were entered together at the second step. The critical probability level was set at .01 to control Type I error rate. Final regression statistics (i.e., with all independent variables entered into each regression) are presented in Tables 8.5 to 8.9. The following information is given in textual descriptions:

- (1) the change in R^2 at the first step of each regression (if significant), indicating whether age group or gender had any effect on the dependent variable;
- (2) the change in R^2 at the second step, which indicated how much variance was shared between victimisation and the dependent variable, with age and sex held constant;
- (3) for victimisation scales with significant regression coefficients, the percentage variance shared uniquely (i.e., with all other independent variables held constant) with the dependent variable (together with t values);
- (4) the nature of the relationship between each victimisation measure and the dependent variable (indicated by the valence of r s and β s, e.g., positively or negatively correlated);
- (5) and for victimisation scales which did not contribute significantly to prediction of the dependent variable, the results of post-hoc tests of the significance of zero-order correlations (with the results of power calculations when post-hoc test results were not significant).

Global self-worth and different informants' reports of victimisation

Final regression statistics for global self-worth are displayed in Table 8.5. At the second step change in R^2 was .077, F change (2, 165) = 6.86, $p < .002$. With all other variables held constant, self-assessed victimisation uniquely explained 5.3% of the variance in global self-worth, t (165) = 3.08, $p < .003$. Peer-reported victimisation was not related to global self-worth: neither the regression coefficient nor the zero-order correlation for peer-assessed victimisation differed significantly from zero. Children who saw themselves as victims tended also to have negative views of their own worth. The relationship between victimisation and low self-worth was not independent of shared method variance, but this may have been due to low power (.19) in the post-hoc test of the zero order correlation for peer-assessed victimisation. At least 729 participants would be needed for a sufficiently powerful test.

Table 8.5: Final statistics for regression of global self-worth on demographic variables and peer victimisation

Variable	b and 95% confidence limits	β	r	sr^2
SEX	-.07 ± .19	-.05	-.03	.003
AGE	.00 ± .19	.01	.03	.000
S-VICTIM	-1.61 ± 1.03	-.25	-.27*	.053**
P-VICTIM	-.04 ± .10	-.06	-.15	.004
Intercept	5.16 ± 1.35	Multiple R = .28** R ² = .077		
$n = 170$		Adjusted R ² = .061		

* $p < .05$; ** $p < .01$

Depression and different informants' reports of victimisation

Final regression statistics for depression are displayed in Table 8.6. R^2 change at the second step was .164, F change (2, 166) = 16.73, $p < .0001$, showing that victimisation explained 16.4% of the variance in depression, with age and sex held constant. Both informants' reports of victimisation contributed to prediction. With all other variables held constant, the unique percentages of depression variance explained were 7.1% for self-assessed victimisation ($t(166) = 3.80, p < .0003$), and 3.7% for peer-assessed victimisation ($t(166) = 2.74, p < .007$). A further 5.6% of depression variance was shared jointly with the victimisation scales. Children who reported greater depression tended, according to both their own and their peers' reports, to be targets of more peer aggression than children who reported lesser depression.

Table 8.6: Final statistics for regression of depression on demographic variables and peer victimisation

Variable	b and 95% confidence limits	β	r	sr^2
SEX	$-.07 \pm .36$	-.03	-.05	.001
AGE	$-.29 \pm .36$	-.11	-.14	.012
S-VICTIM	3.85 ± 2.00	.29	.37***	.071***
P-VICTIM	$0.27 \pm .19$.21	.31**	.037**
Intercept	-2.66 ± 2.63	Multiple $R = .43$ ***		
		$R^2 = .186$		
$n = 171$		Adjusted $R^2 = .167$		
** $p < .01$, *** $p < .001$				

Loneliness and different informants' reports of victimisation

Final regression statistics for loneliness are displayed in Table 8.7. R^2 change at the second step of the regression was .184 (F change (2, 162) = 18.66, $p < .0001$), indicating that 18.4% of the variance in loneliness scores was predicted uniquely by concurrent victimisation. Both informants' reports of victimisation contributed to prediction. With all other variables held constant, self-reports of victimisation uniquely explained 7.2% of the variance in loneliness scores (t (162) = 3.81, $p < .0003$), and peer-reports of victimisation uniquely explained 4.5% of the same (t (162) = 3.02, $p < .003$). Children who reported greater feelings of loneliness and social dissatisfaction tended to experience greater victimisation, according to both their own and their peers' reports.

Table 8.7: Final statistics for regression of loneliness on demographic variables and peer victimisation

Variable	b and 95% confidence limits	β	r	sr^2
SEX	.98 ± 2.88	.05	.03	.002
AGE	-1.74 ± 2.87	-.09	-.12	.007
S-VICTIM	30.70 ± 15.90	.29	.38***	.072***
P-VICTIM	2.41 ± 1.57	.23	.34***	.045**
Intercept	-12.01 ± 20.89	Multiple R = .45***		
		R ² = .200		
$n = 167$		Adjusted R ² = .180		
** $p < .01$, *** $p < .001$				

Anxiety and different informants' reports of victimisation

Final regression statistics for anxiety are presented in Table 8.8. At the first step of the regression, age and sex contributed significantly to prediction of anxiety, R^2 change = .091, F change (2, 168) = 8.42, $p < .0004$. The valence of regression coefficients showed that girls were more anxious than boys, and primary school participants more anxious than secondary school participants. R^2 change at step two was .122, showing that victimisation explained a further 12.2% of the variance in contemporaneous anxiety scores, F change (2, 166) = 12.86, $p < .0001$. With all other variables held constant, self-reported victimisation uniquely explained 9.6% of the variance in anxiety, t (166) = 4.49, $p < .0001$. But peer-assessed victimisation was not related to anxiety, with neither the tests of regression coefficients nor those of the zero-order correlations reaching significance. Thus children who reported that they experienced greater victimisation also tended to report greater anxiety. The relationship between victimisation and anxiety was not independent of shared method variance, but this may have been because of low power (approximately .22) in the test of the r for peer-assessed victimisation. At least 559 participants would be needed for a test of sufficient power.

Table 8.8: Final statistics for regression of anxiety on demographic variables and peer victimisation

Variable	b and 95% confidence limits	β	r	sr^2
SEX	1.84 ± 1.61	.16	.12	.024*
AGE	-2.86 ± 1.61	-.24	-.27	.059***
S-VICTIM	20.30 ± 9.04	.33	.36***	.096***
P-VICTIM	0.26 ± .85	.04	.16	.002
Intercept	-21.66 ± 11.69	Multiple R = .46*** R ² = .213		
$n = 171$	* $p < .05$; *** $p < .001$	Adjusted R ² = .194		

Social acceptance and different informants' reports of victimisation

Table 8.9: Final statistics for regression of self-perceived social acceptance on demographic variables and peer victimisation

Variable	b and 95% confidence limits	β	r	sr^2 (incremental)
SEX	.10 ± .19	.07	.10	.005
AGE	.11 ± .19	.08	.11	.005
S-VICTIM	-1.82 ± 1.02	-.27	-.34***	.063***
P-VICTIM	-.11 ± .10	-.17	-.26*	.024*
Intercept	5.50 ± 1.34	Multiple R = .39***		
		R ² = .153		
$n = 170$		Adjusted R ² = .132		
* .01 < p < .05; *** p < .001				

Final regression statistics for social acceptance are displayed in Table 8.9. R^2 change at the second step of the regression was .133, F change (2, 165) = 12.96, p < .0001. That is, with age and sex held constant, victimisation explained 13.3% of the variance in social acceptance. Self-reported victimisation uniquely explained 6.3% of the variance (t (165) = 3.5, p < .0007) in social acceptance, with all other variables held constant. With Type I error rate set at .01, peer-reported victimisation was not related to social acceptance, according to significance tests of regression coefficients ($\beta = -.26$, t (165) = 2.2, p < .03) and zero-order correlations ($r = -.34$, F (4, 165) = 3.04, p < .025). As sr^2 and r were significant at a conventional level (p < .05), this finding raised the question as to whether accepting the null hypothesis would represent a Type II error. In fact, it seemed unlikely that a Type II error was made in the test of the zero-order correlation, as the power of this test was calculated at .77, which was almost as high as the value of .8 judged as adequate by Cohen and Cohen (1975). So children who saw themselves as victims also tended to see themselves as being poorly accepted by their peers, but the relationship between victimisation and social acceptance was not independent of shared method variance.

Summary

The results of the regressions in this section are summarised in Table 8.10, which shows

- in the second column (change in R^2 at step two), the proportion of variance in each dependent variable which was explained by victimisation independently of age and sex;
- in the third column (S-VICTIM), the proportion of variance explained uniquely by self-assessed victimisation, independently of age, sex, and peer-assessed victimisation;
- in the fourth column (P-VICTIM), the proportion of variance explained uniquely by peer-assessed victimisation, independently of age, sex, and self-assessed victimisation; and
- in the fifth column (r for P-VICTIM), the zero-order correlation between peer-reported victimisation and each dependent variable, indicating the direction of the relationship between victimisation and maladjustment and whether it was independent of shared method variance.

Table 8.10: Summary statistics from regressions of different measures of socioemotional maladjustment on demographic variables and victimisation

Dependent variable	Change in R^2 at step two	sr^2 s for victimisation scales (unique contribution)		r for P-VICTIM
		S-VICTIM	P-VICTIM	
Global Self-Worth	.077**	.053**	.004	-.15
Depression	.164***	.071***	.037**	.31**
Loneliness	.184***	.072***	.045**	.34***
Anxiety	.122***	.096***	.002	.16
Social Acceptance	.133***	.063***	.024*	-.26*

* $.05 < p < .01$, ** $p < .01$, *** $p < .001$

All forms of socioemotional maladjustment were related to victimisation, victims tending to report greater distress than non-victims, but only when victimisation was assessed by

self-report. With Type I error rate set at .01, depression and loneliness were the only forms of maladjustment which were positively correlated with peer-reported victimisation, and they were related to it even with age, sex, and self-reported victimisation held constant. Anxiety, low social acceptance, and low self-worth were related to greater self-reported victimisation independently of age, sex, and peer-reported victimisation, but not independently of shared method variance. Hypothesis 8.3 was supported, in that the maladjustment variables tended to be more strongly related to self-reported than to peer-reported victimisation. Hypothesis 8.4 was partially supported, as peer-reported victimisation was uniquely related at least to depression and loneliness, with self-reported victimisation held constant. Hypothesis 8.5 was supported, because self-reported victimisation was uniquely related to all forms of maladjustment, after its correlation with peer-reported victimisation was statistically controlled.

8.5. Summary and discussion

Victims tended to be more distressed than non-victims; particularly more lonely and depressed, and also more anxious, and they saw themselves as less well accepted. These findings are broadly in line with the pattern of previous empirical findings made by diverse research groups (e.g., Austin & Joseph, 1996; Boivin & Hymel, 1997; Boulton & Smith, 1994; Crick & Grotpeter, 1996; Olweus, 1978; Slee & Rigby, 1994; see Chapter Two). They are also in line with theoretical positions in which social or social psychological factors of one sort or another have been seen as related to internalising problems (e.g., Baumeister & Leary, 1995; Barnett & Gotlib, 1988; Brown & Harris, 1978; Coyne, 1976; Gilbert, 1992; Rubin, *et al.*, 1990; Schlenker & Leary, 1982). More specifically, they are

consistent with social rank theory (Gilbert, 1990, 1992) as applied in this thesis. Victimization includes experiences of being down-ranked or excluded, and these experiences were (as in social rank theory) related to emotional distress.

Although the present results largely support previous findings, they are unique in several respects. For example, this was the first study to show, in a sample of British schoolchildren, that victimisation was correlated with published and validated measures of loneliness and anxiety; and the first to relate internalising maladjustment to both self-reported and peer-reported measures of victimisation which were based on victims' experiences of physical, subordinal, and relational victimisation.

The nature of internalising maladjustment associated with victimisation

This is also the first study in which different forms of maladjustment have been compared within the same analyses as independent predictors of contemporaneous victimisation. From previous findings, it was hypothesised that depression would be the most strongly associated of these variables with victimisation. This hypothesis was partially supported, though loneliness was just as strongly associated with victimisation. What does this mean about the essential nature of the distress felt by victims? One hypothesis is that victims feel above all else that they have poor interpersonal relationships. But if this were so, one might expect that feelings of low social acceptance would be more strongly associated with victimisation than they were. Another hypothesis is that the measure of loneliness indexes feelings which are related to depression. This hypothesis is consistent with the fact that loneliness and depression are empirically and theoretically related to one another (see Boivin, *et al.*, 1995; Kazdin, 1988; Perlman & Peplau, 1981; Shaver & Brennan, 1991;

Table 8.2). For instance, in a book which reviewed measures of a variety of psychological constructs, Shaver and Brennan (1991) viewed loneliness and depression as belonging to a single category of dependent measures. Boivin, *et al.* (1995) proposed a model in which loneliness was the final mediator of the pathway from peer relationship problems to later depression.

It was also hypothesised that anxiety would be the least strongly associated with victimisation, but this hypothesis was not supported. If any variable was more weakly associated with victimisation than the others, it was not anxiety but global self-worth, which in the context of other adjustment variables was not significantly correlated even with self-reported victimisation (section 8.3) - in that context victims did not seem to have lower self-esteem than non-victims.

Do these findings challenge the common description of victims as characterised by anxiety and low self-esteem (e.g., Olweus, 1993a, p32)? At first glance, they suggest that feelings of loneliness, sadness and hopelessness (c.f. Abramson, Metalsky, & Alloy, 1989) may be more primary psychological characteristics of victims. The present study was the first in which these adjustment variables were included within one analysis as independent predictors of contemporaneous victimisation - that is, in which the strong correlations of the adjustment variables with each other (Table 8.2) have been controlled when looking at their correlations with victimisation. When all these inter-correlations were controlled (section 8.3), anxiety, self-worth, and social acceptance explained no more significant variance in victimisation above that which was explained by other adjustment variables. In contrast, depression and loneliness were correlated with peer reports of victimisation,

independently of their correlations with each other and with other forms of socioemotional maladjustment. That is, children who saw themselves as victims also tended to report greater socioemotional maladjustment difficulties. Children who expressed greater feelings of sadness and loneliness were more likely to be nominated by their peers as victims than children who did not express such feelings, whether or not those children also experienced greater feelings of anxiety, of low self-worth or of being poorly accepted. It is possible that previous investigators have not found quite the same pattern of results because they have not taken into account inter-correlations among adjustment variables. Alternatively, there are reasons to believe that the low self-esteem of victims may have been over-estimated in past research because of the studies of Joseph and colleagues (Austin & Joseph, 1996; Callaghan & Joseph, 1995; Mynard & Joseph, 1997; Neary & Joseph, 1994), in which a victimisation scale was inserted within a self-worth scale. Previously in this thesis (Chapter Two, note 2) it was shown that effect sizes for self-reported victimisation and self-esteem were much lower when Joseph's studies were excluded from calculations than when they were included.

There remain reasons why the present results may be misleading with respect to self-esteem. Doubts have been raised about the validity of Harter's (1985) SPPFC when used with a British sample (Eiser, *et al.*, 1995); certainly, in the present research, the subscales from this measure were less internally consistent than the scales used to measure other adjustment variables (Table 6.5). Additionally, some tests involving global self-worth may have failed to reach significance because of low statistical power, which would have been sufficient with a much larger sample size.

Moreover, the present results are consistent with, and extend previous findings by showing that depression and loneliness (a depression-related variable) were positively associated with victimisation, even when other adjustment and demographic variables, and assessments of victimisation by other informants, and shared method variance, were held constant. These findings are also what would be predicted from some theoretical viewpoints, in which it is particularly depression, more than any other specific internalising adjustment variable, which is seen as related to social maladjustment factors (e.g., Barnett & Gotlib, 1988; Brown & Harris, 1978; Coyne, 1976; Gilbert, 1992). Here, in the same way, the primary feelings experienced by victims - particularly by children seen as victims by their peers rather than necessarily by themselves - were depression-related. Though negative self-esteem is related to depression, and constitutes part of the CDI (Kovacs, 1992), global self-worth was not strongly related to victimisation in the present research. To conserve statistical power, therefore, this subscale was omitted from some of the analyses reported in later chapters.

Peer- and self-reports of victimisation

According to the meta-analysis in Chapter Two, the evidence from past studies suggests that peer victimisation is positively correlated with depression, loneliness, and anxiety, and negatively correlated with global and socially-based measures of self-esteem (including global self-worth and social acceptance). Several limitations of previous studies were overcome in the design, sample, measures and statistical analyses used in this chapter, and one aim (Aim 8.1) of the chapter is to investigate the extent to which previous results could be replicated. Self-reported victimisation was significantly correlated, in the same direction as in previous research, with all forms of socioemotional maladjustment. With

statistical adjustments made for multiple significance testing, peer-reported victimisation was positively correlated with depression and loneliness, as in previous research, but was not significantly related to anxiety or self-esteem measures (in contrast to previous research). That is, only depression and loneliness were associated with victimisation independently of shared method variance. In other words, children who were seen as victims by their peers reported no greater anxiety, or feelings of lesser self-worth or being less popular with peers, than children who were not seen as victims by their peers. All correlations between peer-assessed victimisation and the five adjustment variables were in the direction predicted by past research (i.e., victimisation was positively, though not always significantly, associated with maladjustment). Therefore, the present findings do not rebut previous ones with respect to shared method variance.

It was hypothesised that the measures of maladjustment would be more strongly related to self-reported than to peer-reported victimisation. This hypothesis was supported here as in previous empirical research (Crick & Bigbee, in press; Graham & Juvonen, 1997, in press; Haselager, 1997; Table 2.6). That is, children's tendencies to report feelings of socioemotional distress were more strongly related to their own perceptions than to their peers' perceptions of the extent of their victimisation.

It was hypothesised that, following the suggestions of Crick and Bigbee (in press) and Haselager (1997), both self-reports and peer-reports of victimisation would to some extent be uniquely related to socioemotional maladjustment, independently of their correlations with each other. These hypotheses were fully supported with respect to self-reports of victimisation, and partly supported with respect to peer reports. Self-reported victimisation

was related to all five measures of socioemotional maladjustment, independently of its relationship with peer-reported victimisation, age or sex. In other words, children who saw themselves as victims also tended to see themselves as more distressed (in each way) than non-victims, even if they were not seen as victims by their peers. Peer-reported victimisation made a contribution to the prediction of contemporaneous depression and loneliness which was over and above that made by age, sex, or self-assessed victimisation. In other words, children who were seen by their peers as victims tended to report greater depression and loneliness than children who were not seen as victims, whether or not they also saw themselves as victims.

Chapter Nine

Longitudinal correlates of victimisation

Abstract

This chapter presents an empirical investigation which primarily focuses on Aims 4 and 5, using the longitudinal data set and the composite measures of victimisation. It was predicted that, between Time One and Time Two, victimisation and socioemotional maladjustment variables would be positively correlated with, and tend to predict increases in each other. One set of analyses showed that self-reported victimisation led to increasing depression over time. Another set showed that socioemotional maladjustment led to increasing self-reported victimisation over time. Initial victim status predicted future depressed status, and initial depressed status predicted future victim status, with greater accuracy than chance. These results suggested that there was a transactional relationship between victimisation and socioemotional maladjustment, with victimisation causing children to feel distressed, and socioemotional distress causing children to experience more victimisation.

9.1 Aims and hypotheses

Risk status of victims

Aim 4 of this thesis is to investigate the extent to which victimisation predicts future maladjustment. It is quite clear from previous follow-up studies that victims are at risk for later internalising maladjustment (Boivin, *et al.*, 1995; Craig & Pepler, 1997; Egan &

Perry, 1997; Kochenderfer & Ladd, 1996a, 1996b; McLaughlin, *et al.*, 1997; Olweus, 1993b; Vernberg, 1990). But no previous longitudinal study has been carried out in a British sample, and it is important to see how results from studies in different cultures generalise to the U.K.

Parker and Asher (1987) noted that some students of children's peer relationship difficulties are more interested in whether poor peer relationships are a "lead indicator for later disorder that may prove valuable for screening purposes" (p361) than in their etiological relationship with disorder. They used a measure of predictive accuracy developed by Loeber and Dishion (1983) to assess how accurately the presence of peer relationship difficulties predicted the presence of later disorder. Only longitudinal studies offer data which can be used to calculate the risk status of victims (Parker & Asher, 1987). Despite the growing interest in peer victimisation as a risk factor for future maladjustment, no previous longitudinal study has assessed how accurately victim status predicts future maladjusted status.

This study aims to overcome these limitations of previous research on the developmental risk for victims. It was predicted that, in the present sample, Time One victimisation would be positively correlated with Time Two measures of socioemotional maladjustment, and that victim status would predict future maladjustment status with accuracy greater than chance.

Causal links between victimisation and distress

Aim 5 of this thesis is to investigate the likely etiological relationship between

victimisation and maladjustment. This relationship is explored here in the context of the types of model outlined in section 1.3, particularly the simple causal, simple incidental, and transactional models. The results of some longitudinal studies (e.g., Boivin, *et al.*, 1995; Kochenderfer & Ladd, 1996a; Olweus, 1993b) have been interpreted as showing that victimisation causes future maladjustment, rather than the other way around; that is, the authors of these studies explained their results in terms of simple causal models. Other bullying researchers have sometimes advocated either simple causal, or simple incidental, but not transactional models as explanations of the relationship between victimisation and maladjustment (e.g., Boulton & Smith, 1994; Slee & Rigby, 1993a, 1994; Williams, *et al.*, 1996). But other authors (e.g., Besag, 1989; Crick & Grotpeter, 1996; Matsui, *et al.*, 1996; O'Moore & Hillery, 1991; Smith, *et al.*, 1993) have advocated transactional models, models which are supported by some empirical results (Egan & Perry, 1997; Vernberg, 1990) and by social rank theory (Gilbert, 1992) and other theories (e.g., Crick & Dodge, 1994; Coyne, 1976).

Empirical support for transactional models is shown when neither of the simple main effects models is supported by the data: that is, when victimisation is related to increasing distress, and distress related to increasing victimisation. If only the first of these findings emerges from a study (as in Kochenderfer & Ladd, 1996a), that does not mean that a transactional model is refuted. It may simply be that statistical power was too low, or the wrong adjustment variable chosen. Therefore, empirical and theoretical evidence is more strongly in favour of a transactional model; furthermore, such a model is consistent with social rank theory. So it was predicted that there would be evidence in the present research for a transactional (two-way) etiological relationship between victimisation and

maladjustment.

Pairs of prospective analyses, developed from Cohen and Wills (1985), can be used to test transactional models. If victimisation significantly predicts later maladjustment, with initial maladjustment held constant (in an I-prospective analysis), a simple incidental model (which states that there is no causal pathway from victimisation to maladjustment) is refuted. If maladjustment predicts later victimisation, with initial victimisation held constant (in a C-prospective analysis), a simple causal model (which states that there is no causal pathway from maladjustment to victimisation) is refuted. Both these simple main effects models are refuted when there is evidence for causal pathways in both directions. Evidence for both causal pathways is evidence for a transactional model.

Some previous researchers have not used both types of prospective analyses of the relationship between victimisation and maladjustment. No researchers who have done so have used multi-informant or multi-type (including both relational and subordinal forms) assessment of victimisation. No follow-up study has been conducted with a British sample, and it is important to see how well the results of studies in other cultures generalise. This study attempted to overcome these limitations. It was predicted that there would be evidence for both causal pathways between victimisation and socioemotional maladjustment.

Additional aims

The primary focus of this chapter was on Aims 4 and 5, concerning risk status and etiological relationships. One less important aim of this chapter was Aim 2, concerning the

form of maladjustment most strongly related to victimisation. Previous research (Table 2.6; Chapter Eight) has suggested that victimisation is more strongly related to depression than to any other socioemotional maladjustment variable. It was predicted that depression would also show the strongest longitudinal association with victimisation.

Another secondary aim investigated in this chapter was Aim 3, concerning the relative extent to which different informants' reports of victimisation were related to self-reported maladjustment. Following the results reported in Chapter Eight, it was predicted that, in longitudinal analyses, self-reported maladjustment would tend to be more strongly related to self-reported than to peer-reported victimisation.

A final aim of this chapter was the converse of Aim 4, to investigate the extent to which socioemotional maladjustment was a risk factor for future victimisation. Given the predictions made about the etiological relationship between victimisation and maladjustment, it was predicted that initial socioemotional maladjustment would be positively correlated with future victimisation, and that initial maladjusted status would predict future victim status with greater accuracy than chance.

Summary

This longitudinal study attempted to overcome some limitations of previous ones, by

- assessing the predictive accuracy of victimisation as a risk factor for future socioemotional distress;
- using a measure of victimisation comprising all its forms (physical, subordinal and relational);

- drawing on the opinions of more than one type of informant to assess victimisation;
- conducting both C-prospective and I-prospective longitudinal analyses; and
- employing a British sample of school children.

The hypotheses and main aims of this chapter are summarised as follows.

Hypotheses concerning the risk status of victims (Aim 4)

Hypothesis 9.1. Victimization at Time One is positively correlated with socioemotional maladjustment at Time Two.

Hypothesis 9.2. Victim status at Time One predicts distressed status at Time Two with accuracy greater than chance.

Hypotheses concerning the etiological relationship between victimisation and maladjustment (Aim 5)

Hypothesis 9.3. Victimization at Time One predicts increasing socioemotional maladjustment between Time One and Time Two (in I-prospective analyses).

Hypothesis 9.4. Socioemotional maladjustment at Time One predicts increasing victimisation between Time One and Time Two (in C-prospective analyses).

Hypotheses related to additional aims

Hypothesis 9.5. Longitudinal (Time One to Time Two) relationships between victimisation and maladjustment are stronger for depression than for other forms of socioemotional maladjustment.

Hypothesis 9.6. Longitudinal (Time One to Time Two) correlations between victimisation and maladjustment are stronger for self-reported than for peer-reported victimisation.

Hypothesis 9.7. Socioemotional maladjustment at Time One is positively correlated with victimisation at Time Two.

Hypothesis 9.8. Distressed status at Time One predicts victim status at Time Two with accuracy greater than chance.

9.2. Data analysis strategy

Transformation of variables

Exploratory data analysis showed that the distributions of variables at Time Two were not all the same shape as those of the same variables at Time One. Also, because of the reduced sample size, the shapes of distributions of Time One variables were not all the same as in Chapter Eight. In order to normalise distributions, square root transformations were applied to depression raw scores, and logarithmic (base 10) transformations to loneliness, self-assessed victimisation, and anxiety¹ raw scores. For the purposes of consistency, the same transformations applied to normalise any one variable at Time One were also applied at Time Two.

Overview of analyses

I-prospective and C-prospective MR analyses were carried out, in which values on an independent variable at Time One were used to predict values on a second variable at Time Two (the dependent variable), after controlling for Time One levels of the dependent variable, and any additional confounding variables.

Age was considered an important variable to control for because of its associations with

¹10 was added to raw anxiety scores first, in order to make transformation possible.

internalising problems demonstrated here (Table 9.2) and to a lesser extent in Chapter Eight. To increase the power of the analyses, and because its associations with other variables considered here was virtually nil (Table 9.2), sex was not included as an independent variable.

Space constraints limit the investigation of the predictive accuracy of victim status for future distressed status. This is reported after the prospective analyses, so that the form of maladjustment which was most strongly related to victimisation in the prospective analyses could be used as the outcome variable.

9.3. Descriptive analysis

Means, standard deviations, and ranges for the transformed variables are displayed in Table 9.1, which shows that variables had very similar summary values at both time points. The correlation matrix among these variables (and age and sex) is displayed in Table 9.2. All correlations between victimisation and maladjustment variables, whether significant or not, were in a direction such that victimisation was positively associated with maladjustment. In support of Hypothesis 9.1, self-assessed victimisation, at Time One, was moderately associated with later socioemotional maladjustment (r s ranging from .21 to .38 in magnitude), but peer-assessed victimisation, on the whole, was not - except with loneliness (c.f. Hypothesis 9.5). There was even stronger support for Hypothesis 9.7 than for Hypothesis 9.1. Time One socioemotional maladjustment was positively associated with Time Two victimisation: r s ranged from .22 to .48 for self-assessed victimisation, and from .07 to .30 for peer-assessed victimisation - global self-worth was the only form of maladjustment which was not associated with later peer-assessed victimisation. As at Time

One, sex was not significantly associated with any of the variables. Age was correlated with self-assessed victimisation and, at least at one of the time points, with each form of maladjustment.

Table 9.1: Descriptive data for variables in longitudinal analyses involving composite victimisation

Variable label	Description	Mean	S.D.	Minimum	Maximum	<i>n</i>
P-VICTIM-T1	Time One Peer-assessed victimisation	.00	1.00	-1.53	3.53	150
P-VICTIM-T2	Time Two Peer-assessed victimisation	.00	1.00	-2.96	3.35	144
S-VICTIM-T1	Time One Self-assessed victimisation (log.)	1.30	.09	1.15	1.53	148
S-VICTIM-T2	Time Two Self-assessed victimisation (log.)	1.28	.11	1.15	1.58	135
GSW-T1	Time One Global Self-Worth	3.06	.61	1.17	4.00	149
CDI-T1	Time One Depression (square root)	2.70	1.31	0.00	5.57	150
LONELY-T1	Time One Loneliness and Social Dissatisfaction (log.)	1.46	.14	1.20	1.77	146
RCMAS-T1	Time One Anxiety (log.)	1.28	.14	1.00	1.53	150
GSW-T2	Time Two Global Self-worth	3.20	.61	1.17	4.00	136
CDI-T2	Time Two Depression (square root)	2.77	1.24	0.00	5.29	137
LONELY-T2	Time Two Loneliness and Social Dissatisfaction (log.)	1.46	.15	1.20	1.82	136
RCMAS-T2	Time Two Anxiety (log.)	1.25	.15	1.00	1.56	137

Table 9.2: Correlation matrix for variables in longitudinal analyses involving composite victimisation

	SV1	PV1	GSW1	CDI1	LONE1	RCMAS1	SV2	PV2	GSW2	CDI2	LONE2	RCMAS2	AGE
P-VICTIM-T1 (PV1)	.22*** (148)												
GSW-T1 (GSW1)	-.23** (145)	-.05 (147)											
CDI-T1 (CDI1)	.35*** (146)	.26** (148)	-.49*** (148)										
LONELY-T1 (LONE1)	.36*** (142)	.26** (144)	-.38*** (144)	.52*** (145)									
RCMAS-T1 (RCMAS1)	.40*** (146)	.14 (148)	-.38*** (149)	.63*** (149)	.53*** (135)								
S-VICTIM-T2 (SV2)	.44*** (133)	.22** (134)	-.22* (133)	.44*** (135)	.43*** (130)	.48*** (134)							
P-VICTIM-T2 (PV2)	.19* (142)	.70*** (143)	-.07 (142)	.30*** (143)	.31*** (139)	.18* (143)	.18* (135)						
GSW-T2 (GSW2)	-.21* (134)	-.08 (135)	.29** (134)	-.39*** (136)	-.36*** (131)	-.39*** (135)	-.42*** (134)	-.15 (136)					
CDI-T2 (CDI2)	.38*** (135)	.17 (136)	-.20* (135)	.55*** (137)	.43*** (132)	.49*** (136)	.54*** (134)	.16 (137)	-.49*** (136)				
LONELY-T2 (LONE2)	.25** (134)	.20* (135)	-.03 (134)	.39*** (136)	.50*** (131)	.38*** (135)	.47*** (133)	.26** (136)	-.47*** (135)	.59*** (136)			
RCMAS-T2 (RCMAS2)	.25** (135)	.13 (136)	-.28** (135)	.49*** (137)	.42*** (132)	.60*** (136)	.50*** (134)	.12 (137)	-.41*** (136)	.62*** (137)	.42*** (136)		
AGE	.19* (148)	.00 (150)	-.10 (149)	.23** (150)	.14 (146)	.33*** (150)	.17* (135)	-.01 (144)	-.03 (136)	.22* (137)	.18* (136)	.30*** (137)	
SEX	-.09 (148)	.00 (150)	-.02 (149)	-.06 (150)	.01 (146)	.13 (150)	-.07 (135)	-.01 (144)	.02 (136)	-.01 (137)	.02 (136)	.16 (137)	-.02 (149)

SV1 = S-VICTIM-T1. * $p < .05$; ** $p < .01$; *** $p < .001$. ns in parentheses below each correlation.

9.4. I-prospective analyses: Predicting future distress from initial victimisation

Overview

Three I-prospective hierarchical MRs were carried out, in which Time Two levels of internalising problems - depression, anxiety, and loneliness² - served as dependent variables. Type I error rate was adjusted to .0167 for these three analyses within the same family, in order to reduce the chance of Type I error (Howell, 1992). The independent variables in each MR were age group, entered at the first step of the regression; initial (Time One) levels of the relevant dependent variable, entered at the second step; and initial (Time One) self- and peer-assessed victimisation, entered at the third step.

The results of these analyses are presented in Tables 9.3 to 9.5, which differ slightly from the tables displayed in Chapter Eight, in that they contain both final regression statistics (*bs*, β s, *rs*, multiple *R* and multiple R^2) and hierarchical regression statistics (change in R^2). The tables indicate the step at which each variable was entered into the regression equation. Significance levels are shown for the final regression coefficients (β s), zero-order correlations, and for changes in R^2 at each step of the MR. The relevance of these statistics is described in what follows.

In each regression, Hypothesis 9.1 was tested with post-hoc tests (Larzelere & Mulaik, 1977) of the zero-order correlations (*rs*) between victimisation and each maladjustment

²To reduce the Type I error rate for this set of analyses, Global Self-worth was not used as a separate dependent variable, as its contemporaneous association with victimisation had been low (section 8.3), and the correlation matrix in the present study (Table 9.2) did not suggest that its longitudinal association was higher.

variable (in the third and fourth row of each table). Correlations significantly greater than zero indicated that victimisation was positively related to future maladjustment, supporting Hypothesis 9.1. *F*-statistics are reported for significant correlations. When these correlations failed to reach significance, it was possible that this was due to low power. In these instances, the power of the analysis was reported; if it was lower than .80, the number of subjects necessary for adequate power was reported. Power calculations were carried out in the same way as indicated in Chapter Eight.

Support for Hypothesis 9.3 within each regression was indicated if there was a significant change in R^2 at the third step. This value represents the proportion of variance in later socioemotional maladjustment which was explained by earlier victimisation, with age and earlier maladjustment held constant. It is bracketed in each table against self- and peer-reported victimisation because it indicates their joint contribution. In the text it is described as percentage variance change at the third step. Significant changes in R^2 are evidence that earlier victimisation causes greater socioemotional maladjustment at Time Two (Cohen & Wills, 1985).

The separate contributions of each type of informants' report of victimisation at the third step are indicated by the unstandardised (*bs*), and standardised (β s) regression coefficients. These show the extent to which each independent variable is uniquely related to the dependent variable; significant β s show that such a unique relationship exists, and their relative values for self- and peer-reported victimisation are used to evaluate Hypothesis 9.6.

Victimisation predicting later depression

Evaluation of the assumptions of multiple regression led to the deletion of one participant from this analysis, because of an outlying standardised residual produced by his data in a preliminary MR. Table 9.3 displays the results for the I-prospective analysis predicting Time Two depression. Post-hoc significance tests of the zero-order correlations between victimisation and depression showed that self-assessed Time One victimisation was positively related to Time Two depression ($F(4, 129) = 6.91, p < .001$), but that peer-assessed Time One victimisation was not. Thus, self-assessed victimisation was a risk factor for future depression, while peer-assessed victimisation was not. Hypotheses 9.1 and 9.6 were supported with respect to depression.

Table 9.3: Hierarchical multiple regression of Time Two depression on age, and Time One depression and peer victimisation

Variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	R^2 change at each step
<i>Entered at step one:</i>				
AGE	.04 ± .19	.03	.23	.054**
<i>Entered at step two:</i>				
CDI-T1	.48 ± .14	.51***	.59***	.296***
<i>Variables entered at step three:</i>				
S-VICTIM-T1	3.36 ± 1.93	.26***	.42***	.055**
P-VICTIM-T1	-.08 ± .18	-.06	.16	
Intercept	-2.87 ± 2.44	Multiple R = .64***		
<i>n</i> = 134		R ² = .404		
		Adjusted R ² = .386		
** $p < .01$, *** $p < .001$				

Time One victimisation explained an additional 5.5% of the variance (F change (1, 129)

= 5.93, $p < .004$) in Time Two depression, after age and Time One depression had been taken into account. Thus hypothesis 9.3 was supported with respect to depression. Inspection of β s showed that only Time One self-assessed victimisation ($\beta = .26$, $p < .001$), and not Time One peer-assessed victimisation ($\beta = -.06$, $p > .1$), uniquely predicted Time Two depression. In other words, children who initially saw themselves as victims, compared to those who did not, tended to report greater depression at follow-up - whether or not they were initially depressed. Self-reported victimisation appeared to cause increasing depression. But initial peer-reported victims did not report greater depression at follow-up when compared to initial peer-reported non-victims, and so depression was more strongly related over time to self-reported than to peer-reported victimisation (c.f. Hypothesis 9.6).

Victimisation predicting later loneliness

Table 9.4: Hierarchical multiple regression of Time Two loneliness on age, and Time One loneliness and peer victimisation

Variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	R^2 change at each step
Entered at step one:				
AGE	.02 ± .02	.11	.21	.044*
Entered at step two:				
LONELY-T1	.57 ± .17	.55***	.57***	.297***
Variables entered at step three:				
S-VICTIM-T1	-.01 ± .26	-.01	.25 ⁺ }	.001
P-VICTIM-T1	.00 ± .03	.02	.02 }	
Intercept	.64 ± .34	Multiple $R = .59$ ***		
		$R^2 = .342$		
<i>n</i> = 126		Adjusted $R^2 = .320$		
* .05 < <i>p</i> < .1; * <i>p</i> < .05, *** <i>p</i> < .001				

Following preliminary regressions, three participants were omitted from the analysis. One was omitted because of an outlying standardised residual. A second appeared as an outlier in a plot of residuals against predicted values,³ causing possible heteroscedasticity. A third displayed a combination of relatively high leverage, with a relatively large residual. After these participants were omitted, evaluation of the assumptions proved satisfactory.

Regression statistics for the I-prospective analysis involving loneliness are displayed in Table 9.4. This table shows that, after initial loneliness levels and participants' age were controlled for, Time One victimisation did not contribute significantly to the prediction of

³This participant's data did not produce an outlying standardised residual, but a combination of a relatively extreme residual and a relatively extreme predicted value which suggested possible heteroscedasticity.

Time Two loneliness, F change (1, 121) >1 . Hypothesis 9.3 was not supported for loneliness. Post-hoc evaluation of the significance of zero-order correlations suggested that self-assessed victimisation was not associated with later loneliness, with Type I error rate at .0167, F (4, 121) = 1.97, $p < .1$, and so neither was Hypothesis 9.1 supported for loneliness. Thus, in the present analysis, victimisation was neither a risk factor for, nor a causal factor in later loneliness. That is, children who were initially victims (according to their own or their peers' reports) did not tend to report greater loneliness at follow-up than children who were not initially victims. But the power of the post-hoc test of the zero-order correlation for self-assessed victimisation was low, at $<.61$. More than 187 participants would be needed for a test with sufficient power.

Victimisation predicting later anxiety

Table 9.5: Hierarchical multiple regression of Time Two anxiety on age, and Time One anxiety and peer victimisation

Variable	b (with 95% confidence limits)	β	r	R^2 change at each step
<i>Entered at step one:</i>				
AGE	.02 ± .02	.14 ⁺	.31*	.095***
<i>Entered at step two:</i>				
RCMAS-T1	.65 ± .16	.62***	.65***	.339***
<i>Variables entered at step three:</i>				
S-VICTIM-T1	-.10 ± .23	-.07	.27* }	.014
P-VICTIM-T1	.02 ± .02	.13 ⁺	.18 }	
Intercept	.55 ± .29	Multiple $R = .67$ ***		
		$R^2 = .448$		
$n = 132$		Adjusted $R^2 = .431$		

+ .05 < p < .1; * .05 < p < .0167; *** p < .001

The results of the I-prospective analysis of anxiety are presented in Table 9.5. Two participants were omitted from this analysis, following preliminary runs, because their outlying residuals were considered possible causes of heteroscedasticity in the regression. Assumptions of the regression were judged to be met after these participants had been omitted.

Overall, when age and level of Time One anxiety were controlled, Time One victimisation did not make a significant contribution (with Type I error rate at .0167) to the prediction of Time Two anxiety. There was some suggestion, though, of borderline effects of victimisation. The standardised regression coefficient for peer-assessed victimisation was different from zero at $p < .08$. The zero-order correlation between Time One self-assessed victimisation and Time Two anxiety was significant at $p < .05$ (but not at $p < .0167$), with $F(4, 127) = 2.48$, although the power of this significance test (.72) was not optimal, and at least 157 participants would be needed for sufficient power. The zero-order correlation between peer-assessed victimisation and anxiety was not significant⁴. Power of this significance test was less than .30, and at least 411 participants would be needed for a sufficiently powerful test.

⁴It may seem strange to the reader that the standardised regression coefficient for peer-assessed victimisation ($\beta = .13$) was greater than that for self-assessed victimisation ($\beta = -.07$), while the zero-order correlation for the latter ($r = .27$) was greater than that for the former ($r = .18$). This apparent paradox illustrates the nature of MR analysis. Both peer-assessed and self-assessed victimisation showed a weak tendency towards being positively correlated with later anxiety, but were also correlated with each other, and with Time One anxiety (Table 9.2). In MR analysis, the variance that peer- and self-assessed victimisation shared with each other and with initial anxiety, and participants' age group, was removed. Thus, the β s represented quite different proportions of shared variance from the r s, and so there is no logical reason why β s should differ in the same direction as r s. The present example illustrates that, to the small extent that victimisation was associated with later anxiety, peer-assessed victimisation accounted for most of that association.

Thus, there was weak evidence (at borderline significance) that victimisation was a risk factor for later anxiety, and moreover that Time One peer-reported victimisation led to increasing anxiety between Time One and Time Two. These results offered limited support for Hypothesis 9.1, with respect to self-reported victimisation and anxiety, and for Hypothesis 9.3, with respect to peer-reported victimisation and anxiety. The evidence concerning Hypothesis 9.6 was equivocal in this case, as the relative strength of association of different informants' reports with anxiety varied according to whether values of other variables were controlled.

9.5. C-prospective analyses: Predicting future victimisation from initial distress

Overview

Two C-prospective hierarchical MRs were carried out. In the first, the dependent variable was self-assessed victimisation at Time Two; in the other it was peer-assessed victimisation at Time Two. Type I error rate was set at .025 for each MR, with individual predictors evaluated with $p < .01$, in order to keep familywise error rate below .05 (Howell, 1992). The independent variables in C-prospective regressions were age group, entered at the first step; Time One victimisation (assessed by either self- or peer-report to match the dependent variable), entered at the second step; and four Time One internalising adjustment variables - depression, loneliness, anxiety, and self-worth - entered at the third step. Refutation of the simple causal model was indicated if there was a significant change in R^2 at this step.

The results of the C-prospective analyses are displayed in Tables 9.6 and 9.7. These differ

from Tables 9.3 to 9.5 in that squared semi-partial correlation values (sr^2 s, from the final regression equation) are displayed alongside R^2 change values (from each step of the hierarchical regression). Support for Hypothesis 9.4 in each regression is indicated by a significant change in R^2 at the third step. This value represents the proportion of variance in later victimisation which was explained by earlier socioemotional maladjustment (all forms combined), with earlier victimisation and age held constant. Significant changes in R^2 are evidence that initial socioemotional maladjustment causes greater victimisation at Time Two (Cohen & Wills, 1985). In the tables these changes in R^2 are bracketed against all the maladjustment variables, and in the text they are described in terms of percentages of variance.

Squared semi-partial correlations (sr^2 s) for the final regression equation are also presented in Tables 9.6 and 9.7. These indicate the proportions of variance shared uniquely between the dependent variable and each independent variable (with the other independent variables held constant). Any Time One maladjustment variable for which sr^2 is significant makes a unique contribution to predicting changes in victimisation. Thus these values offer tests of Hypothesis 9.5, concerning the relationship between depression and victimisation.

The significance levels of zero-order correlations are also displayed in Tables 9.6 and 9.7. Zero-order correlations between different forms of maladjustment and later victimisation offer tests of Hypothesis 9.7, concerning the relationship between distress and future victimisation. This hypothesis is supported whenever there is a significant zero-order correlation.

Predicting self-assessed victimisation from initial maladjustment

Table 9.6: Hierarchical multiple regression of Time Two self-assessed victimisation on age, and Time One self-assessed victimisation and socioemotional maladjustment

Variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²	<i>R</i> ² change at each step
<i>Entered at step one:</i>					
AGE	-.00 ± .02	-.03	.18	.001	.031 ⁺
<i>Entered at step two:</i>					
S-VICTIM-T1	.33 ± .19	.30	.46**	.067***	.183***
<i>Variables entered at step three:</i>					
CDI-T1	.02 ± .02	.26	.47**	.031 ⁺	.139***
LONELY-T1	.11 ± .14	.14	.44**	.012	
RCMAS-T1	.08 ± .17	.10	.47**	.004	
GSW-T1	.01 ± .03	.05	-.23	.002	
Intercept	.52 ± .29	Multiple <i>R</i> = .594***			
		<i>R</i> ² = .353			
<i>n</i> = 126		Adjusted <i>R</i> ² = .320			
+ .05 > <i>p</i> > .025; *** <i>p</i> < .001					

The results of the C-prospective hierarchical MR for self-assessed victimisation are displayed in Table 9.6. In support of Hypothesis 9.7, post-hoc tests of zero-order correlations showed that depression ($F(4, 119) = 5.59, p < .005$), loneliness ($F(4, 119) = 4.71, p < .005$), and anxiety ($F(4, 119) = 5.52, p < .005$) were all risk factors for future victimisation, although low self-worth was not ($F(4, 119) = 1.66, p > .1$). Together these four socioemotional maladjustment variables, entered at the third step of the regression, made a significant contribution to the prediction of future self-assessed victimisation, over and above those made by age, and initial levels of victimisation, F change (4, 119) = 6.38, $p < .0002$, and uniquely explaining 13.9% of the variance in later self-assessed victimisation. Hypothesis 9.4 was supported by these results. With Type I error rate at .01 for individual

predictors, depression showed a weak tendency to be associated with later self-assessed victimisation independently of the other variables ($\beta = .26, p < .02$), offering partial support to Hypothesis 9.5. Thus the results suggested that internalising problems were both risk factors and causative of later victimisation. Children who were lonely, depressed, or anxious at Time One, compared to those who were not, reported increasing victimisation between Time One and Time Two.

Predicting peer-assessed victimisation from initial maladjustment

Anxiety was not included as an independent variable in this C-prospective analysis. In a preliminary analysis, inspection of collinearity diagnostics produced by the SPSS REGRESSION procedure suggested that multicollinearity was present among the independent variables, according to Tabachnick and Fidell's (1996) criteria. The variables implicated as causing multicollinearity were Time One anxiety and loneliness⁵. As there were no theoretical reasons for including both of these independent variables in this analysis which more important than the goal of avoiding multicollinearity, it was decided to drop one of them. Time One anxiety was deleted, rather than loneliness, because it had been less strongly associated with victimisation in the analyses reported in Chapter Eight. After omitting this variable, there was no more multicollinearity, but after further preliminary regression runs, data from two participants were deleted because of outlying standardised residuals. MR assumptions were judged to be met after these modifications.

⁵This does not necessarily mean that multicollinearity was caused by the *correlation* between anxiety and loneliness; Table 9.2 shows that some of the adjustment variables were more highly correlated with each other than these two. Collinearity diagnostics indicated, rather, that both of them were so highly correlated overall with the other predictors that multicollinearity was present. In the event, deleting one of the variables eliminated multicollinearity, by reducing the overall degree of correlation among the independent variables, but it was logically possible that both would have had to be deleted.

The results are displayed in Table 9.7.

Table 9.7: Hierarchical multiple regression of Time Two peer-assessed victimisation on age, and Time One peer-assessed victimisation and socioemotional maladjustment

Variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²	<i>R</i> ² change at each step
Entered at step one:					
AGE	-0.02 ± .30	-.01	.08	.000	.007
Entered at step two:					
P-VICTIM-T1	1.66 ± .34	.65	.63***	.375***	.474***
Variables entered at step three:					
CDI-T1	.19 ± .30	.11	.30*	.006	.019
LONELY-T1	1.27 ± 2.50	.08	.30*	.004	
GSW-T1	.09 ± .56	.02	-.09	.000	
Intercept	-2.58 ± 4.24	Multiple <i>R</i> = .71***			
		<i>R</i> ² = .500			
<i>n</i> = 133		Adjusted <i>R</i> ² = .480			
* <i>p</i> < .05; *** <i>p</i> < .001					

According to post-hoc tests of zero-order correlations, initial depression and loneliness were weakly correlated with later peer-assessed victimisation (*F*s (4, 127) = 2.48 and 2.55 respectively, *p* < .05). These tests were not significant with Type I error rate for individual predictors at .01, and not because of low power, which was calculated at >.80. Neither did internalising problems, overall, contribute significantly to future peer-assessed victimisation, once initial peer-assessed victimisation was controlled for, *F* change (3, 127) = 1.63, *p* > .1. Thus, there was limited support for Hypotheses 9.5 and 9.7 with peer-reported victimisation, in that depression and loneliness (but not other maladjustment variables) showed a weak tendency to predict later peer-assessed victimisation. But there was no evidence in favour of Hypothesis 9.4, that any form of socioemotional

maladjustment caused changes in peer-assessed victimisation. Children who were initially seen by their peers as victims of aggression, compared to those who were not, tended to report greater loneliness and depression at follow-up, but not *increasing* depression or loneliness between Time One and Time Two.

9.6. Prospective analyses involving self-assessed victimisation and depression

In the preceding prospective analyses, Time One victimisation predicted 5.5% of the variance in Time Two depression, after age and Time One depression were taken into account, but did not predict changes in anxiety or loneliness. In contrast, Time One socioemotional maladjustment predicted 13.9% of the variance in Time Two victimisation, after age and Time One victimisation were taken into account. There was more evidence from these prospective analyses that internalising problems caused victimisation than the other way around. In support of Hypotheses 9.5 and 9.6, effect sizes in the prospective analyses (as in Chapter Eight) were greatest when the variables analysed were self-assessed victimisation and depression. Since the variables included in I-prospective analyses (section 9.4) were not identical to those included in C-prospective analyses (section 9.5), the effect of self-assessed victimisation on changes in depression may have been under-estimated, relative to the effect of depression on changes in self-assessed victimisation.

To investigate this possibility, one further pair of prospective analyses was carried out, in which the only variables were depression, self-assessed victimisation, and age group. These were not the same as the prospective analyses described in sections 9.4 and 9.5, as fewer variables were included, and so statistical power was enhanced. These analyses were conducted to investigate the relative strength of support for Hypotheses 9.3 and 9.4 when

the same variables were included in each type of prospective analysis. Because these hypotheses were the sole focus of these analyses, the only statistics reported are β s and change in R^2 (with corresponding change in F) at the final step of each regression.

Predicting future depression from initial self-assessed victimisation

In a hierarchical I-prospective analysis, the dependent variable was Time Two depression. Age group was entered at the first step, followed by Time One depression at the second, and Time One self-assessed victimisation at the third. Preliminary analysis led to the deletion of data from three participants. Two of these showed extreme standardised residuals, while a third was an outlier on the plot of standardised residuals against leverage, having fairly high values on both. Following deletion of these outlying data, self-assessed victimisation uniquely explained 4.2% ($\beta = .36$, F change (1, 128) = 10.16, $p < .002$) of future depression, after age and initial depression were controlled. Children who initially saw themselves as victims, compared to those who did not, tended to report increasing depression over the period of the study.

Predicting future self-assessed victimisation from initial depression

In a hierarchical C-prospective analysis, the dependent variable was Time Two self-assessed victimisation. Age group was entered at the first step, Time One self-assessed victimisation at the second step, and Time One depression at the final step. Following a preliminary analysis, data from one participant were omitted because of a high standardised residual. Depression uniquely predicted 10.9% ($\beta = .36$, F change (1, 128) = 20.65, $p < .0001$) of the variance in later self-assessed victimisation, after age and initial self-assessed victimisation were taken into account. Children who initially reported depressive

symptoms, compared to those who did not, tended to report increasing victimisation over the period of the study. Moreover, depression predicted increasing self-reported victimisation to a greater extent than self-reported victimisation predicted increasing depression.

9.7. Predictive accuracy: Clinical significance

How *accurately* does depressed status predict later victim status (c.f. Hypothesis 9.2) - or victim status predict later depressed status (c.f. Hypothesis 9.8)? Parker and Asher (1987) evaluated the efficacy of peer relationship measures in predicting later disorder, by using a measure of *relative improvement over chance* (RIOC), proposed by Loeber and Dishion (1983). This statistic, applied to the current research, evaluates the efficacy of (for instance) depressed status in predicting later status as a victim of peer aggression. For maximally effective prediction, all children designated as depressed would later become victims. A certain proportion of correct predictions would be expected by chance alone. RIOC first calculates *improvement over chance* - that is, the difference between the proportion of correct predictions, and the proportion expected by chance. RIOC is the ratio of this improvement over chance, to the difference between the maximum possible proportion of correct predictions⁶ and the proportion of correct predictions expected by

⁶This proportion is not necessarily 100%. Rather, it is fixed by the frequencies of participants in different cells of the contingency table (Loeber & Dishion, 1983). For instance, in Table 9.8, 114 participants were identified as not being at risk. Consequently, the maximum number of possible valid negatives (i.e., participants correctly identified as not being at risk) was 114. If valid negatives are maximised ($n = 114$), the number of false positives (participants identified as at risk who were not depressed at Time Two) is necessarily equal to the total number of participants who were not depressed at Time Two ($n = 122$) minus the maximum number of valid negatives - i.e., 8 false positives. The maximum number of valid positives (participants correctly identified as at risk) is then necessarily the total number of participants who were at risk (victims) at Time One ($n = 21$), minus the number of false positives when valid negatives are maximised ($n = 8$) - i.e., 13 valid positives. Therefore, the maximum number of valid positives and negatives is 127 (from 135 participants).

chance.

Self-reported victimisation and depression were used to investigate accuracy of prediction, because these variables showed the strongest longitudinal relationships. In order to calculate RIOC, participants were classified as victims and non-victims, and depressed and not depressed, at both Time One and Time Two. Standardised (*Z*) scores were used for this purpose. Depression scores were converted to *Z*-scores within sex and age group, as this procedure is in keeping with the use of different norms in clinical use of the CDI for different sex and age groups (Kovacs, 1992). Self-assessed victimisation scores were standardised across age group, as these were correlated with age in previous analyses. Participants with standardised depression *Z*-scores of +1.5 or above were classified as depressed (because this was the cut-off identified by Kovacs, 1992, as indicating possible clinical depression), and those with standardised self-assessed victimisation scores greater than or equal to +1 were classified as victims. All other participants were treated as well-adjusted (non-victims, or not depressed). This dichotomisation is appropriate for a calculation of RIOC, which is essentially a way of judging accuracy of classification. Odds ratios were also calculated, by dividing the percentage of "at risk" children who were maladjusted at Time Two, by the percentage of non-risk children who were maladjusted at Time Two.

Contingencies used in the calculation of RIOC values are presented in Tables 9.8 and 9.9. A third of the Time One victims were depressed by Time Two, compared to one in nineteen of the non-victims (odds ratio = 6.33, RIOC = 45.5%). A quarter of initially depressed children were victims at Time Two, compared to 9.2% of the children who

initially were not depressed (odds ratio = 2.7, RIOC = 22.1%).

Table 9.8: Proportions of self-assessed Time One victims at risk for later depression

		Depressed status (Time Two)		
		Not depressed	Depressed	Total
Self-assessed victim status (Time One)	Non-victim	108 (80%)	6 (4.4%)	114 (84.4%)
	Victim	14 (10.4%)	7 (5.2%)	21 (15.6%)
	Total	122 (90.4%)	13 (9.6%)	135 (100%)

RIOC = 45.5% Odds ratio: 6.33

Table 9.9: Proportions of depressed children at Time One at risk for later victimisation

		Self-assessed victim status (Time Two)		
		Non-victims	Victims	Total
Depressed status (Time One)	Not depressed	108 (80%)	11 (8.2%)	119 (88.1%)
	Depressed	12 (8.9%)	4 (3.0%)	16 (11.9%)
	Total	120 (88.9%)	15 (11.1%)	135 (100%)

RIOC = 22.1% Odds ratio = 2.70

9.8. Summary and discussion

Self-reported victims were at risk for future depression, but not for future loneliness or anxiety. In I-prospective analyses, victimisation was associated with later depression independently of initial levels of depression. In other words, there was some tendency, across both age groups, for victims to be more depressed than non-victims ten months after initial assessment, *even if* they were not depressed at the time of that initial assessment. In fact, 5.5% of the variance in depression scores was explained uniquely by previous peer- and self-assessed victimisation. This may seem a small proportion, but it is quite comparable to proportions found in I-prospective analyses by, for instance, Kochenderfer

and Ladd (1996a) - 4% for loneliness, and 6% for school avoidance. Additionally, although the causal pathway was of only borderline significance, peer-assessed victimisation tended to predict later anxiety, independently of age and initial anxiety, even though anxiety and victimisation were assessed by different informants. These results, in which victimisation presented a risk over and above initial maladjustment, are similar to those found in other research (Craig & Pepler, 1997; Egan & Perry, 1997; Kochenderfer & Ladd, 1996a; Vernberg, 1990), although this is the first time they have been found in Britain, or with relational victimisation included in a composite measure of victimisation. These results support Hypotheses 9.1 and 9.3, and are not consistent with a simple incidental model of the association between victimisation and depression.

But there was perhaps even stronger evidence in favour of Hypotheses 9.4 and 9.7, and against a simple causal model. Depressed, lonely, or anxious children were at risk for future self-assessed victimisation, independently of initial levels of self-assessed victimisation. 13.9% of the variance (more than twice that explained in I-prospective analyses) shared among these three internalising problems was shared uniquely with later self-assessed victimisation. Children who initially reported being lonely, depressed or anxious, compared to those who did not, tended to report greater victimisation ten months later, even if they had not initially been targets of aggression. Similar findings have been made by Egan and Perry (1997), and Vernberg (1990) - although, again, not within a British sample, and not with operational definitions of victimisation which included relational victimisation.

Because the regressions of maladjustment on previous victimisation were not precisely the

converse of the regressions of victimisation on previous maladjustment, more direct comparisons were carried out, using depression and self-assessed victimisation as key variables. These variables were chosen because they were the ones which showed the strongest longitudinal inter-relationships.

One comparison included the first attempt to examine the extent to which victim status accurately predicted being at risk for later depression, using the procedures recommended by Parker and Asher (1987). In clinical terms, children who saw themselves as victims (at Time One) were over six times as likely as non-victims to be depressed at Time Two, and being a victim was a risk factor for future depression, predicting it with 45.5% greater accuracy than chance. Initially depressed children were nearly three times as likely as initially nondepressed children to say they were victims at Time Two. Depressed status was also a risk factor for future self-reported victim status, predicting it with 22.1% greater accuracy than chance. In terms of risk, victimisation appeared a greater risk factor for depression than depression for victimisation, and Hypothesis 9.2 was supported more strongly than Hypothesis 9.8, though each variable was a risk factor for the other.

Another comparison of depression and self-reported victimisation took the form of a pair of prospective analyses. Their results provided more evidence for the causal pathway from depression to victimisation (Hypothesis 9.4) than for the reverse causal pathway (Hypothesis 9.3). Self-assessed victimisation predicted 4.2% of the variance in later depression, after age and initial depression had been taken into account. Depression, in comparison, predicted 10.9% of the variance in later self-assessed victimisation, after age and initial self-assessed victimisation were taken into account.

The strength of support for hypotheses varied, but the general pattern of results supported all hypotheses. Victimization was a risk factor for future distress (Hypothesis 9.1), predicting it with greater accuracy than chance (Hypothesis 9.2), and predicted increasing distress over time (Hypothesis 9.3). Socioemotional distress was a risk factor for future victimisation (Hypothesis 9.7), predicting it with greater accuracy than chance (Hypothesis 9.8), and predicting increased victimisation over time (Hypothesis 9.4). Hypothesis 9.5 was supported in that victimisation was more strongly related to future depression than to other forms of maladjustment. Loneliness and anxiety also led to future victimisation, although not independently of depression. Finally, the pattern of results across analyses showed that, in support of Hypothesis 9.6, self-reported victimisation tended to show significant longitudinal relationships with maladjustment variables to a greater extent than peer-reported victimisation did.

Overall, these results suggest that the likely relationship between victimisation and socioemotional distress was reciprocal or transactional. Being targets of aggression, at Time One, led children to report that they were more depressed at follow-up than they had been to start with. Loneliness, depression, and anxiety among children at Time One led them to report that they were more frequently targets of aggression at follow-up than they had been initially. The first set of results is not easy to reconcile with a simple incidental model, and the second set is incompatible with a simple causal model. It seemed that some children were locked in a cycle in which victimisation led them to become more emotionally distressed, and being distressed made them more likely to be targets of aggression.

This two-way, transactional relationship between victimisation and socioemotional distress is consistent with findings in the peer relations literature (Parker, *et al.*, 1995), and with past results in follow-up studies of victims (especially Egan & Perry, 1997; Vernberg, 1990). Some other studies in the latter category (e.g., Craig & Pepler, 1997; Kochenderfer & Ladd, 1996a; Olweus, 1993a) may have failed to find evidence that negative self-perceptions predicted future victimisation, because of low power (as in some of the present I-prospective analyses), or because they have simply not investigated the possibility. The present results support such explanations of previous null results.

Both past and present results are consistent with transactional models, of the types outlined by Parker, *et al.* (1995), Gotlib and Whiffen (1991), Besag (1989), Coyne (1976), Crick and Dodge (1994), Crick and Grotpeter (1996), Gilbert (1992), Matsui, *et al.* (1996), O'Moore and Hillery (1991), Rubin, *et al.* (1990), Sameroff (1997), Smith, *et al.* (1993) or Vernberg (1990). They do not support the assumptions of some researchers (e.g. Boulton & Smith, 1994; Slee & Rigby, 1994; Williams, *et al.*, 1996) that contemporaneous associations between victimisation and adjustment have explanations in terms of simple main effects models, or the conclusions in the papers of Kochenderfer and Ladd (1996a), or Olweus (1993b) that victimisation is causally associated with adjustment in only one direction.

Limitations

Several limitations specific to this study are listed below. One limitation of the results in this chapter is that the method of assessing victimisation changed from Time One to Time Two (see Chapter Six). The victimisation data, which had been collected in individual

interviews at Time One, were collected in group sessions from some of the participants at Time Two. Items and instructions were identical in both group sessions and individual interviews, and the stability of the victimisation scales over ten months was high (see Table 9.2: $r = .44$ for self-reported victimisation; $r = .70$ for peer-reported victimisation) despite the differences in methodology. While the methodological changes may affect estimates of the frequency of victimisation, they may have fewer effects on the pattern of correlational-based analyses. So these alterations probably present only a limited challenge to the validity of the results. Nevertheless, it would be desirable in future replications to avoid such a change in methodology from Time One to Time Two.

A second limitation of the results is that it was almost always only self-reported victimisation, and not peer-reported victimisation, which was significantly related over time to self-reported maladjustment. This limitation presents a greater challenge to conclusions about risk than it does to conclusions about etiology. Zero-order correlations (and odds ratios and relative improvements over chance prediction) for self-reports of victimisation and distress may be inflated by self-assessment shared method variance. But, as Kochenderfer and Ladd (1996a) have pointed out, shared method variance is less of a concern in prospective analysis, because in these the dependent variable's initial values are partialled out of it before the predictor is entered into the regression equation. When both predictor and dependent variable are self-assessed, this procedure removes some of the variance in the dependent variable which can be attributed to shared method assessment. So it is relatively unlikely that the causal associations found are simply due to bias in self-reports. Nevertheless, it might be possible to draw stronger conclusions from results of follow-up designs which show that victimisation, as reported by one type of informant, is

related over time to distress as reported by a different type of informant.

A related, third limitation is that some of the present statistical analyses had low power because of a relatively small sample size. Follow-up designs would benefit from larger samples, of the size used by Boivin, *et al.* (1995), for instance - particularly if small effect sizes are expected. Larger sample sizes would allow more powerful tests of whether peer-reported victimisation is related over time to self-reported maladjustment.

Fourth, the practical constraints on the present research limited follow-up to ten months. Clearly, longer follow-up periods would benefit the current literature, in which there is at present only one long-term follow-up of victims (Olweus, 1993b). Ten months is, however, longer than follow-up periods in several previous follow-up studies (e.g., Egan & Perry, 1997; Kochenderfer & Ladd, 1996a, 1996b; Vernberg, 1990).

A fifth limitation is most pertinent to the assessment of clinical risk. Victims were described here as being at risk for "depression", but strictly speaking, the most that can be said from these results is that they were at risk for *suspected* depression. Standardised scores of 1.5 or above on the CDI indicate that a child *may* be depressed, but cannot in themselves be used to diagnose clinical depression (Kovacs, 1992; Fristad, *et al.*, 1997) or to indicate how the results would generalise from a non-clinical to a clinical sample. Researchers would need to use structured clinical interviews (Fristad, *et al.*, 1997) to determine the proportion of victims (or former victims) who can be diagnosed as depressed.

A final limitation is that even follow-up designs, although so lauded by Parker and Asher (1987), do not provide infallible evidence of causation (see Parker & Asher, 1987; Vernberg, 1990; Watts, 1989). While further follow-up studies are needed, several other methods (e.g., time-series analysis, qualitative, experimental) can be used to investigate causal pathways associated with victimisation, and evidence for a theory that emerges would be strongest if supported by multiple methodologies. Experimental studies traditionally offer strong support for causal inferences, because of random allocation of participants and manipulation of independent variables. Such designs include mood induction experiments, experimentally manipulated mild rejection or nonacceptance (e.g., Dittes & Kelley, 1956; Rabiner & Coie, 1989; Cole & Carpienti, 1990), and intervention studies (see Parry & Watts, 1989, for further examples). Social cognitive aspects of a transactional model are particularly suited to experimental manipulation (e.g. Dodge & Feldman, 1990).

Chapter Ten

Contemporaneous correlates of different forms of victimisation

Abstract

The main aims of this chapter are (1) to investigate the extent to which different forms of victimisation were associated with maladjustment (Aim 6), and (2) to investigate the possible moderating effects of age and gender on these associations (Aim 7). Multiple regression analyses were carried out to investigate the relationship of Time One socioemotional maladjustment with Time One physical, subordinal and relational victimisation. The pattern of results across these analyses suggested that maladjustment was related primarily to psychological, rather than physical, forms of victimisation. There was limited evidence that relational victimisation was more strongly associated with maladjustment among older children than younger children. There was no evidence for sex differences in the socioemotional distress of victims. These results extend previous findings about the importance of psychological victimisation, and are at least partly interpretable in social rank terms.

10.1 Aims and hypotheses

Different forms of victimisation and maladjustment

Aim 6 of this thesis concerns the relative extent to which physical, subordinal, and relational victimisation are correlated with socioemotional maladjustment. Some bullying researchers and many children and lay people have emphasised the importance of physical,

and to some extent subordinal, victimisation above the importance of relational victimisation (e.g., Arora, 1996; Austin & Joseph, 1996; Kochenderfer & Ladd, 1996b; MacLeod & Morris, 1996; Madsen, 1996; Olweus, 1978; Perry, *et al.*, 1988; Rigby & Slee, 1992; Smith & Levan, 1995; Warden, *et al.*, 1996). In contrast, some authors have argued that relational victimisation is more damaging to children than subordinal or physical victimisation (Alsaker, 1993; Paley, 1992). Peer relations researchers and some theoretical writers have emphasised to a greater extent the impact on development of experiences of not belonging (c.f. relational victimisation) than the impact of down-rank experiences related to physical and subordinal victimisation (e.g., Asher & Coie, 1990; Baumeister & Leary, 1995; Hartup, 1996; Rubin & Asendorpf, 1993). Social rank theory (Gilbert, 1992) suggests that all three forms of victimisation may have important implications for maladjustment, but that the implications depend on the prevalent mode of social interaction. In section 4.3 social rank theory was applied to suggest that in middle childhood (the age group studied at present), relational victimisation is the most strongly associated with maladjustment, and physical victimisation the least strongly associated.

Previous empirical work (see Chapter Four) suggests that emotional and socioemotional distress and social relationship difficulties may be more strongly associated with psychological forms of victimisation than with physical victimisation. Previous empirical work was limited, however, in the breadth of experience of victimisation measured, and in statistical analyses. No study has compared all three forms of victimisation measured in the present research (or any near equivalent) in terms of their adjustment correlates. When two forms of victimisation have been compared, their inter-correlations have often not been controlled statistically, and no study has used standard multiple regression, which

would provide independent effect sizes (as sr^2 s). Thus it is hard to make an assessment in much of previous research of the extent to which different forms are correlated with maladjustment, *independently of their correlations with each other*.

The research reported in this chapter aims to overcome these limitations, by examining the socioemotional adjustment correlates of physical, subordinal, and relational victimisation, while controlling for inter-correlations among these forms of victimisation. It was considered important to construct hypotheses on the basis of both previous empirical work and social rank theory. Social rank theory and empirical work both suggest (see sections 4.2 and 4.3) that all three forms of victimisation may be related to socioemotional maladjustment, and that maladjustment is more strongly related to psychological than physical forms of victimisation. A hypothetical application of social rank theory in the present research suggests that relational victimisation may be more important than subordinal victimisation, but no previous study has directly compared these two forms of victimisation. Therefore the question of the relative importance of relational vs subordinal victimisation was framed in terms of an aim and not a specific hypothesis.

Gender and age differences

Aim 7 of this thesis concerns the possible moderating effects of age and gender on the relationship between socioemotional maladjustment and different forms of victimisation. In section 4.3 it was suggested that, in social rank terms, middle childhood may represent a transition period from the agonistic to the hedonic mode of social interaction. It was further suggested that boys in middle childhood tend to interact in the agonistic mode, and girls in

the hedonic mode. According to the present application of social rank theory, relational and physical victimisation should be the most strongly related to maladjustment in the agonic mode, and in the hedonic mode maladjustment should be more strongly related to subordinal and relational victimisation than to physical victimisation. If all these assumptions are valid, then

- maladjustment should tend to be more strongly related to psychological than to physical forms of victimisation towards the end of middle childhood;
- maladjustment should tend to be more strongly related to relational and physical than to subordinal victimisation around the beginning of middle childhood; and
- maladjustment should be more strongly related to subordinal and relational victimisation among girls than among boys.

Empirically, few studies have attempted to investigate sex and age differences in the adjustment correlates of different forms of victimisation. Some investigators have conducted statistical analyses separately for each sex (e.g., Alsaker, 1993; Crick & Grotpeter, 1996; Ku, 1997). But the appropriate procedure for determining moderating effects is to include a term in analyses for the interaction between the independent variable and the supposed moderator (c.f. Baron & Kenny, 1986). Interaction terms for age group and sex were included in analyses of the association between victimisation and peer relationship adjustment variables, respectively by Grotpeter and Nukulki (1997), and Ray, *et al.* (1997). No investigation has been carried out of the moderating effects of either age or gender on the relationship of internalising problems with different forms of victimisation. Such an investigation is called for because of the importance in the present application of social rank theory, of internalising maladjustment (see section 2.1), and of

the possible moderating effects of gender and age (see section 4.3).

The study reported in this chapter aimed to overcome these limitations of previous research in investigating the moderating effects of age and gender. The application of social rank theory to age and gender differences involved several hypothetical inferences, and so are framed as aims of this chapter, rather than as firm hypotheses.

Additional aims

One additional aim of the present research was to investigate the extent to which specific forms of victimisation were related to specific outcomes. Crick and Grotpeter (1996) suggested that relational victimisation may be more strongly related to relational outcomes (such as loneliness and low social acceptance - "social" forms of maladjustment) than to non-relational outcomes (such as depression and anxiety - "emotional" forms of maladjustment). That hypothesis is not strongly supported by empirical evidence, which suggests that relational victimisation is positively associated with non-relational outcomes, and rank-based (subordinal or physical) victimisation is positively related to relational outcomes (Alsaker, 1993; Crick & Bigbee, in press). It was predicted that this pattern of previous empirical results would be replicated in the study reported in this chapter.

The statistical analyses reported in this chapter are also relevant to two of the central aims of the thesis: Aim 2, concerning the relative influence of different forms of socioemotional maladjustment, and Aim 3, concerning the relative influence of self- and peer-reports of victimisation. From the pattern of results reported in previous chapters it was predicted that different forms of victimisation would be more strongly related to depression than to the

other types of socioemotional maladjustment, and that maladjustment would be more strongly related to self-reports than to peer-reports of victimisation.

Summary

This study aimed to overcome some of the limitations of previous research, by

- comparing the contemporaneous socioemotional maladjustment correlates of all three forms of physical, relational and subordinal victimisation;
- controlling statistically for the inter-correlations between different forms of victimisation in reporting their maladjustment correlates;
- reporting effect sizes for the unique relationship of each form of victimisation with maladjustment; and
- investigating the moderating effects of age and gender on the associations of different forms of victimisation with socioemotional maladjustment.

Aims and hypotheses concerning different forms of victimisation and maladjustment

Aim 10.1. To investigate the socioemotional distress felt by victims of each form of aggression.

Aim 10.2. To investigate the unique effects of different forms of victimisation on contemporaneous socioemotional distress.

Aim 10.3. To investigate the joint effects of different forms of victimisation on contemporaneous socioemotional distress.

Hypothesis 10.1. Relational victimisation is positively associated with socioemotional maladjustment.

Hypothesis 10.2. Subordinal victimisation is positively associated with socioemotional maladjustment.

Hypothesis 10.3. Physical victimisation is positively associated with socioemotional maladjustment.

Hypothesis 10.4. Socioemotional maladjustment is more strongly associated with psychological victimisation than with physical victimisation.

Aim 10.4. To investigate the relative extent to which relational and subordinal victimisation were associated with maladjustment.

Aims concerning moderating effects of gender and age

Aim 10.5. To investigate the extent to which participants' age group moderated the relationship of each form of victimisation with socioemotional maladjustment.

Aim 10.6. To investigate the extent to which participants' gender moderated the relationship of each form of victimisation with socioemotional maladjustment.

Hypotheses related to additional aims

Hypothesis 10.5. Relational victimisation is positively associated with emotional maladjustment (i.e., depression, anxiety, or low self-worth).

Hypothesis 10.6. Rank-related (subordinal or physical) victimisation is positively associated with relational maladjustment (i.e., loneliness or poor social acceptance).

Hypothesis 10.7. Different forms of victimisation are more strongly associated with depression than with other types of socioemotional maladjustment.

Hypothesis 10.8. Socioemotional maladjustment is more strongly related to self-reported than to peer-reported measures of different forms of victimisation.

10.2. Data analysis strategy

A series of mixed standard/hierarchical multiple regressions was used to investigate the aims and hypotheses outlined above. The specific rationale behind this strategy for analysis is detailed below.

Comparing different forms of victimisation

Standard MR was chosen as the strategy for comparing the three different forms of victimisation, because it allowed an assessment of the unique relationship of each form of victimisation, independently of the other forms, with socioemotional maladjustment.

Gender and developmental effects

Hierarchical MR is appropriate when moderator effects of this kind are of interest (Baron & Kenny, 1986; e.g., Kochenderfer & Ladd, 1996a). The analyses were planned in two phases. In each analysis, sex and age were initially entered as predictors of the dependent variable, in order to eliminate spurious associations between victimisation and adjustment which could otherwise be attributed to developmental or gender differences. The three forms of victimisation were entered together at the second step. Their unique contributions to the dependent variable, and post-hoc tests of significance, were carried out after the second step, as for a final regression equation. In the second phase of the analysis plan, three sex interaction terms (i.e., the interaction of gender with each of the three forms of victimisation) were entered at the third step. They were entered before age interactions because it was considered that sex interactions were of greater research interest, given the recent flurry of research into gender differences in victimisation (e.g., Crick & Bigbee, in press; Crick & Grotpeter, 1996; Ku, 1997; Leff & Powell, 1997; Österman, *et al.*, 1994).

Three age interaction terms (of age group with each form of victimisation) were entered together at the final step of each planned analysis.

Interaction terms were calculated by multiplying each index of victimisation by a dummy variable for sex or age (as appropriate). Values for sex were coded as -1 for boys and +1 for girls. Values for age were coded as -1 for primary school and +1 for secondary school children.¹

It is important to note that sex and age interaction effects are reported only for self-assessed victimisation, because preliminary regression runs suggested that interactions with peer-assessed victimisation would be difficult to investigate². Reporting only interactions involving self-assessed victimisation simplifies the presentation of results, but it must be borne in mind that these results are limited, and also exclude a relatively high proportion of outlying participants.

Independent and dependent variables

The peer- and self-report subscales used to assess each form of victimisation were

¹It was necessary to use non-zero integers for coding because interaction effects were calculated by multiplying each independent variable by the moderator. For main effects of age or sex, there is no difference between coding as 0 and 1, and coding as -1 and +1.

²Initial regression runs with peer-assessed victimisation interaction effects suggested that too many outliers (e.g., at least 20) would have to be omitted in order to fulfil the assumptions of MR. This may have reduced the sample size to unacceptably low levels, as well as begging the question as to the validity of an analysis with so many participants excluded. The number of outliers was not substantially reduced by square root transformations, or by truncating the distributions to produce Winsorized samples (Howell, 1992). Initial runs of analyses including only self-assessed victimisation and its interaction effects also suggested that a number of outliers would have to be excluded, but the number of outliers was fewer than in initial runs with peer-assessed victimisation.

described in Chapter Seven. Square root transformations³ were applied to peer reports of each form of victimisation in order to normalise the distribution of these variables. Peer- and self-report subscales were not combined because they were only moderately correlated (Table 7.8), and were kept separate in statistical analyses because of the inclusion of interaction terms and to conserve statistical power.

In preliminary regression runs, there was some evidence for multicollinearity between peer-assessed subordinal and relational victimisation, but this was not great enough to threaten the stability of the statistical solution, and it was essential from a social rank perspective to include all three forms of victimisation in analyses. The effect of this multicollinearity was to reduce the statistical power of the analyses involving peer-reported victimisation, because of the high inter-correlations between subordinal and relational peer-reports. For these reasons, and because the internal consistency of self-report subscales was limited (see Table 7.1), it must be emphasised that a consistent pattern of results, replicable for both informants' reports of victimisation, was sought across the regressions.

The power of the analyses could be increased by carrying out a single analysis with a composite variable assessing socioemotional maladjustment. However, it was considered potentially more interesting to investigate consistency in a pattern of results over different dependent variables. Using both more relational (e.g., loneliness, social acceptance) and less relational adjustment indices (e.g., depression, anxiety, self-worth) as dependent variables also allowed investigation of Hypotheses 10.5, 10.6 and 10.7. A square root

³10 was added to each value of the peer-report variables before taking the square root, as square roots cannot be calculated for numbers less than zero.

transformation was applied to normalise depression scores, as in Chapter Eight.

Choice of data set

Contemporaneous associations were examined within the Time One data only. A larger sample was available at Time One than at Time Two, and replications of some analyses at Time Two would have resulted in too small samples, according to Tabachnick and Fidell's (1996) criteria. Conclusions could be more strongly supported by replication of results at Time Two, and this may be a desirable procedure in a different context. But in this thesis the analyses are in some senses replicated by using differing informants for the assessment of peer victimisation, and longitudinally (Chapter Eleven). Present space constraints prevented replication at Time Two.

Deletion of outliers

Following preliminary MR runs, three outlying cases were omitted from all of the regressions that included peer-reports of victimisation, with two additional outliers omitted for the regressions in which loneliness and social acceptance were dependent variables. Thirteen cases were excluded as outliers from all the regressions involving interaction effects. Further outliers were omitted from two of these regressions: two from the regression involving social acceptance, and three from the regression involving global self-worth. So many outliers were excluded that a question arose as to the likely effect of their omission on findings. This question is addressed in Appendix IX by a discussion of the outlying participants' data and of analyses carried out without deleting them.

Type I error

In Chapters Eight and Nine efforts were made to adjust for Type I error. This was an appropriate strategy, given the relative abundance of previous work, in which the strength of results with small effect sizes may have been exaggerated. But the present set of regressions is more exploratory in nature. There is no literature in which these three forms of victimisation have been compared with each other in multiple regression analysis. It was therefore appropriate here to be less strict about avoiding Type I errors, and error rate was set at .05. Rather, the intention was to find a consistent pattern in the results in terms of whether one form of victimisation was more strongly associated with maladjustment than another.

10.3. Descriptive analysis

Table 10.1: Descriptive statistics for variables used to investigate the contemporaneous correlates of different forms of victimisation

Variable	Label	Mean	s.d	Min.	Max.	<i>n</i>
Peer-assessed subordinal victimisation (square root)	P-SUB	3.16	.15	2.84	3.71	175
Peer-assessed physical victimisation (square root)	P-PHYS	3.16	.15	2.89	3.77	175
Peer-assessed relational victimisation (square root)	P-REL	3.16	.15	2.89	3.75	175
Self-assessed subordinal victimisation	S-SUB	6.21	1.93	4	12	173
Self-assessed physical victimisation	S-PHYS	4.38	1.49	3	9	173
Self-assessed relational victimisation	S-REL	5.85	1.75	4	12	173
Global self-worth	GSW	3.03	.63	1.17	4	174
Depression (square root)	CDI	2.76	1.30	0	5.57	175
Loneliness and Social Dissatisfaction	LONE	30.96	10.19	16	59	171
Anxiety	RCMAS	9.73	5.82	0	24	175
Social Acceptance	SOCACC	3.01	.65	1.17	4	174

Descriptive statistics for the variables investigated in this chapter (omitting age and sex) are displayed in Table 10.1. Zero-order correlations among the variables are shown in Table 10.2. The boxed portion of the table, in the lower left hand corner, highlights correlations between different forms of victimisation and adjustment, separately for peer- and self-reported victimisation. These correlations are relevant for Aim 10.1, concerning the distress felt by victims of each form of aggression. They were inspected in terms of

the rank order of effect sizes among the different informants' reports of victimisation.

The largest effects for both self- and peer-assessed victimisation were always for an index of psychological victimisation. Among peer-assessed variables, the smallest effect sizes were always for physical victimisation. Among self-assessed victimisation variables, the smallest effect sizes were never for relational victimisation. All together, these coefficients suggested that psychological victimisation was more strongly associated with internalising adjustment than physical victimisation was, and offered support to Hypothesis 10.4.

Table 10.2: Correlation matrix for variables used to investigate the contemporaneous correlates of different forms of victimisation

	P-SUB	P-PHYS	P-REL	S-SUB	S-PHYS	S-REL	GSW	CDI	LONE	RCMAS	SOCACC	AGE
P-PHYS	58*** (175)											
P-REL	72** (175)	54*** (175)										
S-SUB	42*** (173)	22** (173)	34*** (173)									
S-PHYS	31*** (173)	27*** (173)	31*** (173)	44*** (173)								
S-REL	21** (173)	-06 (173)	17* (173)	33*** (173)	44*** (173)							
GSW	-11 (172)	-10 (172)	-12 (172)	-22** (170)	-17* (170)	-19* (170)						
CDI	27*** (173)	18* (173)	34*** (173)	31*** (171)	20** (171)	27*** (171)	-52*** (173)					
LONE	34*** (169)	13 (169)	30*** (169)	26** (167)	31*** (167)	34*** (167)	-41*** (169)	55*** (170)				
RCMAS	13 (173)	04 (173)	15 (173)	31*** (171)	21** (171)	28*** (171)	-40*** (174)	63*** (174)	55*** (170)			
SOCACC	-26*** (172)	-12 (172)	-28*** (172)	-19* (170)	-28*** (170)	-32*** (170)	38*** (174)	-42*** (173)	-68*** (169)	-41 (174)		
AGE	00 (175)	00 (175)	00 (175)	00 (173)	-06 (173)	-29*** (173)	03 (174)	-14 (175)	-12 (171)	-28*** (175)	12 (174)	
SEX	-14 (175)	-25** (175)	-20** (175)	-05 (173)	-16* (173)	05 (173)	-02 (174)	-06 (175)	02 (171)	11 (175)	11 (174)	04 (178)

* $p < .05$; ** $p < .01$; *** $p < .001$. Decimal points are omitted from correlations. Sample size is in parentheses below each coefficient. Victimization-adjustment coefficients are outlined by source of victimisation assessment.

10.4. Maladjustment and different forms of peer-assessed victimisation

Overview of analyses

Four mixed hierarchical/standard MRs were carried out, primarily with Aims 10.1 to 10.3 in mind, and to test Hypotheses 10.1 to 10.4, with respect to peer-reported victimisation. The dependent variables were depression, loneliness, social acceptance, and anxiety. Because it was not significantly correlated with any of the peer-report variables (see Table 10.2), and because in previous statistical analyses (Chapter Eight) it had shown very low correlations with victimisation, global self-worth was not used as a dependent variable in the analyses in this section. The independent variables in each regression were age and sex, entered together at the first step of the regression, and the three forms of peer-assessed victimisation, entered together at the second step. As noted in section 10.2, sex and age interaction terms were not incorporated (as initially planned) in these analyses, because their inclusion produced too many outliers.

Final regression statistics (after the second step) are shown in Tables 10.3 to 10.6, with significance levels shown for zero-order (r) and semi-partial (squared as sr^2) correlations. Textual descriptions, driven by Aims 10.1 to 10.3, describe the percentages of variance shared between victimisation and maladjustment - indicating the strength of their inter-relationships - which were

- (1) non-unique (i.e., without controlling for inter-correlations between different forms of victimisation - relevant for Aim 10.1, and calculated by multiplying the squares of zero-order correlations by 100);
- (2) unique (i.e., controlling for inter-correlations - relevant for Aim 10.2, and calculated by multiplying sr^2 s by 100); and

(3) shared with a combination of forms of victimisation (i.e., variance which was shared between maladjustment and victimisation but which was not accounted for uniquely by any one form of victimisation - relevant for Aim 10.3, and calculated by subtracting the sum of squared semi-partial correlations for the three forms of victimisation from change in R^2 at the second step of each regression, and then multiplying the result by 100).

When the values of the statistics (r , sr^2 , and change in R^2 at the second step) used to calculate these percentages of variance differed significantly from zero, the results of their significance tests are also reported in the text.

Depression and peer-assessed victimisation

Table 10.3: Final regression statistics for regression of depression on different forms of peer-assessed victimisation

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
Variables entered at step one				
SEX	.04 ± .20	.03	-.05	.001
AGE	-.18 ± .19	-.14	-.16	.020
Variables entered at step two				
P-SUB	1.02 ± 1.90	.11	.26*	.006
P-PHYS	-.68 ± 1.59	-.08	.14	.003
P-REL	2.95 ± 1.95	.30	.33**	.047**
Intercept	-7.65 ± 5.19			
<i>R</i> ² change at step two = .110***			Multiple R = .370***	
			<i>R</i> ² = .137	
			Adj. <i>R</i> ² = .110	
Unique variance explained by victimisation (based on sum of <i>sr</i> ² s) = 5.6%				
Shared variance explained by victimisation (after accounting for age and sex) = 5.4%				
<i>n</i> = 170 * <i>p</i> <.05; ** <i>p</i> <.01; *** <i>p</i> <.001				

Table 10.3 shows the final regression statistics for the regression of depression on sex, age and different forms of victimisation. In support of Hypotheses 10.1 and 10.2, both forms of psychological victimisation were significantly and positively related to depression. The (non-unique) portion of variance shared between subordinal victimisation and depression was 6.8%, $F(5, 164) = 2.37, p < .05$. The portion shared between relational victimisation and depression was 10.9%, $F(5, 164) = 4.00, p < .005$. The portion of variance shared between physical victimisation and depression was 2.0%; they were positively but not significantly related, $F(5, 164) < 1$, and Hypothesis 10.3 was not supported for depression and peer-reported victimisation. There was also some support for Hypothesis 10.5, as

relational victimisation was associated with depression, a non-relational adjustment variable.

In MR the three peer-assessed victimisation variables accounted for a significant proportion of the variance in the dependent variable, F change (3, 164) = 6.99, $p < .0003$, after taking age and sex into account. The only variable which alone made a unique significant contribution to the variance in depression was peer-assessed relational victimisation, $t(164) = 3.00$, $p < .004$. Relational victimisation uniquely explained 4.7% of the variance in concurrent depression, independently of the other two forms of victimisation.

Thus, with 11% of the variance in depression explained by the victimisation variables entered at the second step of the regression, and 5.6% (from the sum of sr^2 s) explained uniquely by specific forms of victimisation (see Table 10.3 for these figures), 5.4% of the variance was explained by a combination of forms of victimisation. Since physical victimisation was not significantly correlated to depression, according to post-hoc tests, this 5.4% was essentially shared between relational and subordinal victimisation and depression.

What these results mean is that children who were seen by their peers as victims of psychological forms of aggression, compared to children who were not, tended to report greater depression. Victims of relational aggression tended to report greater depression than children who were not targeted for relational aggression, whether or not they were also bullied in other ways. Victims of subordinal aggression tended to report greater depression than non-victims, but only to the extent that they were also victims of relational

aggression. Thus depression was associated both uniquely with being a target of relational aggression, and with being a target of both forms of psychological aggression, though the association could be accounted for by relational victimisation alone. Victims of physical aggression did not tend to report greater depression than non-victims, and so Hypothesis 10.4 was supported for depression and peer-reported victimisation.

Loneliness and peer-assessed victimisation

Table 10.4: Final regression statistics for regression of loneliness on different forms of peer-assessed victimisation

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
<i>Variables entered at step one</i>				
SEX	.83 ± 1.49	.08	-.03	.006
AGE	-1.19 ± 1.43	-.12	-.13	.014
<i>Variables entered at step two</i>				
P-SUB	26.78 ± 14.89	.37	.35***	.067***
P-PHYS	-10.41 ± 12.63	-.15	.10	.014
P-REL	7.79 ± 15.58	.10	.26*	.005
Intercept	-45.35 ± 41.01			
<i>R</i> ² change at step two = .141***			Multiple R = .400***	
			<i>R</i> ² = .160	
			Adj. <i>R</i> ² = .134	
Unique variance explained by victimisation (based on sum of <i>sr</i> ² s) = 8.6%				
Shared variance explained by victimisation (after accounting for age and sex) = 5.5%				
<i>n</i> = 164 *** <i>p</i> < .001				

Final regression statistics the analysis involving loneliness and different forms of peer-reported victimisation are summarised in Table 10.4. Both forms of psychological victimisation were significantly and positively associated with loneliness. Relational victimisation and loneliness shared 6.8% of their variance, $F(5, 158) = 2.29, p < .05$, offering support to Hypothesis 10.1. In support of Hypothesis 10.2, subordinal victimisation shared 12.3% of its variance with loneliness, $F(5, 158) = 4.41, p < .001$. Physical victimisation was positively but not significantly associated with loneliness, $F(5, 158) < 1$, and so Hypothesis 10.3 was not supported for peer-reported victimisation and loneliness.

In standard MR, the three forms of victimisation together accounted for a significant proportion of loneliness variance, after controlling for age and sex, $F(5, 158) = 6.02$, $p < .0001$. The only variable which alone made a significant contribution to the variance in loneliness was subordinal victimisation ($t(158) = 3.55$, $p < .0006$), uniquely accounting for 6.7% of the variance, independently of relational and physical victimisation. 5.5% of the variance in loneliness was explained by a combination of forms of victimisation. As physical victimisation was not significantly related to loneliness, it was likely that this variance was shared with loneliness by a combination of the two forms of psychological victimisation, and so Hypothesis 10.4 was supported for loneliness and peer-reported victimisation. There was also support for Hypothesis 10.6, in that subordinal victimisation (a rank-based form of victimisation) was the variable most strongly related to loneliness, a relational adjustment variable.

In other words, peer-reported victims of psychological forms of aggression tended to report greater loneliness than peer-reported non-victims. Specifically, victims of physical aggression did not tend to report greater loneliness than non-victims; victims of subordinal aggression tended to be more lonely than children who were not targeted for subordinal aggression, whether or not they were also bullied in other ways; and victims of relational aggression said they were more lonely than non-victims, but only if they were also victims of subordinal aggression. Thus the relationship between loneliness and victimisation could be accounted for uniquely by subordinal victimisation, but loneliness was also associated to some extent with the experience of being a target of both relational and subordinal aggression.

Social acceptance and peer-assessed victimisation

Table 10.5: Final regression statistics for regression of social acceptance on different forms of peer-assessed victimisation

Independent variable	<i>b</i> (and 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
<i>Variables entered at step one</i>				
SEX	.02 ± .10	.02	.10	.001
AGE	.072 ± .09	.11	.13	.013
<i>Variables entered at step two</i>				
P-SUB	-.74 ± .93	-.16	-.27*	.013
P-PHYS	.77 ± .80	.18	-.09	.019
P-REL	-1.41 ± .95	-.30	-.32**	.046**
Intercept	7.38 ± 2.54			
<i>R</i> ² change at step two = .115***			Multiple R = .375***	
			<i>R</i> ² = .141	
			Adj. <i>R</i> ² = .114	
Unique variance explained by victimisation (based on sum of <i>sr</i> ² s) = 7.8%				
Shared variance explained by victimisation (after accounting for age and sex) = 3.7%				
<i>n</i> = 167 ** <i>p</i> <.01; *** <i>p</i> <.001				

Table 10.5 gives the final regression statistics for the analysis involving social acceptance and different forms of peer-reported victimisation. In support of Hypothesis 10.4, psychological victimisation was significantly negatively associated with positive social acceptance, and physical victimisation was not. Relational victimisation and social acceptance shared 10.2% ($F(5, 161) = 3.67, p < .01$) of their variance, supporting Hypothesis 10.1. In support of Hypothesis 10.2, subordinal victimisation shared 7.3% of its variance with social acceptance, $F(5, 161) = 2.53, p < .05$. The correlation between physical victimisation and loneliness, which shared 0.8% of their variance, was not significantly different from zero, $F(5, 161) < 1$, and there was again no support for Hypothesis 10.3.

After taking age and sex into account in MR analysis, the three forms of victimisation together explained a significant proportion of the variance in concurrent social acceptance, F change (5, 161) = 5.28, $p < .0003$. It was only relational victimisation that made a unique contribution to prediction, explaining 4.6% (t (161) = -2.93, $p < .005$) of the variance, independently of subordinal and physical victimisation. 3.7% of the variance explained in social acceptance was shared among the forms of victimisation. Again, because physical victimisation was not significantly related to social acceptance, it was a combination of subordinal and relational victimisation which accounted for the shared variance.

In less technical terms, these results showed that children who were seen by their peers as victims of psychological forms of aggression, compared to children who were not, tended to see themselves as less well accepted by their peers. Physical victims did not see themselves as significantly less popular than physical non-victims. Relational victims tended to see themselves as less popular than relational non-victims, even if they were not targets of other forms of aggression. Victims of subordinal aggression tended to see themselves as less well-accepted than subordinal non-victims saw themselves, but only if they also tended to be relational victims. Thus low social acceptance was associated both uniquely with being a target of relational aggression, and with being a target of both forms of psychological aggression, though the association could be accounted for by relational victimisation alone.

Anxiety and peer-assessed victimisation

Table 10.6: Final regression statistics for regression of anxiety on different forms of peer-assessed victimisation

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
<i>Variables entered at step one</i>				
SEX	1.00 ± .89	.17	.11	.026*
AGE	-1.66 ± .85	-.28	-.28	.079***
<i>Variables entered at step two</i>				
P-SUB	4.32 ± 8.62	.10	.14	.005
P-PHYS	-2.77 ± 7.53	-.07	.03	.003
P-REL	6.59 ± 8.85	.15	.15	.011
Intercept	16.00 ± 23.77			
<i>R</i> ² change at step two = .036			Multiple R = .363***	
			<i>R</i> ² = .132	
			Adj. <i>R</i> ² = .105	
Unique variance explained by victimisation (based on sum of <i>sr</i> ² s) = 1.9%				
Shared variance explained by victimisation (after accounting for age and sex) = 1.7%				
<i>n</i> = 170 * <i>p</i> < .05; *** <i>p</i> < .001				

The final regression statistics for the analysis involving anxiety and different forms of peer-reported victimisation are displayed in Table 10.6. Anxiety was not significantly related to any of the three forms of peer-assessed victimisation, neither in post-hoc tests of zero-order correlations (*F*s (5, 164) all <1), nor in tests of semi-partial correlations, *t*s (165) all <1.96. Because of these non-significant results, percentages of variance are not reported. There was no support for Hypotheses 10.1 to 10.3 with anxiety and peer-assessed victimisation, although (in partial support of Hypothesis 10.4) the largest regression coefficients and zero-order correlations were for psychological rather than physical victimisation.

10.5. Maladjustment and different forms of self-assessed victimisation and gender/developmental differences

Overview of analyses

Five mixed standard/hierarchical MRs were carried out, with the same aims as in the previous set of analyses, as well as Aims 10.5 and 10.6, to investigate the moderating effects of age and gender on the relationship between different forms of victimisation and maladjustment. The primary hypotheses tested by these regressions were Hypotheses 10.1 to 10.4. The dependent variables were depression, loneliness, social acceptance, anxiety, and global self-worth. The independent variables in each regression were:

- (1) at step one, age and sex;
- (2) at step two, self-assessed relational, subordinal and physical victimisation;
- (3) at step three, sex interaction terms for each form of victimisation; and
- (4) at step four, age interaction terms for each form of victimisation.

The results as far as step two are explained in the same way as those for peer-reported victimisation in section 10.4. Change in R^2 and relevant sr^2 s, with the results of significance tests, are reported for interaction effects which were significant - if none was significant, regression statistics are not given beyond step two. The nature of significant interaction effects is explored using the procedure outlined by Baron and Kenny (1986) for investigating the effects of moderator variables. For example, if an interaction effect involving age group and relational victimisation was significant, multiple regressions were carried out separately for each age group in the sample, in which sex was entered at the first step, and the three forms of victimisation were entered at the second step. The difference between the unstandardised regression coefficients (bs) for relational

victimisation in these two regressions was tested with a formula provided by Howell (1992, p249ff). If the regression coefficients were significantly different from one another, the nature of the interaction was shown in the standardised regression coefficients (Bs), which are (in such instances) reported in the text with corresponding sr^2 s.

Depression and self-assessed victimisation

The introduction of interaction terms did not significantly increase the variance explained in depression, and the pattern of results did not change substantially. Therefore, and because it simplifies presentation, regression statistics are reported here, and displayed in Table 10.7, for the analysis at the end of step two, with the demographic variables and forms of victimisation entered as predictors, but not the interaction terms.

Table 10.7: Regression statistics after step two of regression of depression on different forms of self-assessed victimisation

Independent variable	<i>b</i> (and 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
<i>Variables entered at step one</i>				
SEX	-.07 ± .21	-.05	-.07	.003
AGE	-.11 ± .22	-.08	-.16	.006
<i>Variables entered at step two</i>				
S-SUB	.15 ± .13	.19	.24	.030*
S-PHYS	-.03 ± .18	-.03	.14	.001
S-REL	.15 ± .15	.19	.26	.024*
Intercept	1.08 ± .97			
<i>R</i> ² change at step two = .076**			Multiple R = .326**	
			<i>R</i> ² = .106	
			Adj. <i>R</i> ² = .077	
Unique variance explained by victimisation (based on sum of <i>sr</i> ² s) = 5.5%				
Shared variance explained by victimisation (after accounting for age and sex) = 2.1%				
<i>n</i> = 158 * <i>p</i> <.05; ** <i>p</i> <.01				

All forms of victimisation tended to be positively associated with depression, but none of the zero-order correlations between depression and different forms of self-rated victimisation reached significance, according to post-hoc tests (using *df* = 5, 152, as appropriate for testing without interaction terms in the regression equation). However, in

partial support of Hypothesis 10.4, the larger correlations were for psychological forms of victimisation.

Self-assessed victimisation significantly affected the amount of variance explained in depression, F change at step two (3, 152) = 4.28, $p < .01$), after age and sex were taken into account. In support of Hypotheses 10.1 and 10.5, self-assessed relational victimisation uniquely accounted for 2.4% of the variance in concurrent depression ($t(152) = 2.02$, $p < .05$). In support of Hypothesis 10.2, subordinal victimisation uniquely accounted for 3% of the variance in depression ($t(152) = 2.27$, $p < .025$). Hypothesis 10.3 was not supported, as there were no significant relationships between physical victimisation and depression. With a residual 2.1% of the variance explained by a combination of forms of victimisation, it was subordinal or relational victimisation, uniquely or jointly, which accounted for most of the variance shared between self-reported victimisation and depression.

Effectively this means that children who saw themselves as victims tended to report greater depression than self-reported non-victims, but only to the extent that they saw themselves as victims of relational or subordinal aggression. Hypothesis 10.4 was supported for self-assessed victimisation and depression, because psychological forms of victimisation were more strongly related to depression than physical victimisation was. But there was no evidence for gender or developmental differences in the relationship between depression and any form of victimisation.

Loneliness and self-assessed victimisation

Again, there was no significant change in R^2 when sex and age interaction terms were entered in the regression involving loneliness and self-assessed victimisation. The pattern of results did not change substantially as a result of including interactions. For economy of presentation, the results presented in Table 10.8 and in the text again represent the regression after step two, with no interaction terms.

Table 10.8: Regression statistics after step two of regression of loneliness on different forms of self-assessed victimisation

Independent variable	<i>b</i> (and 95% confidence limits)	β	<i>r</i>	sr^2
<i>Variables entered at step one</i>				
SEX	.27 ± 1.61	.03	-.00	.001
AGE	-.66 ± 1.70	-.07	-.15	.004
<i>Variables entered at step two</i>				
S-SUB	.16 ± 1.04	.03	.12	.001
S-PHYS	.93 ± 1.41	.12	.20	.010
S-REL	1.12 ± 1.15	.18	.26	.023
Intercept	18.92 ± 7.66			
R^2 change at step two = .059*			Multiple R = .289*	
			R^2 = .083	
			Adj. R^2 = .052	
Unique variance explained by victimisation (based on sum of sr^2 s) = 3.4%				
Shared variance explained by victimisation (after accounting for age and sex) = 2.5%				
$n = 154$ * $p < .05$				

With age and sex held constant, the different forms of self-assessed victimisation together explained a significant proportion of the variance in concurrent loneliness (F change (5, 148) = 3.19, $p < .03$). Each form of victimisation was positively associated with loneliness,

but none of these associations were significant. None of the variables made a significant unique contribution to the prediction of loneliness, although the total amount of variance uniquely attributed to victimisation variables (3.4%) was slightly greater than the explained variance shared among them (2.5%). Additionally, none of the zero-order correlations between depression and the different forms of victimisation was significantly different from zero, according to post-hoc tests (with $df = 5, 142$). Thus, though self-assessed victimisation was associated with loneliness, there was no strong evidence for attributing the association to any one form of victimisation, and no strong support for Hypotheses 10.1 to 10.3. It is interesting, however, that the largest (though non-significant) semi-partial correlation was that for relational victimisation, while, in contrast to other results, the second largest was for physical victimisation - results which were not supportive of Hypothesis 10.4.

Thus self-reported victims tended to see themselves as more lonely than self-reported non-victims. But loneliness appeared to be associated with the self-reported experience of being a target of more than one form of aggression, rather than with any one specific form of self-reported victimisation. There was no evidence for gender or age differences in the relationship between loneliness and victimisation.

Social acceptance and self-assessed victimisation

In the regression involving social acceptance and self-assessed victimisation there were no significant changes in R^2 , or substantial changes to the pattern of results, when the interaction terms were entered. Table 10.9 shows the regression statistics at the end of step two.

Table 10.9: Regression statistics after step two of the regression of self-perceived social acceptance on different forms of self-assessed victimisation

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	sr^2
<i>Variables entered at step one</i>				
SEX	.04 ± .10	.06	.10	.003
AGE	.04 ± .11	.06	.17	.003
<i>Variables entered at step two</i>				
S-SUB	-.01 ± .07	-.02	-.16	.000
S-PHYS	-.10 ± .09	-.20	-.30*	.031*
S-REL	-.07 ± .07	-.19	-.29*	.024*
Intercept	3.93 ± .47			
R^2 change at step two = .097**			Multiple R = .368***	
			R^2 = .135	
			Adj. R^2 = .106	
Unique variance explained by victimisation (based on sum of sr^2 s) = 5.5%				
Shared variance explained by victimisation (after accounting for age and sex) = 4.2%				
$n = 155$ * $p < .05$; ** $p < .01$; *** $p < .001$				

All three forms of self-assessed victimisation tended to be negatively correlated with positive self-assessed social acceptance. In support of Hypothesis 10.1, social acceptance was significantly correlated with relational victimisation, $F(5, 149) = 2.74, p < .025$. In support of Hypothesis 10.3, physical victimisation was significantly related to social acceptance, $F(5, 149) = 2.95, p < .025$. Hypothesis 10.2 was not supported, as subordinal

victimisation was not significantly related to social acceptance.

With age and sex controlled, self-assessed victimisation explained a significant proportion of the variance in self-assessed social acceptance, F change (3, 149) = 5.59, $p < .002$. Relational victimisation uniquely explained 2.4% of the variance in concurrent social acceptance, t (149) = -2.03, $p < .05$, independently of subordinal and physical victimisation. Physical victimisation uniquely explained 3.1% of the variance, independently of the other forms of self-assessed victimisation, t (149) = -2.3, $p < .03$. 4.2% of the variance in social acceptance could only be accounted for by a combination of victimisation variables. Given that self-reported subordinal victimisation was not significantly related to social acceptance, this 4.2% of variance was primarily shared between social acceptance and relational and physical victimisation. The evidence did not favour Hypothesis 10.4 in this instance.

The pattern of these results, then, was a little different from the pattern in other analyses. Children who tended to report physical victimisation also tended to report being unpopular with their peers, even if they did not also report psychological victimisation. Self-reported subordinal victims and non-victims did not report different levels of social acceptance. More consistently with the results of other analyses, self-reported relational victims tended to report greater unpopularity than relational non-victims, even if they did not report being targeted for subordinal or physical aggression. The relationships between social acceptance and each form of victimisation did not differ between boys and girls, or between primary and secondary school children.

Anxiety and self-assessed victimisation

The results of the analysis involving anxiety and different forms of self-reported victimisation differed slightly in character with and without interaction terms included, and so are presented in two stages. Regression statistics after step two of this regression are shown in Table 10.10.

Table 10.10: Regression statistics after step two of the regression of anxiety on different forms of self-assessed victimisation, without interaction terms

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
Variables entered at step one				
SEX	.93 ± .90	.16	.11	.023*
AGE	1.33 ± .95	-.22	-.29*	.041**
Variables entered at step two				
S-SUB	.65 ± .57	.18	.24	.027*
S-PHYS	.35 ± .77	.08	.19	.005
S-REL	.44 ± .64	.12	.29*	.010
Intercept	1.62 ± 4.24			
<i>R</i> ² change after step two = .076**			Multiple R = .417*** <i>R</i> ² = .174 Adj. <i>R</i> ² = .146	
Unique variance explained by victimisation (based on sum of <i>sr</i> ² s) = 4.2%				
Shared variance explained by victimisation (after accounting for age and sex) = 3.4%				
<i>n</i> = 158 * <i>p</i> <.05; ** <i>p</i> <.01; *** <i>p</i> <.001				

Self-reported relational victimisation was positively related to anxiety, $F(5, 152) = 2.8$, $p < .025$, supporting Hypothesis 10.1. Post-hoc tests of zero-order correlations did not support Hypotheses 10.2 or 10.3, as they failed to show that the positive correlations between self-reported subordinal and physical victimisation with anxiety differed significantly from zero.

At step two of the MR, after age and sex were taken into account, the three forms of self-reported victimisation together explained a significant proportion of the variance in contemporaneous anxiety, F change (3, 152) = 4.66, $p < .004$. The patterns of semi-partial and zero-order correlations were not identical. The difference was not due to suppression of variables (Tabachnick & Fidell, 1996), as β s for both forms of psychological victimisation were smaller in magnitude than, and of the same valence as, their zero-order correlations. Subordinal victimisation, in support of Hypothesis 10.2, uniquely explained 2.7% of the variance in anxiety, independently of relational and physical victimisation, $t(152) = 2.24$, $p < .03$. Semi-partial correlations for physical and relational victimisation did not differ significantly from zero, but 3.4% of the variance in anxiety was explained by a combination of forms of victimisation. Since the only form of victimisation which had a significant zero-order correlation with anxiety was relational, it seemed that anxiety shared variance both uniquely with subordinal victimisation, and with a combination of subordinal and relational victimisation. Hypothesis 10.4 was supported by these results.

Table 10.11: Final statistics for regression involving different types of victimisation and anxiety, with all interaction terms entered

Regression term	<i>b</i>	β	<i>r</i>	<i>sr</i> ²
<i>Variables entered at step one</i>				
SEX	-2.33 ± 4.20	-.39	.11	.006
AGE	-5.44 ± 4.79	-.92	-.29	.027*
<i>Variables entered at step two</i>				
S-SUB	.63 ± .64	.18	.24	.020
S-PHYS	.57 ± .93	.13	.19	.008
S-REL	.83 ± .87	.22	.29	.019
<i>Sex interaction terms: Step three</i>				
S-SUB X SEX	.19 ± .66	.20	.13	.002
S-PHYS X SEX	.38 ± .89	.28	.12	.004
S-REL X SEX	.12 ± .65	.12	.13	.001
<i>Age interaction terms: Step four</i>				
S-SUB X AGE	.14 ± .62	.15	-.27	.001
S-PHYS X AGE	-.25 ± .83	-.18	-.29	.002
S-REL X AGE	.83 ± .83	.80	-.27	.021*
Intercept	-.69 ± 6.18			
		Multiple <i>R</i> = .466*** <i>R</i> ² = .217 Adjusted <i>R</i> ² = .158		
<i>n</i> = 158 * <i>p</i> <.05; *** <i>p</i> <.001				

Final regression statistics, after interaction terms had been entered, are displayed in Table 10.11. There were no overall significant changes in *F* at steps three or four of the regression. At step three, *F* change (3, 149) = 1.08, *p*>.1. At step four, *F* change (3, 146) = 1.63, *p*>.1. But the interaction between age and self-assessed relational victimisation did, in the final step, make a significant unique contribution (*t* (146) = 1.99, *p*<.05) to the prediction of loneliness. When separate regressions were carried out within each age group,

the unstandardised regression coefficient for secondary schoolchildren was greater than that for primary schoolchildren, $t(154) = 2.21, p < .05$. Relational victimisation was uniquely and positively associated with anxiety among secondary schoolchildren ($\beta = .32, sr^2 = .091$) but not among primary schoolchildren ($\beta = .03, sr^2 = .001$).

The results for the analyses involving anxiety and self-assessed victimisation mean that self-reported victims of psychological aggression tended to report greater anxiety than self-reported non-victims. Relational victims were more anxious than relational non-victims, but only if they were also secondary school children or victims of subordinal aggression. Victims and non-victims of physical aggression did not differ in the anxiety they reported, and there were no sex differences in the relationships between anxiety and different forms of victimisation.

Global self-worth and self-assessed victimisation

There was no significant change in R^2 in the first three steps of the regression involving global self-worth and self-assessed victimisation. Zero-order correlations between the dependent variable and self-assessed victimisation were not significantly different from zero, either at step two or step four. Therefore, results are reported primarily for the final regression equation after entering all interaction terms, with statistics shown in Table 10.12.

Table 10.12: Final statistics for regression involving different types of victimisation and global self-worth, with all interaction terms entered

Regression term	<i>b</i>	β	<i>r</i>	<i>sr</i> ²
<i>Variables entered at step one</i>				
SEX	.04 ± .47	.06	-.04	.000
AGE	.76 ± .54	1.22	.07	.049**
<i>Variables entered at step two</i>				
S-SUB	-.02 ± .08	-.05	-.16	.001
S-PHYS	-.02 ± .11	-.05	-.09	.001
S-REL	-.13 ± .10	-.34	-.15	.045**
<i>Sex interaction terms: Step three</i>				
S-SUB X SEX	.04 ± .08	.37	-.03	.006
S-PHYS X SEX	-.02 ± .10	-.14	-.05	.001
S-REL X SEX	-.04 ± .07	-.38	-.06	.007
<i>Age interaction terms: Step four</i>				
S-SUB X AGE	-.02 ± .07	-.22	.05	.002
S-PHYS X AGE	.00 ± .10	.03	.05	.000
S-REL X AGE	-.12 ± .09	-1.15	.05	.045**
Intercept	3.92 ± .54			
		Multiple <i>R</i> = .333		
		<i>R</i> ² = .111		
		Adjusted <i>R</i> ² = .042		
<i>n</i> = 154	** <i>p</i> < .01			

At step four, *F* change (3, 142) = 3.19, *p* < .03, *R*² change = .06. Multiple *R* at this, final step was .333, which, with so many variables in the equation, was not significantly greater than zero, *F* (11, 142) = 1.61, *p* > .1. Nevertheless, the effect of the age interaction terms on multiple *R* suggested that these were worth investigating. The interaction of relational victimisation with age showed a significant unique association with global self-worth, *sr*² = .045, *t* (142) = -2.67, *p* < .009. No other interaction effect was significant. But as the *F*

change was significant at step four, at which interactions involving all three forms of victimisation were entered, all three of these interactions were investigated. With regressions carried out separately within each age group, age had no effect on regression coefficients for subordinal victimisation ($t(150) = .26, p > .1$), or physical victimisation ($t(150) = .13, p > .1$). But the regression coefficient for relational victimisation was greater among secondary schoolchildren than among primary schoolchildren, $t(150) = 2.94, p < .01$. Relational victimisation was negatively associated with positive self-worth among secondary school children ($\beta = -.27, sr^2 = .05$), and was unrelated to primary school children's self-worth ($\beta = -.01, sr^2 = .000$).

These results show that self-worth was not related to subordinal or physical self-assessed victimisation; there was no support for Hypotheses 10.2 or 10.3. Global self-worth was not related to self-assessed victimisation at all among primary school children. Among secondary school children, self-reported relational victims tended to have lower self-worth than self-reported relational non-victims. There was no evidence that gender affected the relationship between victimisation and low self-worth.

10.6. Summary and discussion

The emphasis in interpreting the present results was on identifying consistent patterns. These patterns are summarised in terms of significance in Table 10.13, and in terms of median effect sizes in Table 10.14. Table 10.13 indicates whether zero-order or regression coefficients were significant for a given analysis. The two analyses in which there were significant interaction effects are treated as separate in this table.

Table 10.13: Summary of contemporaneous correlates of different forms of victimisation: Significance of zero-order correlations and regression coefficients

Source of victimisation assessment	Dependent variable	Form of victimisation					
		Subordinal		Relational		Physical	
		Significant <i>bs</i> and post-hoc <i>rs</i> ?					
		<i>r</i>	<i>b</i>	<i>r</i>	<i>b</i>	<i>r</i>	<i>b</i>
Peer	Depression	Yes	No	Yes	Yes	No	No
	Loneliness	Yes	Yes	Yes	No	No	No
	Social acceptance	Yes	No	Yes	Yes	No	No
	Anxiety	No	No	No	No	No	No
	Self-worth	No	-	No	-	No	-
Self	Depression	No	Yes	No	Yes	No	No
	Loneliness ⁴	No	No	No	No	No	No
	Social acceptance	No	No	Yes	Yes	Yes	Yes
	Anxiety: Y4	No	Yes	No	No	No	No
	Anxiety: Y7	No	Yes	No	Yes	No	No
	Self-worth: Y4	No	No	No	No	No	No
	Self-worth: Y7	No	No	No	Yes	No	No

Support for hypotheses

There was support for Hypotheses 10.1 and 10.2 when victimisation was assessed by peers. Both relational and subordinal peer-assessed victimisation were correlated with depression, loneliness, and social acceptance. In support of Hypothesis 10.4, at least one of these forms of psychological victimisation, if peer-assessed, was always associated with these dependent variables independently of the other form and, crucially, of physical

⁴Self-report victimisation variables, together, were significantly related to loneliness, but no zero-order or semi-partial correlations were significant.

victimisation. Peer-assessed physical victimisation never showed any association, independent or (in post-hoc tests of zero-order correlations) non-independent, with these dependent variables, and thus Hypothesis 10.3 was not supported when victimisation was assessed by peers.

When victimisation was assessed by self-report, Hypotheses 10.1 to 10.3 were partially but not strongly supported. Each form of victimisation was to some extent positively related to socioemotional maladjustment, but there was no one form of victimisation which was consistently related to maladjustment. The pattern of results supported Hypothesis 10.4, because socioemotional maladjustment was more often significantly associated with psychological than physical self-assessed victimisation.

All together, there were eight analyses in which any form of self-assessed, or peer-assessed, victimisation was independently associated with maladjustment. In all of these, at least one of the forms of victimisation with a significant unique relationship with maladjustment was psychological, while only in one analysis was physical victimisation uniquely related to maladjustment. Additionally, variance shared between maladjustment and a combination of forms of victimisation was usually identified as shared primarily between relational and subordinal victimisation. In plain terms, the pattern of results suggested that victims of psychological aggression tended to be more distressed than non-victims of psychological aggression, regardless of whether they were victims of physical aggression. Victims of physical aggression, on the whole, were no more distressed than non-victims of physical aggression.

Aim 10.4 of this chapter was to investigate whether maladjustment was more strongly associated with relational or with subordinal victimisation. Table 10.13 shows that three zero-order correlations were significant for subordinal victimisation, and four for relational victimisation. Four regression coefficients were significant for subordinal victimisation, and six for relational victimisation. There were two analyses in which subordinal victimisation contributed independently to the dependent variable, and relational victimisation did not. There were four analyses in which relational victimisation made an independent contribution and subordinal victimisation did not. In a further two analyses, both forms of psychological victimisation were associated with maladjustment, independently of each other and of physical victimisation. The differences in effects between relational and subordinal victimisation were not as great as they were between these two and physical victimisation. But they do suggest that relational victimisation was more strongly associated with internalising maladjustment than subordinal victimisation.

The apparent importance of relational victimisation was further supported by a basic analysis of the effect sizes for the different types of victimisation. Zero-order correlations (r_s) and semi-partial correlations (srs) from the multiple regression analyses are summarised in Table 10.14. r_s represent the correlations between each form of victimisation and each type of maladjustment. srs are displayed rather than sr^2 s, for ease of comparison with r_s and with the independent effect sizes displayed in Table 4.1. srs represent the proportion of variance in each form of victimisation which was shared uniquely with the dependent variable, independently of the other two forms of victimisation. Median effect sizes were also calculated, separately for self-assessed and peer-assessed victimisation, as well as overall (grand median). Medians are more

representative of the central tendency of data, and less susceptible to outlying values than means (Howell, 1992). It is only in parametric statistical analyses, which are not attempted in the discussion of Table 10.14, that means are more appropriate than medians.

Table 10.14: Independent and non-independent effect sizes for different forms of victimisation

Source of victimisation assessment	Dependent variable	<i>rs</i> (non-independent)			<i>srs</i> (independent)		
		Form of victimisation ⁵					
		<i>SUB</i>	<i>REL</i>	<i>PHYS</i>	<i>SUB</i>	<i>REL</i>	<i>PHYS</i>
Peer	Depression	.26	.33	.14	.08	.22	-.06
	Loneliness	.35	.26	.10	.26	.07	-.12
	Social acceptance	-.27	-.32	-.09	-.11	-.21	.14
	Anxiety	.14	.15	.03	.07	.11	-.05
	Median ⁶	.27	.29	.10	.10	.16	-.09
Self	Depression	.24	.26	.14	.17	.16	-.03
	Loneliness	.12	.26	.20	.02	.15	.10
	Social acceptance	-.16	-.29	-.30	-.01	-.15	-.18
	Anxiety: Y4	.17	.13	.16	.12	.02	.13
	Anxiety: Y7	.31	.40	.13	.19	.30	.02
	Self-worth: Y4	-.09	-.08	-.10	-.04	-.01	-.09
	Self-worth: Y7	-.38	-.38	-.25	-.23	-.22	.02
	Median ⁶	.17	.26	.16	.12	.15	.09
Grand median ⁶	.24	.26	.14	.11	.15	-.02	

⁵Key to forms of victimisation: SUB = subordinal; REL = relational; PHYS = physical

⁶Where negative coefficients represent positive associations with maladjustment (i.e., for global self-worth and social acceptance), the valence of effect size has been reversed for the computation of medians.

Overall, and for both peer-assessed and self-assessed victimisation, the greatest median effect sizes (both r_s and srs) were for relational victimisation, and the smallest for physical victimisation. The difference in magnitude between median effects for relational vs subordinal victimisation was not large, however. Indeed, when the effect sizes for different forms of victimisation were ranked relative to one another, with internalising problems variables treated as cases, there were no significant differences among summed ranks. Friedman's ranked sum test, carried out on r_s and srs , was neither significant overall ($F_{\mathcal{S}} < 3.9, p > .1$), nor significant for self-assessed victimisation ($F_{\mathcal{S}} < 1, p > .1$). Although Friedman's ranked sum test (Siegel & Castellan, 1992) was significant for peer-assessed victimisation (for both r and sr effects), $F_{\mathcal{S}} = 6.5, p < .05$, multiple comparisons between forms of victimisation failed to reveal that effects were larger for any form of victimisation than any other.

It must be borne in mind that different experiences of victimisation, particularly peer-assessed subordinal and relational victimisation, were more strongly associated with each other than with internalising maladjustment. Victims of relational aggression were likely also to experience frequent subordinal victimisation and, to a lesser extent, physical victimisation. Similar statements can be made about victims of subordinal and physical aggression. So the difference in effects between subordinal and relational victimisation should not be exaggerated. Victims in general experienced more than one form of victimisation and expressed feelings of distress which seemed to be related to their experiences. Evidence that relational victimisation uniquely accounted for the association between victimisation and distress was evidence that relational victimisation was part of the psychological mechanism by which victimisation came to be related to distress. As it

was mainly relational or subordinal victimisation which were uniquely related to distress in these results, it is likely that these forms of victimisation played key causal roles in linking victimisation with distress. The final two chapters deal with the likely nature of these roles. These results most clearly support Hypothesis 10.4, and show that victims of psychological aggression tended to be distressed, whereas victims of physical aggression did not.

Hypothesis 10.5 was supported, in that it was not just relational forms of maladjustment which were associated with relational victimisation. Peer-assessed relational victimisation was independently related to depression, and self-assessed relational victimisation was independently related to low self-worth (at least among secondary school children). Hypothesis 10.6 was supported, in that peer-assessed subordinal victimisation was related to relational adjustment variables such as loneliness and low social acceptance. These results offered little support to Crick and Grotpeter's (1996) hypothesis that relational victimisation has relational outcomes. Children whose belongingness was attacked (*i.e.*, relational victims) tended to feel not only that they had poor social relationships or did not belong, but also unhappy with themselves and inferior to others. Subordinal victims of verbal put-downs tended to feel inferior and unhappy with themselves, and also that they had poor social relationships.

Hypothesis 10.7, concerning the importance of depression as a correlate of victimisation, was not strongly supported in these analyses. Although depression and loneliness were quite strongly associated with different forms of victimisation, so was social acceptance, and so (especially in older children) were anxiety and low self-worth. It is possible that

combining different forms of victimisation in a composite, while desirable for preliminary analysis (e.g., Chapter Eight) may obscure the relationship between different forms of victimisation and different forms of maladjustment. So experiences of psychological victimisation were related to a variety of feelings of distress besides unhappiness and loneliness.

Hypothesis 10.8 concerns the relative strength of self-assessed victimisation as a correlate of maladjustment, and was not well supported in these analyses. Median effect sizes were not always greater for self-assessed than for peer-assessed victimisation. A possible explanation is that the correlation between subordinal and relational victimisation was much greater when assessed by peers than when assessed by self-report, thus inflating zero-order correlations. This is only a partial explanation, as semi-partial correlations were also sometimes larger for peer-assessed than self-assessed victimisation. These results are important in that the relationship of psychological victimisation with maladjustment could not be explained as an artifact of shared method variance. Children who were seen by their peers as victims of psychological aggression tended to feel more distressed than children who were not seen as victims, whether or not they also saw themselves as victims.

Aims 10.5 and 10.6 were to investigate gender and developmental differences in the correlates of different forms of victimisation. Moderating effects of demographic variables were difficult to investigate with respect to peer-assessed victimisation. Even the inclusion of interaction effects in analyses with self-assessed victimisation led to the deletion of a relatively large number of participants with extreme values. There was no evidence at all that the relationships between adjustment and different forms of victimisation were affected

by the participant's gender. Age, however, appeared to have a slight effect, with some suggestion that relational victimisation was related to anxiety and low self-worth among secondary school children only. So boys and girls who were victims of aggression did not differ in terms of the distress they reported, but secondary school children's experiences of being left out were somewhat more strongly related to their feelings of distress than primary school children's relational victimisation experiences were.

Comparison to previous findings

The research reported in this chapter represent the first full comparison of the adjustment correlates of physical, subordinal, and relational victimisation, and the first use of standard MR to investigate their unique correlates with adjustment. These results were consistent with those found in previous research discussed in Chapter Four (e.g., Alsaker, 1993; Crick & Bigbee, in press; Crick & Grotpeter, 1996), and add further support to the conclusions drawn from them, that psychological victimisation is more strongly related than physical victimisation to internalising maladjustment.

The present results are also largely consistent with the prediction of social rank theory that in middle childhood relational victimisation, operating within both the agonistic and hedonic mode, should be more strongly associated with internalising maladjustment than subordinal and physical victimisation, and (even more so) that internalising maladjustment should be more strongly related to subordinal than to physical victimisation. The moderating effect of age was not quite as predicted by the application of social rank theory in section 4.3. If middle childhood spans a transition period from agonistic to hedonic mode, then one might expect a stronger moderating effect of age on the maladjustment correlates of subordinal

victimisation than on the maladjustment correlates of relational victimisation. In fact, there were moderating effects for relational and not subordinal victimisation. Social rank theory still offers a partial explanation of the results, as its application in this thesis suggests that relational victimisation is more influential in the hedonic than the agonic mode. But this effect was found only in two analyses involving self-assessed victimisation. The analyses could not be replicated for peer-assessed victimisation, and so their results (because of the limitations in the reliability of self-report scales) do not allow for strong conclusions to be drawn.

There were no moderating effects of sex on the relationship between victimisation and maladjustment. This finding is not consistent with Maccoby's (1988) and Tannen's (1990) different-cultures model, as applied in the context of social rank theory; but, as Thorne (1993) argued, neither is a substantial proportion of empirical research.

Limitations

The main limitations of the results in this chapter are in the scales used to assess the different forms of victimisation. The internal consistency of the self-report scales was not as high as might be desired, although there was other evidence in favour of their being reliable and valid measures of the three forms of victimisation (see section 7.1). Each peer-report subscale was based on responses to a single item, and peer-reported relational and subordinal victimisation were so highly correlated that they caused multicollinearity and limited the power of MR analyses. Thus there were limitations to both the peer- and self-report subscales for assessing the different forms of victimisation. Despite these limitations, the results were consistent for both informants' reports in demonstrating the importance

of psychological victimisation. Conclusions about the relative importance of relational and subordinal forms of victimisation are less certain, given the limitations in their measurement and the less consistent pattern of results each showed across the two sets of analyses. Future research would benefit from the development of reliable and valid self- and peer-report measures of these forms of victimisation, measures based on more items and less highly inter-correlated.

The investigation of gender and age differences was limited mainly because of the practical difficulties in replicating this investigation with peer-reported victimisation. Although the correlational-based approach used here had many advantages, interaction effects may be better investigated with categorical, rather than continuous variables. Larger sample sizes would be needed to investigate interaction effects for gender and age with three types of victim/non-victim status, however, in order to ensure that cell sizes would be large enough for analysis of variance.

Finally, it is likely that the findings were limited by low statistical power in some analyses. Although power calculations were not carried out in this chapter, some correlations may have failed to reach significance because of low statistical power. The distress felt by victims of physical aggression and the extent of age differences may have been underestimated in consequence. Future research would benefit from larger samples, which would allow more powerful tests of Hypothesis 10.3 and of gender and age differences.

Chapter Eleven

Longitudinal correlates of different forms of victimisation

Abstract

This chapter brings together the principal aims of the thesis in an investigation of the longitudinal relationship between socioemotional maladjustment and the three forms of victimisation. Two sets of prospective analyses were carried out. In the first set, the three forms of victimisation at Time One were used to predict changes in maladjustment from Time One to Time Two. In the second set, Time One socioemotional maladjustment was used to predict changes in the three forms of victimisation from Time One to Time Two. Victims of psychological aggression were at risk for future distress, and distressed children were at risk for future psychological victimisation. There was some evidence that Time One relational victimisation predicted increasing depression over time. Stronger evidence showed that Time One socioemotional distress predicted increasing psychological victimisation over time.

11.1. Aims and hypotheses

This chapter brings together the major aims of previous chapters. Prospective longitudinal analyses of the relationship between socioemotional maladjustment and different forms of victimisation are used in an investigation with the following aims.

Aim 11.1. To investigate the relative extent to which different forms of victimisation were, over time, related to maladjustment (c.f. Aim 6).

Aim 11.2. To investigate the extent to which victims of each form of aggression were at risk for future socioemotional distress (c.f. Aim 4) - and, conversely, the extent to which distressed children were at risk for future victimisation of each type.

Aim 11.3. To investigate the likely etiological mechanism by which psychological victimisation is associated with maladjustment (c.f. Aim 5).

Aim 11.4. To investigate the forms of socioemotional maladjustment most strongly associated over time with different forms of victimisation (c.f. Aim 2).

Aim 11.5. To investigate the relative strength of association over time of socioemotional maladjustment with different informants' reports of different forms of victimisation (c.f. Aim 3).

In only one study (Kochenderfer & Ladd, 1996b) have different forms of victimisation been compared as predictors of future adjustment. Their study is limited in several ways. Kochenderfer and Ladd carried out statistical analyses which were relevant only to Aims 11.1 and 11.2, concerning the risk status of victims of different forms of aggression. In no study have prospective analyses been used to investigate etiological relationships of maladjustment with different forms of victimisation. Kochenderfer and Ladd used only one self-assessed item to measure each form of victimisation, and reported no psychometric data for any of these single items. They also did not assess relational victimisation.

In the present chapter, physical, subordinal, and relational victimisation were considered within the same prospective analyses as predictors of future, and outcomes of past internalising maladjustment. The following hypotheses were derived from social rank theory and from the pattern of results in previous chapters.

Hypotheses involving initial victimisation as a predictor (related to Aims 11.1 to 11.3)

Hypothesis 11.1. Psychological victimisation at Time One is positively related to socioemotional maladjustment at Time Two.

Hypothesis 11.2. The relationship between victimisation at Time One and socioemotional maladjustment at Time Two is stronger for psychological than for physical victimisation.

Hypothesis 11.3. Psychological victimisation at Time One predicts increasing socioemotional maladjustment between Time One and Time Two.

Hypothesis 11.4. The relationship between victimisation at Time One and change in socioemotional maladjustment from Time One to Time Two is stronger for psychological than for physical victimisation.

Hypotheses involving initial maladjustment as a predictor (related to Aims 11.1 to 11.3)

Hypothesis 11.5. Socioemotional maladjustment at Time One is positively related to psychological victimisation at Time Two.

Hypothesis 11.6. The relationship between socioemotional maladjustment at Time One and victimisation at Time Two is stronger for psychological than for physical victimisation.

Hypothesis 11.7. Socioemotional maladjustment at Time One predicts increasing psychological victimisation between Time One and Time Two.

Hypothesis 11.8. The relationship between socioemotional maladjustment at Time One and changing victimisation from Time One to Time Two is stronger for psychological than for physical victimisation.

Hypotheses related to Aims 11.4 and 11.5

Hypothesis 11.9. Longitudinal relationships between different forms of victimisation and maladjustment are stronger for depression than for other forms of maladjustment.

Hypothesis 11.10. Longitudinal relationships between different forms of victimisation and maladjustment are stronger when victimisation is assessed by self-report than when it is assessed by peer-report.

11.2. Data analysis strategy

Issues in the design of prospective analyses

Both I-prospective analyses and C-prospective MR analyses were used in this chapter, to address Aim 11.3, concerning the etiological relationship between victimisation and maladjustment. Aim 11.1, concerning the relative importance of different forms of victimisation, presented a problem in the design of C-prospective analyses. Given this aim, it was not possible to use the same C-prospective regression models as used in Chapter Nine. Separate regressions, with each form of victimisation as a dependent variable, would not allow a comparison of different forms of victimisation. Moreover, it would be difficult to compare results from different directions of prediction (i.e., victimisation predicting changes in adjustment, compared to adjustment predicting changes in victimisation).

One way round this problem would be to use canonical correlation analysis, which is effectively a more general case of multiple regression (Tabachnick & Fidell, 1996), in which there are several variables on one side of the equation and several on the other side. Variables on one side of the equation are combined mathematically in such ways as to

maximise their combined correlations with combinations of variables on the other side. However, the chief limitation of canonical correlation analysis is that it can be difficult to interpret: "...procedures that maximize correlation do not necessarily maximize interpretations of pairs of canonical variates" (Tabachnick & Fidell, 1996, p197). Such a limitation is an important one to avoid in the present case, especially when alternative analytic strategies are available.

Another alternative approach would be to use MR for C-prospective analyses, with Time One internalising adjustment as the dependent variable. Time Two forms of victimisation would be entered as predictors (independent variables), after Time One forms of victimisation had been controlled for (as independent variables entered at an earlier step). The design of such analyses is C-prospective in the same sense as the C-prospective analyses in Chapter Nine.¹ Initial maladjustment is used to predict changes in victimisation over the period of the study. By making initial maladjustment the dependent variable, the three forms of victimisation can be included in a single analysis. Such an analysis would effectively show the extent to which Time One internalising adjustment is related to changes in victimisation, which is what is required.

One disadvantage of this specific model is that it would include at least six independent

¹ It may seem strange to suggest that a Time One *dependent* variable should be used in a regression to predict changes, between Time One and Time Two, in *independent* variables. Normally one might expect a dependent variable to be an outcome, rather than a predictor. But the statistical model on which MR is based does not assume that the dependent variable cannot precede the independent variables in time. Rather, as Maxwell and Delaney (1990) noted in a textbook on experimental design, "The strength of the support for the interpretation of a relationship as causal...hinges not on the statistical model used but *on the nature of the design employed*" (p8-9; italics added).

variables (without controlling for age or sex), which would reduce statistical power. Another disadvantage is that there would be no way of assessing (through zero-order correlations) the extent to which internalising adjustment predicted changes in each form of victimisation, without taking the other forms into account. These disadvantages were overcome by adapting the above model for C-prospective analyses, using change scores.

Change scores were used in both I-prospective and C-prospective analyses. Change scores are the standardised residuals after Time Two values of a variable are regressed on Time One values of the same variable (Cohen & Cohen, 1975). They are not biased by absolute Time One values in the same way that they would be if these were simply subtracted from Time Two values (see Cohen & Cohen, 1975, p378ff). Change scores were calculated for the maladjustment and victimisation variables, and labelled as change in depression, change in peer-assessed subordinal victimisation, and so on. As residuals, they were uncorrelated with Time One values of the variables they were derived from; they represented the portion of each variable's variance at Time Two which was not shared with its variance at Time One. The variance shared (for example) between Time One depression, and change in peer-assessed subordinal victimisation, was therefore the same as the variance shared between Time One depression and Time Two peer-assessed subordinal victimisation, after variance shared with Time One peer-assessed subordinal victimisation had been removed. Change scores reduced the number of variables, while using the same principles of prospective analysis outlined by Cohen and Wills (1985), and applied in Chapter Nine.

In each I-prospective analysis, change in an internalising adjustment variable (as the

dependent variable) was regressed on Time One values of the three forms of victimisation (as independent variables). Any significant association (in zero-order correlations or regression coefficients) between Time One victimisation and change in internalising adjustment then represented evidence against a simple incidental model, and suggested that victimisation caused changes in maladjustment. In C-prospective analyses, Time One internalising adjustment variables (as dependent variables) were regressed on change values for the three forms of victimisation (as independent variables). Significant zero-order correlations or regression coefficients represented evidence against a simple causal model, and suggested that socioemotional distress led to changes in victimisation. With up to four internalising adjustment variables, and with victimisation assessed by two types of informant, there were up to sixteen prospective analyses which could be applied to the data, but this analytic strategy represented an improvement in economy, power and interpretability over other possible approaches.

A standard MR approach was used, as in the previous chapter, for the comparison of forms of victimisation; but age and sex were again entered as predictors in a step before victimisation, to remove any variance which could be attributed to these demographic variables. In order to conserve power, and because there was little evidence of developmental or gender interaction effects in the analyses reported in the previous chapter, interaction terms were not included in the analyses in the present chapter.

Dependent and independent variables

Peer- and self-assessments of victimisation were kept separate because their correlations

were moderate. They were also used in separate analyses to retain power, and so that a consistent pattern of results could be sought. The value of including self-assessed victimisation in analyses was made clear in Chapter Nine, where it showed stronger longitudinal relationships with socioemotional maladjustment than peer-assessed victimisation did. The relative size of effects in Chapter Nine suggested that in this chapter analyses including self-assessed victimisation would have greater power. It was helpful also to include peer-report subscales in the prospective analyses reported here, in order to investigate the extent to which results could be replicated for both informants' reports of different forms of victimisation.

The maladjustment variables included in prospective analyses were those which, in Chapter Nine, had been shown to be significantly associated with composite victimisation in the appropriate direction - that is, depression, loneliness and anxiety. These variables were considered separately, and as a composite measure of Internalising Problems, created by summing *Z*-scores across the three forms of maladjustment. Cronbach's α s for the composite were .80 at Time One and .78 at Time Two.

Deviations from the normal distribution of Time Two or Time One scores did not necessarily mean that change scores would deviate in the same way. So no transformations were applied to the data before creating change scores. All the residual (change) variables approximated a normal distribution, although there were a few outliers, often at both tails. After creating change scores, monotonic transformations were applied as appropriate to all Time One variables, and their transformed scores used in prospective analyses. Square root transformations were applied to normalise the distribution of Time One depression and

peer-assessed victimisation variables.² Descriptive statistics for the transformed variables used in the statistical analyses in this chapter are presented in Table 11.1.

Regression assumptions

Multicollinearity reduced the power of the regressions of change in internalising maladjustment on the three forms of victimisation, for the same reasons as in Chapter Ten, and for the same reasons, no variable was removed from analyses. There was no problem of multicollinearity in the analyses in which changes in levels of different forms of victimisation were the independent variables, according to the collinearity diagnostics produced by SPSS REGRESSION - residuals for each form of victimisation were not highly correlated with each other.

One outlier was deleted from all the regressions in which change in self-assessed victimisation was predicted by Time One internalising variables, with a second outlier deleted also from the regression in this set in which composite internalising problems was the dependent variable. A different outlier was deleted from the regression in which initial self-assessed victimisation predicted changes in loneliness, and a further three from the regression in which self-assessed victimisation predicted changes in composite internalising problems.

²10 was added to peer-reported victimisation scores first in order to make their transformation possible.

Table 11.1: Descriptive statistics for variables included in prospective analyses of the relationships between maladjustment and different forms of victimisation (continued on the next page)

	Variable	Label	Mean	s.d.	Minimum	Maximum	<i>n</i>
Time One	Peer-assessed subordinal victimisation (square root)	P-SUB-T1	3.16	.01	2.84	3.71	175
	Peer-assessed physical victimisation (square root)	P-PHYS-T1	3.16	.01	2.89	3.77	175
	Peer-assessed relational victimisation (square root)	P-REL-T1	3.16	.01	2.89	3.75	175
	Self-assessed subordinal victimisation	S-SUB-T1	6.11	1.86	4	12	148
	Self-assessed physical victimisation	S-PHYS-T1	4.34	1.46	3	9	148
	Self-assessed relational victimisation	S-REL-T1	5.84	1.74	4	12	148
	Depression (square root)	CDI-T1	2.76	.10	.00	5.57	175
	Loneliness and Social Dissatisfaction	LONE-T1	30.96	10.19	16	59	171
	Anxiety	RCMAS-T1	9.73	5.82	0	24	175
Composite internalising problems	IPS-T1	.00	2.56	-4.42	6.80	169	
Time Two	Peer-assessed subordinal victimisation	P-SUB-T2	-.01	.08	-2.93	3.56	144
	Peer-assessed physical victimisation	P-PHYS-T2	-.01	.08	-3.10	3.27	144
	Peer-assessed relational victimisation	P-REL-T2	-.00	.08	-1.66	3.55	144
	Self-assessed subordinal victimisation	S-SUB-T2	6.04	2.03	4	12	135

Table 11.1 (continued)

Time Two (continued)	Variable	Label	Mean	s.d.	Minimum	Maximum	<i>n</i>
	Self-assessed physical victimisation	S-PHYS-T2	4.23	1.48	3	9	135
	Self-assessed relational victimisation	S-REL-T2	5.52	1.74	4	12	135
	Depression	CDI-T2	9.21	7.23	0	28	137
	Loneliness and Social Dissatisfaction	LONE-T2	30.81	11.01	16	66	136
	Anxiety	RCMAS-T2	8.91	6.45	0	26	137
	Composite internalising problems	IPS-T2	.02	2.51	-3.76	7.98	136
Change (residuals from regressing Time Two on Time One)	Peer-assessed subordinal victimisation	P-SUB-C	.00	1.00	-3.40	3.31	143
	Peer-assessed physical victimisation	P-PHYS-C	.00	1.00	-2.98	3.31	143
	Peer-assessed relational victimisation	P-REL-C	.00	1.00	-2.97	3.70	143
	Self-assessed subordinal victimisation	S-SUB-C	.00	1.00	-2.01	3.14	133
	Self-assessed physical victimisation	S-PHYS-C	.00	1.00	-1.56	3.76	133
	Self-assessed relational victimisation	S-REL-C	.00	1.00	-1.83	3.68	133
	Depression	CDI-C	.00	1.00	-2.95	2.83	137
	Loneliness and Social Dissatisfaction	LONE-C	.00	1.00	-2.77	3.47	131
	Anxiety	RCMAS-C	.00	1.00	-2.77	2.22	136
	Composite internalising problems	IPS-C	.00	1.00	-4.16	3.41	130

Table 11.2: Correlations of Time One Victimization with Time Two socioemotional maladjustment and change in maladjustment

	<i>n</i>	P-SUB-T1	P-PHYS-T1	P-REL-T1	<i>n</i>	S-SUB-T1	S-PHYS-T1	S-REL-T1
Time Two socioemotional maladjustment								
CDI-T2	136	.15	.04	.22*	135	.29**	.21*	.33***
LONE-T2	135	.19*	.04	.21*	134	.14	.18	.21
RCMAS-T2	136	.05	.05	.13	135	.17*	.05	.26**
IPS-T2	135	.15	.05	.22*	134	.23**	.17*	.32***
Change in socioemotional maladjustment								
CDI-C	136	.05	-.02	.06	135	.18*	.14	.26**
LONE-C	130	.03	-.05	.07	129	.05	.03	.07
RCMAS-C	135	-.02	.05	.05	134	-.05	-.13	.09
IPS-C	129	.01	-.00	.03	128	.02	.00	.15

Correlations among socioemotional maladjustment change variables (*ns* in parentheses)

	LONE-C	RCMAS-C	IPS-C
CDI-C	.49*** (131)	.41*** (136)	.80*** (130)
LONE-C		.31*** (130)	.79*** (130)
RCMAS-C			.71*** (130)

* $p < .05$; ** $p < .01$; *** $p < .001$

11.3. Different forms of victimisation and future maladjustment

Correlations

Zero-order correlations between each form of victimisation (peer- and self-assessed) at Time One, and socioemotional maladjustment at Time Two, are presented in the upper third of Table 11.2. All three forms of victimisation (self-assessed) were related to later depression, loneliness, and composite internalising problems. The effects were again largest for relational victimisation. When Bonferroni adjustment was applied to take account of multiple significance testing, only relational victimisation was significantly correlated with depression and composite internalising problems, and none of the forms of victimisation was significantly associated with anxiety. Thus, in support of Hypothesis 11.1, victims of psychological aggression were to some extent at risk for later internalising problems. In partial support of Hypothesis 11.2, it was primarily relational (and not physical) victims who were at risk, and mainly depression (in support of Hypothesis 11.9) they were at risk for.

To what extent did victimisation influence the development of increased socioemotional maladjustment? Zero-order correlations between initial victimisation (peer- and self-assessed) and *changes* in socioemotional maladjustment are presented in the middle portion of Table 11.2. In support of hypotheses 11.3 and 11.4, change in depression was significantly correlated with Time One self-rated subordinal and relational victimisation, but not physical victimisation. In support of Hypothesis 11.9, changes in none of the other internalising problems measures were significantly associated with initial victimisation. Hypothesis 11.10 was also supported, because none of the peer-report victimisation scales was significantly correlated with change in any form of victimisation.

Overview of I-prospective analyses

The pattern of these correlations suggested that it would not be fruitful to investigate relationships between different forms of victimisation at Time One and changes in anxiety or loneliness. The results discussed in Chapter Nine also showed that composite victimisation was a risk factor for, and predicted changes in, depression but not anxiety or loneliness. Furthermore, changes in different forms of socioemotional maladjustment were quite strongly intercorrelated. Therefore I-prospective analyses were restricted to victimisation, depression, and composite internalising problems.

Four I-prospective MRs were carried out, in which the dependent variables were either change in depression or change in internalising problems. Age and sex were entered at the first step of each regression, and the three forms of victimisation (assessed by either self- or peer-report) at the second step. Final regression statistics are presented in tables in the same format as in Chapter Ten. Support for Hypotheses 11.3, concerning the prediction of increasing distress from initial psychological victimisation, is indicated by significant zero-order and semi-partial correlations for psychological forms of victimisation. Support for Hypothesis 11.4, concerning the relative importance of psychological vs physical victimisation, is indicated to the extent that zero-order or semi-partial correlations are significant for relational or subordinal victimisation but not for physical victimisation. The correlations between change scores for each form of socioemotional maladjustment are presented in the bottom section of Table 11.2, as a context for the I-prospective regressions.

Time One forms of victimisation and change in depression

Two I-prospective MRs were carried out with change in depression as the dependent variable. In the first of these, age and sex were entered at the first step, and self-assessed Time One physical, subordinal and relational victimisation were entered at the second step. At the second step, these three forms of self-assessed victimisation together significantly predicted change in depression, F change (3, 129) = 2.93, $p < .04$, although multiple R was only of borderline significance at this final step, F (5, 129) = 2.13, $p < .07$. The final regression statistics are displayed in Table 11.3.

Table 11.3: Final regression statistics for regression of Change in Depression on demographic variables and initial self-assessed forms of victimisation

Independent variable	b (with 95% confidence limits)	β	r	sr^2
<i>Variables entered at step one</i>				
AGE	.03 ± .38	.01	.11	.000
SEX	.07 ± .35	.03	.04	.001
<i>Variables entered at step two</i>				
S-SUB-T1	.05 ± .10	.10	.18	.008
S-PHYS-T1	.00 ± .14	.00	.14	.000
S-REL-T1	.12 ± .12	.21	.26	.029*
Intercept	-1.09 ± .72			
R^2 change at step two = .063*			Multiple R = .276 [†]	
			$R^2 = .076$	
			Adj. $R^2 = .040$	
Unique variance explained by victimisation (based on sum of sr^2 s) = 3.7%				
Shared variance explained by victimisation (after accounting for age and sex) = 2.6%				
$n = 135$ [†] $p < .10$; * $p < .05$				

Relational victimisation was the only variable for which a regression coefficient differed significantly from zero, and uniquely explained 2.9% of change in depression, t (129) =

2.03, $p < .045$. These results offered some support to Hypothesis 11.3, in that children who saw themselves as relationally victimised tended to become more depressed over time than they were originally, whether or not they were also victims of physical or subordinal aggression. There was also support for Hypothesis 11.4, since relational victimisation was more strongly related to increasing depression than physical victimisation was. Although all three forms of victimisation were positively correlated with change in depression, none of the r s was significantly different from zero, according to post-hoc tests (F s (5, 129) all < 1.85 , $p > .1$).

The second I-prospective MR involving change in depression was identical in design to the first, except that the variables entered at the second step were peer-assessed, rather than self-assessed, Time One physical, subordinal and relational victimisation. There were no significant contributions to the prediction of depression change at either step or by any of the variables. Multiple R after the second step was .195, $F(5, 127) = 1.01$, $p > .1$. R^2 change at the second step (representing the variance explained by Time One victimisation) was .017, F change (3, 127) < 1 . These results failed to support Hypotheses 11.1 to 11.4, and consequently no further statistics for this regression are described.

Time One forms of victimisation and change in internalising problems

A second pair of I-prospective MRs was carried out in which the dependent variable was change in composite internalising problems. In the first regression, age and sex were entered at the first step, and self-assessed Time One physical, subordinal and relational victimisation were entered at the second step. None of the independent variables made a significant contribution to the prediction of change in internalising problems. Multiple R

after entering all the variables was .220, $F(5, 118) = 1.2, p > .1$. The zero-order correlations between initial self-assessed victimisation variables were all positive but lower than .13 in magnitude. They did not differ significantly from zero, according to post-hoc tests, and neither did any semi-partial correlations for the victimisation subscales.

The second regression with change in internalising problems as the dependent variable was designed in the same way as the first, except that peer-assessed victimisation subscales were independent variables instead of self-assessed victimisation subscales. Once again, the independent variables were unrelated to change in internalising problems. Multiple R at the second step was .246, $F(5, 119) = 1.55, p > .1$, and R^2 change when peer-assessed victimisation variables were entered was .031, F change $(3, 119) = 1.32, p > .1$. Because of the absence of significant results, no further statistics are presented for the I-prospective analyses involving change in internalising problems.

Summary of I-prospective analyses involving different forms of victimisation

The results of the I-prospective regressions offered partial support to Hypotheses 11.3 and 11.4, but only with respect to depression (in support of Hypothesis 11.9) and relational self-assessed (in support of Hypothesis 11.10) victimisation. Self-assessed relational victimisation predicted increasing depression, but was unrelated to future anxiety, loneliness, or composite internalising problems. Peer-assessed relational victimisation was unrelated to future maladjustment, as were self- and peer-assessed subordinal and physical victimisation. In other words, there was some tendency for victims to report increasing depression over time, but only to the extent that they initially saw themselves as victims of relational aggression.

Table 11.4: Correlations of Time One socioemotional maladjustment with Time Two forms of victimisation and change in victimisation

	CDI-T1	LONE-T1	RCMAS-T1	IPS-T1
Time Two Victimization				
P-SUB-T2	.31***	.39***	.17*	.34***
P-PHYS-T2	.25**	.23**	.15	.23**
P-REL-T2	.23**	.25**	.12	.22*
<i>n</i> =	143	139	143	137
<hr/>				
S-SUB-T2	.35***	.27**	.40***	.40***
S-PHYS-T2	.25**	.30**	.29**	.32***
S-REL-T2	.41***	.48***	.46***	.54***
<i>n</i> =	135	130	134	129
<hr/>				
Change in Victimization				
P-SUB-C	.20*	.25**	.14	.24**
P-PHYS-C	.21*	.19*	.16	.20*
P-REL-C	-.01	.04	.02	.01
<i>n</i> =	142	138	142	136
<hr/>				
S-SUB-C	.30***	.21*	.29**	.30**
S-PHYS-C	.21*	.20*	.21*	.24**
S-REL-C	.34***	.39***	.36***	.44***
<i>n</i> =	133	128	132	127

Correlations among victimisation change variables (*ns* in parentheses)

	S-SUB-C	S-PHYS-C		P-SUB-C	P-PHYS-C
S-PHYS-C	.52*** (133)		P-PHYS-C	.53*** (143)	
S-REL-C	.58*** (133)	.52*** (133)	P-REL-C	.53*** (143)	.39*** (143)

* $p < .05$; ** $p < .01$; *** $p < .001$

11.4. Initial maladjustment and different forms of future victimisation

11.4.1. Correlations

Zero-order correlations between socioemotional maladjustment variables (Time One) and different forms of victimisation (Time Two) are presented in the top third of Table 11.4. In support of Hypothesis 11.5, initial socioemotional maladjustment was positively correlated with later self-assessed victimisation. The effect sizes were larger than those for the prediction of later internalising problems from initial victimisation. Moreover, and in support of Hypothesis 11.7, r s were barely reduced with Time One victimisation removed, as shown by the correlations in the middle section of Table 11.4. These are zero-order correlations between initial socioemotional maladjustment and changes in each form of victimisation.

When victimisation was assessed by self-report, the effects were generally largest for relational victimisation, and smallest for physical victimisation. However, when victimisation was assessed by peers, socioemotional maladjustment was generally most strongly associated with later subordinal victimisation and with changes in this. Correlations between socioemotional maladjustment and changes in peer-reported relational victimisation were uniformly low. The overall pattern of these correlations is consistent with Hypotheses 11.6 and 11.8. Whether victimisation was assessed by peers or by self-report, maladjustment was more strongly related to a psychological form of victimisation than to physical victimisation.

11.4.2. C-prospective analyses involving changes in different forms of victimisation

Overview

Because the correlations between early maladjustment and changes in victimisation (Table 11.4) were larger than those between early victimisation and changes in maladjustment (Table 11.2), all four measures of Time One maladjustment (depression, anxiety, loneliness and composite internalising problems) were included as dependent variables in C-prospective analyses. Age and sex were entered at the first step of each regression, and changes in each of the three forms of victimisation, assessed by self-report in half of the regressions, and peer-report in the other half, were entered at the second step. Correlations among peer- and self-reported changes in victimisation are presented in the bottom section of Table 11.4, as a context for the C-prospective analyses.

Final regression statistics for the C-prospective analyses are shown in Tables 11.5 to 11.12. The format of these tables is similar to that of other final regression statistics tables presented in the thesis, so that these tables can be compared to them. The difference is that the dependent variable in each regression (Time One socioemotional maladjustment) is effectively the predictor, and the independent variables (age, sex, and changes in victimisation) are the outcomes. As noted in section 11.2, this is an acceptable statistical model because causal inferences depend on the design of a study rather than on which variable is the dependent variable (Maxwell & Delaney, 1990). Age and sex were included in the analyses in order to remove their confounding effects and to make these analyses comparable to others. Regression coefficients are reported for age and sex because they form part of the final regression equation in each analysis, but r s and sr^2 s for these variables are not reported because they are irrelevant for present purposes.

Zero-order correlations for changes in victimisation are reported with the final regression statistics, and indicate the extent to which initial maladjustment was related to changes in each form of victimisation. Semi-partial correlations for changes in victimisation indicate the extent to which these relationships were independent of correlations with changes in different forms of victimisation. Significant zero-order and semi-partial correlations for changes in relational and subordinal victimisation offer support to Hypothesis 11.7. Hypothesis 11.8 is supported to the extent that these correlations are significant for these forms of victimisation and not for physical victimisation. The tables indicate the significance of both types of correlation.

Time One internalising problems and changes in self-assessed forms of victimisation

Table 11.5: Final regression statistics for regression predicting changes in self-assessed victimisation of different forms from initial composite internalising problems

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
Variables entered at step one				
AGE	1.62 ± .85	.29	-	-
SEX	.66 ± .82	.12	-	-
Variables entered at step two				
S-SUB-C	.18 ± .54	.07	.31*	.003
S-PHYS-C	-.14 ± .60	-.05	.22	.001
S-REL-C	1.12 ± .55	.42	.45***	.092***
Intercept	-1.38 ± .78			
<i>R</i> ² change at step two = .185***			Multiple R = .551*** <i>R</i> ² = .304 Adj. <i>R</i> ² = .275	
Variance shared by initial internalising problems uniquely with changes in specific forms of victimisation = 9.6%				
Variance shared by initial internalising problems with changes in a combination of forms of victimisation = 8.9%				
<i>n</i> = 125 * <i>p</i> <.05; *** <i>p</i> <.001				

Final regression statistics for the analysis involving Time One composite internalising problems, and changes in self-assessed relational, subordinal and physical victimisation, are shown in Table 11.5. After age and sex were controlled for, a significant proportion of the variance in internalising problems was related to changes in victimisation, *F* change (3, 119) = 10.55, *p*<.0001. Zero-order correlations between internalising problems and changes in victimisation were all positive, and (in support of Hypothesis 11.7) significant for changes in relational (*F* (5, 119) = 6.04, *p*<.001) and subordinal (*F* (1, 119) = 2.53, *p*<.05) victimisation. These results supported Hypothesis 11.7, showing that children who

initially reported greater internalising problems came to report increasing psychological victimisation over time. Hypothesis 11.8 was also supported in this instance, as change in physical victimisation was unrelated to initial internalising problems.

The semi-partial correlation for change in relational victimisation was significantly different from zero, $t(119) = 3.96, p < .0002$, showing that initial internalising problems were associated uniquely with changes in relational victimisation, independently of changes in subordinal and physical victimisation. Changes in subordinal and physical victimisation showed no unique relationship with initial internalising problems ($sr^2s < .004$), with changes in the other forms of victimisation held constant.

A substantial proportion (8.9%) of the variance in initial internalising problems was shared with changes in a combination of forms of victimisation, rather than with unique changes in any specific form of victimisation. Since it was changes in psychological and not physical forms of victimisation which were related to Time One internalising problems, this variance was mainly shared between initial internalising problems and changes in subordinal and relational victimisation. All together, the results suggest that distressed children tended to report increasing relational victimisation over time whether or not they also reported increasing subordinal or physical victimisation. The same children tended to report increasing subordinal victimisation, if they also reported increasing relational victimisation; but they did not report increasing physical victimisation.

Time One internalising problems and changes in peer-assessed forms of victimisation

Table 11.6: Final regression statistics for regression predicting changes in peer-assessed victimisation of different forms from initial composite internalising problems

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
<i>Variables entered at step one</i>				
AGE	-.85 ± .43	-.31	-	-
SEX	.48 ± .84	.10	-	-
<i>Variables entered at step two</i>				
P-SUB-C	.73 ± .53	.28	.24	.046**
P-PHYS-C	.28 ± .50	.11	.20	.008
P-REL-C	-.48 ± .48	-.18	.01	.023
Intercept	-.52 ± .56			
<i>R</i> ² change at step two = .085**			Multiple R = .439*** <i>R</i> ² = .192 Adj. <i>R</i> ² = .161	
Variance shared by initial internalising problems uniquely with changes in specific forms of victimisation = 7.7%				
Variance shared by initial internalising problems with changes in a combination of forms of victimisation = 0.8%				
<i>n</i> = 136 ** <i>p</i> <.01; *** <i>p</i> <.001				

Table 11.6 shows final regression statistics for the analysis involving composite internalising problems and changes in peer-assessed forms of victimisation. After age and sex were taken into account, initial internalising problems were significantly related to changes in victimisation, *F* change (3, 130) = 4.57, *p*<.005). None of the zero-order correlations for change in victimisation was significant according to post-hoc tests (*F* (5, 13) all <1.85, *p*>.1).

However, internalising problems were associated uniquely with changes in peer-assessed

subordinal victimisation, independently of changes in other forms of victimisation ($t(130) = 2.73, p < .008$). The positive valency of β showed that participants who tended, between Time One and Time Two, to be nominated by increasing numbers of their peers as subordinal victims - whether or not they were also nominated by increasing numbers as physical or relational victims - initially tended to experience greater internalising problems. In other words, initial internalising problems were related to increasing peer-reported subordinal victimisation. There was a slight tendency for changes in relational victimisation to be negatively associated with initial internalising problems ($\beta = -.18; t(130) = -1.93, p < .06$), but this was only in the context of the other independent variables. Without taking other variables into account, internalising problems did not predict changes in peer-assessed relational victimisation ($r = .01$). Children who were distressed at Time One tended to be seen increasingly as victims of aggression which was subordinal but was not physical or relational. Hypothesis 11.7 was partially supported, in that initial distress was related to increasing psychological victimisation of one form (subordinal) but not the other (relational). Hypothesis 11.8 was supported, in that initial socioemotional maladjustment was not related to increasing physical victimisation, while it was related to changes in a form of psychological victimisation.

Time One depression and changes in self-assessed forms of victimisation

Table 11.7: Final regression statistics for regression predicting changes in self-assessed victimisation of different forms from initial depression

Independent variable	<i>b</i> (with 95% confidence limits)	<i>B</i>	<i>r</i>	<i>sr</i> ²
Variables entered at step one				
AGE	.76 ± .45	.27	-	-
SEX	-.01 ± .43	-.00	-	-
Variables entered at step two				
S-SUB-C	.25 ± .28	.19	.31*	.020*
S-PHYS-C	-.06 ± .28	-.05	.18	.001
S-REL-C	.32 ± .28	.24	.35**	.034*
Intercept	2.20 ± .41			
<i>R</i> ² change at step two = .124***			Multiple R = .463*** <i>R</i> ² = .215 Adj. <i>R</i> ² = .184	
Variance shared by initial depression uniquely with changes in specific forms of victimisation = 5.5%				
Variance shared by initial depression with changes in a combination of forms of victimisation = 6.9%				
<i>n</i> = 132 + <i>p</i> <.10; * <i>p</i> <.05; ** <i>p</i> <.01; *** <i>p</i> <.001				

Final regression statistics for the analysis involving Time One depression and changes in self-assessed physical, subordinal and relational victimisation are presented in Table 11.7. After adding age and sex to the regression equation, changes in self-assessed victimisation were significantly related to initial depression, *F* change (3, 126) = 6.61, *p*<.0005. Post-hoc tests showed that zero-order correlations were significantly greater than zero for change in subordinal victimisation (*F* (5, 126) = 2.73, *p*<.025), and for change in relational victimisation (*F* (5, 126) = 3.45, *p*<.01). These correlations showed that children who were depressed at Time One tended to report increasing relational and subordinal victimisation

between Time One and Time Two. Hypotheses 11.7 and 11.8 was supported by this pattern of correlations, because maladjustment was related to increasing psychological victimisation and not to increasing physical victimisation.

The semi-partial correlation for change in relational victimisation was significantly greater than zero, $t(126) = 2.33, p < .025$, showing that depression was uniquely related to changes in self-assessed relational victimisation, independently of changes in physical or subordinal victimisation. While 5.5% of the variance in initial depression was shared uniquely with changes in relational victimisation, a further 6.9% was shared with a combination of forms of victimisation. Since changes in subordinal and relational victimisation were significantly correlated with Time One depression, and change in physical victimisation was not, this variance was primarily shared between initial depression and changes in the psychological forms of victimisation. So children who were depressed at Time One tended to report increasing relational victimisation at Time Two, whether or not they also reported increasing subordinal or physical victimisation. They reported increasing subordinal victimisation, but only if they also reported increasing relational victimisation, and they did not report increasing physical victimisation.

Time One depression and changes in peer-assessed forms of victimisation

Table 11.8: Final regression statistics for regression predicting changes in peer-assessed victimisation of different forms from initial depression

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
Variables entered at step one				
AGE	-.38 ± .21	-.28	-	-
SEX	-.06 ± .42	-.02	-	-
Variables entered at step two				
P-SUB-C	.28 ± .27	.21	.20	.026*
P-PHYS-C	.22 ± .25	.17	.21	.020
P-REL-C	-.22 ± .25	-.17	-.01	.020
Intercept	2.62 ± .28			
<i>R</i> ² change at step two = .079**			Multiple R = .396*** <i>R</i> ² = .157 Adj. <i>R</i> ² = .126	
Variance shared by initial depression uniquely with changes in specific forms of victimisation = 6.6%				
Variance shared by initial depression with changes in a combination of forms of victimisation = 1.3%				
<i>n</i> = 142 * <i>p</i> <.05; ** <i>p</i> <.01; *** <i>p</i> <.001				

Final regression statistics for the analysis involving Time One depression and changes in peer-assessed victimisation are shown in Table 11.8. After age and sex were added to the regression, changes in peer-assessed victimisation were significantly related to Time One depression, *F* change (3, 136) = 4.26, *p*<.007. None of the zero-order correlations for peer-assessed victimisation variables differed significantly from zero, according to post-hoc tests (*F*s (5, 136) all <1.9, *p*>.1). But in support of Hypothesis 11.7, change in subordinal victimisation was uniquely related to initial depression, independently of changes in other forms of victimisation (*t* (136) = 2.06, *p*<.05).

Almost as much variance in initial depression was also shared uniquely with changes in physical (2%) and relational (2%) victimisation, while only a small proportion (1.3%) of the variance remained to be shared by changes in a combination of forms of victimisation. The valence of β s and r s showed that the frequency with which initially depressed children were nominated as victims of physical and subordinal aggression tended to increase over time. The frequency with which initially depressed children were nominated as victims *only* of relational aggression tended to *decrease* over time ($\beta = -.17$). This effect was small; and, given that β was substantially larger than the near-zero r for change in relational victimisation, it seems that the effect was suppressed (Tabachnick & Fidell, 1996) by other variables in the equation. That is, the effect was only revealed when other variables (including change in victimisation) were held constant. The effect for physical victimisation, in contrast, was almost as large as that for subordinal victimisation. There was limited support for Hypothesis 11.8 in this instance, because the semi-partial correlation for change in subordinal victimisation was significant, while that for change in physical victimisation was not. But support for the hypothesis was weak because the effect sizes for these two forms of psychological and physical victimisation were so close in magnitude.

These results suggest that children who reported greater depressed symptoms at Time One tended to be seen increasingly, between Time One and Time Two, as victims of subordinal aggression. To almost the same extent, these children were also seen increasingly as victims of physical aggression, but not as victims of relational aggression.

Time One loneliness and changes in self-assessed forms of victimisation

Table 11.9: Final regression statistics for regression predicting changes in self-assessed victimisation of different forms from initial loneliness

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
Variables entered at step one				
AGE	3.50 ± 3.56	.16	-	-
SEX	1.26 ± 3.47	.06	-	-
Variables entered at step two				
S-SUB-C	-.32 ± 2.23	-.03	.21	.001
S-PHYS-C	-.08 ± 2.42	-.01	.20	.000
S-REL-C	4.14 ± 2.27	.40	.39**	.088***
Intercept	27.75 ± 3.27			
<i>R</i> ² change at step two = .141***			Multiple R = .425*** <i>R</i> ² = .181 Adj. <i>R</i> ² = .147	
Variance shared by initial loneliness uniquely with changes in specific forms of victimisation = 8.9%				
Variance shared by initial loneliness with changes in a combination of forms of victimisation = 5.2%				
<i>n</i> = 127 ** <i>p</i> < .01; *** <i>p</i> < .001				

Table 11.9 shows the final regression statistics for the analysis involving Time One loneliness and changes in self-assessed relational, physical and subordinal victimisation. After age and sex were taken into account, changes in these forms of victimisation were significantly related to Time One loneliness, $F(3, 121) = 6.93, p < .0003$. The zero-order correlation between loneliness and change in relational victimisation was significantly greater than zero, $F(5, 132) = 4.34, p < .005$, showing that children who tended to be lonely at Time One were inclined, between Time One and Time Two, to see themselves as experiencing increasing relational victimisation. Zero-order correlations for changes in the

other forms of victimisation were also positive, although not significantly greater than zero, according to post-hoc tests (F s (5, 132) all <1.85 , $p>.1$). Thus there was some support for Hypotheses 11.7 and 11.8 with respect to loneliness, because it was related to changes in a form of psychological victimisation, and not to changes in physical victimisation.

The only semi-partial correlation which differed significantly from zero was for change in relational victimisation (t (121) = 3.61, $p<.0005$), and was also positive. The zero-order correlation between loneliness and change in relational victimisation was .39, representing 15.2% shared variance, and semi-partial correlations for changes in the other forms of victimisation were nearly zero. This pattern of results suggested that, with sex and age held constant, loneliness predicted change only in self-assessed relational victimisation. That is, children who reported greater loneliness at Time One tended to report increasing relational victimisation, but not increasing physical or subordinal victimisation, between Time One and Time Two.

Time One loneliness and changes in peer-assessed forms of victimisation

Table 11.10: Final regression statistics for regression predicting changes in peer-assessed victimisation of different forms from initial loneliness

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
<i>Variables entered at step one</i>				
AGE	-2.02 ± 1.75	-.19	-	-
SEX	1.00 ± 3.45	.05	-	-
<i>Variables entered at step two</i>				
P-SUB-C	2.88 ± 1.78	.28	.25	.046*
P-PHYS-C	.95 ± 2.05	.09	.19	.006
P-REL-C	-1.45 ± 1.01	-.14	.04	.014
Intercept	29.64 ± 2.31			
<i>R</i> ² change at step two = .081***			Multiple R = .344** <i>R</i> ² = .118 Adj. <i>R</i> ² = .085	
Variance shared by initial loneliness uniquely with changes in specific forms of victimisation = 6.6%				
Variance shared by initial loneliness with changes in a combination of forms of victimisation = 1.5%				
<i>n</i> = 138 * <i>p</i> <.05; *** <i>p</i> <.001				

The final regression statistics for the analysis involving Time One loneliness and changes in peer-assessed relational, subordinal and physical victimisation are shown in Table 11.10. At step two, Time One loneliness was significantly related to changes in peer-assessed victimisation, *F* change (3, 132) = 4.03, *p*<.009. The zero-order correlations for the different forms were all positive, but none of them was significantly greater than zero, according to post-hoc tests, *F*s (5, 132) <1.85, *p*>.1.

The semi-partial correlation for subordinal victimisation was significantly greater than zero, $t(132) = 2.62, p = .01$, showing that changes in subordinal victimisation were related to Time One loneliness independently of changes in relational or physical victimisation. The standardised regression coefficient (β) for subordinal victimisation was positive, and not substantially larger than r , showing that participants who were initially lonely tended over time to become increasingly nominated as victims of subordinal aggression. β for changes in relational victimisation was again negative, although it did not differ significantly from zero ($t(132) = -1.43, p > .1$). As the value of β for change in relational victimisation was substantially larger than, and of opposite valence to, its zero-order correlation with loneliness, it again seemed that one or more of the other independent variables was acting as a suppressor of the association between relational victimisation and maladjustment. Hypotheses 11.7 and 11.8 were partly supported by the results, since loneliness was significantly related to increases in a form of psychological victimisation and not significantly related to increasing physical victimisation. All together, the results of this analysis suggested that initial loneliness led to increasing peer-reported subordinal victimisation but not to increasing peer-reported physical or relational victimisation.

Time One anxiety and changes in self-assessed forms of victimisation

Table 11.11: Final regression statistics for regression predicting changes in self-assessed victimisation of different forms from initial anxiety

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
Variables entered at step one				
AGE	3.95 ± 1.98	.31	-	-
SEX	2.49 ± 1.93	.20	-	-
Variables entered at step two				
S-SUB-C	.59 ± 1.23	.10	.29*	.005
S-PHYS-C	.25 ± 1.29	.04	.21	.001
S-REL-C	1.56 ± 1.24	.25	.36**	.037*
Intercept	6.18 ± 1.73			
<i>R</i> ² change at step two = .112***			Multiple R = .511*** <i>R</i> ² = .261 Adj. <i>R</i> ² = .232	
Variance shared by initial anxiety uniquely with changes in specific forms of victimisation = 4.3%				
Variance shared by initial anxiety with changes in a combination of forms of victimisation = 6.9%				
<i>n</i> = 131 * <i>p</i> <.05; ** <i>p</i> <.01; *** <i>p</i> <.001				

Final regression statistics for the analysis involving Time One anxiety and changes in self-reported physical, subordinal and relational victimisation are presented in Table 11.11. With age and sex controlled for, changes in the three forms of victimisation were significantly related to Time One anxiety, *F* change (3, 125) = 6.75, *p*<.0004. Post-hoc tests showed that initial anxiety was correlated significantly and positively with changes in both relational (*F* (5, 125) = 3.71, *p*<.005) and subordinal (*F* (5, 125) = 2.30, *p*<.05) victimisation. These correlations supported Hypothesis 11.7, showing that Time One anxiety was related to increasing self-reported psychological victimisation between Time

One and Time Two, and Hypothesis 11.8, as anxiety was unrelated to changes in self-reported physical victimisation.

Change in self-assessed relational victimisation was related uniquely to Time One anxiety, independently of changes in other forms of victimisation, $t(125) = 2.49, p < .015$. While 4.3% of anxiety variance was shared uniquely with change in relational victimisation, a further 6.9% of anxiety variance was shared with a combination of forms of victimisation. Since it was changes only in the psychological forms of victimisation which were significantly correlated with initial anxiety, this 6.9% of anxiety variance was shared primarily with self-reported experiences of a combination of subordinal and relational victimisation. All together, the results suggest that initially anxious children tended to report increasing relational victimisation over the period of the study, even if they did not also report increasing subordinal or physical victimisation. Initially anxious children tended not to report increasing physical victimisation over time. They tended to report increasing subordinal victimisation, but only if they reported increasing relational victimisation.

Time One anxiety and changes in peer-assessed forms of victimisation

Table 11.12: Final regression statistics for regression predicting changes in peer-assessed victimisation of different forms from initial anxiety

Independent variable	<i>b</i> (with 95% confidence limits)	β	<i>r</i>	<i>sr</i> ²
Variables entered at step one				
AGE	-2.00 ± .99	-.32	-	-
SEX	1.82 ± 1.92	.15	-	-
Variables entered at step two				
P-SUB-C	.90 ± 1.20	.15	.15	.013
P-PHYS-C	.84 ± 1.16	.13	.20	.013
P-REL-C	-.73 ± 1.13	-.12	.02	.010
Intercept	8.51 ± 1.30			
<i>R</i> ² change at step two = .043			Multiple <i>R</i> = .410***	
			<i>R</i> ² = .168	
			Adj. <i>R</i> ² = .137	
Variance shared by initial anxiety uniquely with changes in specific forms of victimisation = 3.6%				
Variance shared by initial anxiety with changes in a combination of forms of victimisation = 0.7%				
<i>n</i> = 141 *** <i>p</i> < .001				

Final regression statistics for the analysis involving Time One anxiety and changes in peer-assessed relational, subordinal and physical victimisation are shown in Table 11.12. After controlling for age and sex, anxiety did not contribute significantly to changes in peer-assessed victimisation (*F* change (3, 135) = 2.31, *p* > .05). These results showed that children who were anxious at Time One were not seen increasingly as victims of any form of aggression between Time One and Time Two. Hypotheses 11.7 and 11.8 were not supported in this instance, and the nature of the relationship among these variables was not investigated further.

11.4.3. Summary of C-prospective analyses

Table 11.13: Proportion of change in different forms of victimisation predicted by initial socioemotional maladjustment: sr^2 s (r^2 s in parentheses; see text for explanations of subscripts)

Source of victimisation assessment	Time One variable	Form of victimisation (change in)		
		Subordinal	Relational	Physical
Self	Composite internalising problems	.003 (.097 _b)	.092 _d (.200 _a)	.001 (.047 _c)
	Depression	.020 _e (.098 _{bh})	.034 _a (.120 _{ah})	.001 (.034 _{ch})
	Loneliness	.001 (.045 _{bt})	.088 _d (.151 _{at})	.000 (.038 _{ct})
	Anxiety	.005 (.084 _{bg})	.037 _d (.129 _{ag})	.001 (.042 _{cg})
Peer	Composite internalising problems	.046 _l (.057 _i)	.023 _m (.000 _{kl})	.008 _q (.042 _j)
	Depression	.026 _l (.042 _{lr})	.020 _m (.000 _{kr})	.020 _q (.044 _{jr})
	Loneliness	.046 _l (.063 _{it})	.014 _m (.002 _{kt})	.006 _q (.038 _{jt})
	Anxiety	.013 _l (.024 _{la})	.010 _m (.000 _{ka})	.013 _q (.038 _{ja})

Squared zero-order and semi-partial correlations between initial socioemotional distress and changes in victimisation (self- and peer-assessed) are displayed in Table 11.13. Squared zero-order correlations (r^2 s) are in parentheses and represent the proportion of variance shared between initial distress and change in the relevant measure of victimisation. Squared semi-partial correlations (sr^2 s) are above the r^2 s, and represent the proportion of variance which initial maladjustment shared uniquely with change in each form of victimisation,

independently of the other forms and of age and sex. These correlations show that results for changes in each form of victimisation were generally consistent across all internalising problems variables, and not so consistent between self- and peer-assessed victimisation. Subscripts denote different groups of sr^2 s and r^2 s, as indicated in the text which follows.

Time One maladjustment and changes in self-assessed forms of victimisation

Changes in self-reported relational victimisation, between Time One and Time Two, were positively and significantly related to Time One depression, loneliness, anxiety, and a composite of the three, sharing 12% to 20% of the variance with them (subscripts a in Table 11.13). To a lesser extent, change in self-assessed subordinal victimisation was positively related to Time One values of the same variables, sharing 4.5% to 9.8% of the variance (subscripts b). Hypothesis 11.7 was supported by these results, because socioemotional maladjustment tended to predict increasing psychological (relational and subordinal) victimisation. Hypothesis 11.8 was supported, as change in self-assessed physical victimisation was least strongly related to initial socioemotional maladjustment, these variables sharing 3.4% to 4.7% of their variance (subscripts c). None of the associations between initial maladjustment and change in physical victimisation were significant according to post-hoc tests.

The relationship of initial maladjustment to changes in self-reported subordinal victimisation was largely due to its association with change in self-reported relational victimisation: it was only the latter which was uniquely associated with initial socioemotional maladjustment (subscripts d - apart from a slight unique association of initial depression with change in subordinal victimisation, subscript e); and maladjustment

added nothing of significance to the prediction of change in other forms of victimisation after change in relational victimisation had been taken into account. Hypothesis 11.9 was not supported by the relative magnitude of effect sizes, which were comparable for loneliness (shared variance with changes in self-assessed victimisation ranging from 3.8% to 15.1%; subscripts **f**), anxiety (shared variance ranging from 4.2% to 12.9%; subscripts **g**) and depression (shared variance ranging from 3.4% to 12.0%; subscripts **h**). However, inter-correlations between the socioemotional maladjustment variables were not controlled for as in Chapter Eight, and there was some support for Hypothesis 11.9 in that depression was the only maladjustment variable which was related to both forms of psychological victimisation independently of their associations with each other and with physical victimisation (subscripts **d** and **e**).

The pattern of these results suggests that the children who reported greater socioemotional maladjustment at Time One tended to report increasing relational victimisation between Time One and Time Two - that is, greater relational victimisation at Time Two than they had reported at Time One - even if they did not report increasing subordinal or physical victimisation. The same initially distressed children tended to report increasing subordinal victimisation between Time One and Time Two, but (usually) only if they also reported increasing relational victimisation. Children who were initially distressed did not tend to report that they experienced increasing physical victimisation.

Time One maladjustment and changes in peer-assessed forms of victimisation

Socioemotional maladjustment was positively related to changes in peer-reported

subordinal (2.4% to 6.3% shared variance; subscripts i) and physical victimisation (3.8% to 4.4% shared variance; subscripts j). The same variables were unrelated to change in peer-assessed relational victimisation, sharing no more than 0.2% of their variance with it before inter-correlations with subordinal and physical victimisation were taken into account (subscripts k). None of these zero-order relationships between Time One maladjustment and changes in peer-assessed victimisation was significantly different from zero.

However, Time One internalising problems, depression and loneliness were significantly related to changes in the three forms of peer-assessed victimisation together, when these were entered into the C-prospective regressions. That is, with age and sex held constant, maladjustment predicted increasing peer-reported victimisation. Change in peer-assessed subordinal victimisation was uniquely associated with Time One depression, loneliness and composite internalising problems, independently of changes in peer-assessed physical or relational victimisation (subscripts l). Correlations between emotional distress and change in relational victimisation were near-zero. However, in the context of the other variables, change in peer-assessed relational victimisation showed a tendency towards a *negative* relationship with distress (see Tables 11.6, 11.8, 11.10, and 11.12), these variables sharing up to 2.3% of variance (subscripts m). None of the semi-partial correlations for change in peer-assessed relational victimisation reached significance, even according to the liberal familywise error rate employed in these analyses. Consequently it did not qualify as a truly suppressed variable, according to Tabachnick and Fidell's (1996) criteria (β s - and hence semi-partial correlations - must be significant, as well as substantially greater than or of opposite valence to r s), and will not be discussed further.

All together, for peer reports of victimisation, Hypothesis 11.7 was partially supported. Change in peer-assessed subordinal victimisation, one form of psychological victimisation, was positively related to initial socioemotional maladjustment. Change in the other, relational, form of psychological maladjustment was unrelated to initial socioemotional maladjustment. Support for Hypothesis 11.8 was equivocal for peer-assessed victimisation. Initial maladjustment was more strongly related to subordinal than to physical peer-assessed victimisation (compare coefficients with subscripts **l** and **q**), but was more strongly related to physical than to relational peer-assessed victimisation (compare coefficients with subscripts **j** and **k**). There was partial support for Hypothesis 11.9: changes in subordinal and physical victimisation tended to be more strongly related to initial depression (respectively 4.2% and 4.4% shared variance; subscripts **r**) than to initial anxiety (2.4% and 3.8% shared variance; subscripts **s**), although they were also related to initial loneliness (a depression-related variable; 6.3% and 3.8% shared variance; subscripts **t**).

In plainer language, the results mean that children who were depressed, lonely or generally distressed at Time One were seen as victims by increasing numbers of their peers between Time One and Time Two, but only to the extent that they were seen increasingly as victims specifically of subordinal aggression. Distress tended to lead to increasing peer-reported subordinal but not relational or physical victimisation.

Comparison of results for peer- and self-assessed victimisation

This chapter emphasises the importance of identifying a consistent pattern of results across analyses. When victimisation was assessed by self-report, initial maladjustment was related

primarily to increasing relational victimisation. When victimisation was assessed by peer-report, initial maladjustment primarily predicted increasing subordinal victimisation. But in both cases socioemotional maladjustment was related increasing psychological victimisation, as predicted by Hypothesis 11.7. Whether the increasing psychological victimisation was primarily relational or primarily subordinal, or both, is open to question; but, according to both peer- and self-reports, it was clearly psychological. Taken together, the results suggest that maladjustment was more strongly related to changes in psychological than physical victimisation, as predicted by Hypothesis 11.8.

Hypothesis 11.9 was less strongly supported overall, but depression was related to increasing psychological victimisation just as loneliness and composite internalising problems were, and more so than anxiety was. Maladjustment was also, as predicted by Hypothesis 11.10, more strongly related to increasing self-assessed than to increasing peer-assessed victimisation. Proportions of shared variance between initial maladjustment and changes in self-assessed victimisation ranged from 3.4% to 20% (subscripts **a** to **c**; median 9.1%), while they ranged from 0% to 6.3% (subscripts **i** to **k**; median 3.8%) for peer-assessed victimisation. All together, the results show that children who were initially distressed tended increasingly to see themselves, or (to a lesser extent) to be seen by their peers, as targets of psychological aggression.

11.5. General summary and discussion

This chapter investigated the extent to which victimisation predicted later internalising problems, and changes in these. There were weak effects. In support of Hypothesis 11.1, relational victimisation, and to some extent subordinal victimisation, were positively associated with later socioemotional distress. Certainly, in support of Hypothesis 11.2, these psychological forms of victimisation were more strongly related to later distress than physical victimisation was. Support for Hypothesis 11.3 was limited, with only one significant prediction made by victimisation of changes in socioemotional distress - self-assessed relational victimisation predicted increasing depressed mood. With Bonferroni-type adjustment for familywise Type I error, this effect would be rendered non-significant. The pattern of results was nevertheless consistent with Hypothesis 11.4, in that psychological victimisation tended to predict increasing distress to a greater extent than physical victimisation did.

In contrast, there were many significant correlations between socioemotional maladjustment at Time One and victimisation at Time Two, as well as with changes in victimisation. Socioemotional maladjustment was related to future psychological victimisation of one form or another (in support of Hypothesis 11.5), generally to a greater extent than it was to future physical victimisation (in support of Hypothesis 11.6). Maladjustment consistently predicted increasing psychological victimisation (in support of Hypothesis 11.7), but was never significantly related to increasing physical victimisation (in support of Hypothesis 11.8).

Hypotheses 11.9 and 11.10 were most strongly supported in the I-prospective analyses:

depression (c.f. Hypothesis 11.9) was the only form of maladjustment which seemed to increase after initial victimisation, and it was only self-reported (and not peer-reported; c.f. Hypothesis 11.10) victimisation which led to increasing depression. There was less strong support for Hypothesis 11.9 in C-prospective analyses, as all three forms of socioemotional maladjustment predicted increasing victimisation. Hypothesis 11.10 was supported by these analyses, as effect sizes for maladjustment predicting changes in victimisation were larger for self-reported than for peer-assessed changes in victimisation.

Implications for etiological models

The results of these prospective analyses again raise the question of whether psychological victimisation can be described as a cause of maladjustment, as it is principally considered in this thesis. The evidence from this chapter suggests more strongly that it is a consequence than a cause. But there is no reason to reject the hypothesis that psychological victimisation causes emotional maladjustment. What is shown in this chapter is evidence against a simple causal model - the type of model which states that victimisation causes internalising maladjustment, which does not cause future victimisation. These results suggested that distressed children, compared to non-distressed children, came to experience even greater victimisation at follow-up than they experienced initially. It was as if their distress somehow made them more likely to be targets of aggression. Such results are not very consistent with a simple causal model.

A simple incidental model, applied to these results, states that socioemotional distress causes victimisation, and that victimisation does not cause emotional distress. The results in the present chapter are inconclusive with respect to this model. The effect of self-

assessed relational victimisation on increasing depression was not large enough on its own to justify rejecting a simple incidental model; but these are not grounds for accepting it. I-prospective effects may have been small because of low power in analyses, or measurement error, or for a host of other reasons.

Low power is quite a feasible explanation of the failure to find effects for the prediction of change in internalising problems. Power calculations (Howell, 1992) were carried out on *r*s (after adjusting for sampling error) in the middle third of Table 11.2 (correlations of Time One victimisation with change in socioemotional maladjustment). Most of these correlation coefficients were very low, and so far larger samples would be needed to provide powerful enough tests of their significance. For instance, at least 533 participants would be needed for sufficient power (.80, with Type I error rate at .05) in a test of the association between self-assessed relational victimisation and change in composite internalising problems. The only significance test of zero-order correlations in section 11.3 which had sufficient power was the test involving self-assessed relational victimisation and change in depression. The power for this test, in which the null hypothesis was rejected, exceeded .80 for 135 participants at Type I error = .05.

Another reason that a simple incidental model should not be accepted as the explanation for the results of this chapter is that such an explanation would be inconsistent with previous results. In no other study have these two main effects models been tested specifically with respect to more than one form of victimisation. However, at least five separate studies (Craig & Pepler, 1997; Egan & Perry, 1997; Kochenderfer & Ladd, 1996a; Chapter Nine, present volume; Vernberg, 1990) have found that victimisation in general

predicted increasing maladjustment, and so failed to find support for the simple incidental model. No previous study which has used both I-prospective and C-prospective analyses has found more evidence in support of a simple incidental than a transactional model of the relationship between victimisation and emotional adjustment. Social rank theory, previous empirical research, and results with composite victimisation in the present data set, are more consistent with a reciprocal or transactional model of the relationship between victimisation and maladjustment, than with either type of simple main effects model.

There is no reason to expect that the reciprocity is any different when victimisation is measured in terms of its specific forms. It is not as if the present results showed one form of victimisation as a cause and a different one as a consequence. Rather, the trend was for psychological victimisation, either relational or subordinal, to be most strongly associated with emotional distress, in both directions of causality. Internalising distress appeared to cause greater psychological victimisation; and to the extent that victimisation appeared to cause greater emotional distress, that victimisation was also primarily psychological in nature. This importance of psychological victimisation is consistent with the results of concurrent analyses. And composite victimisation predicted changes in depression (Chapter Nine). The effects of psychological victimisation may have been muted in the present results by low power. But it is likely that psychological victimisation was responsible for much of the change in depression shown in Chapter Nine.

Strengths and limitations of present research

This chapter represents the first follow-up study of victims of physical, subordinal and relational aggression, and indeed the first prospective follow-up study to compare victims of more than one form of aggression. Although no previous study has combined prospective follow-up analysis of victims with the investigation of the correlates of different forms of victimisation, a few previous studies were concerned with either one of these or the other. Therefore it was possible to predict that, as found, psychological victimisation and socioemotional maladjustment were reciprocally related.

Because this is the only study of its kind, future replications of the results would be desirable. Replications should aim to overcome some of the limitations of the research presented in this chapter. One limitation was the extremely low power in some statistical analyses, especially I-prospective analyses. Unfortunately, assuming the accuracy of the estimates of population correlation coefficients based on the data reported here, very large sample sizes would be needed for sufficiently powerful statistical tests. It may be that correlation coefficients in I-prospective analyses were low for other reasons, such as inaccuracy of measurement. As noted earlier (see Chapters Seven and Ten), there were limitations here in the measurement of both peer-reported and self-reported victimisation. The power of I-prospective analyses involving peer-reported victimisation was reduced because of multicollinearity caused by the high correlation between peer-assessed relational and subordinal victimisation. The internal reliability of self-report victimisation subscales was not optimal. The change in the method of collecting victimisation data at the two time points may have affected their validity, although both the peer-report and the self-report subscales were stable between Time One and Time Two (see Tables 7.3 and 7.6). Future

replications would benefit from developing demonstrably valid measures of each form of victimisation, and avoiding changes in procedure between baseline and follow-up.

The evidence in favour of hypotheses concerning risk was not limited in the same way as in Chapter Nine. Time One socioemotional maladjustment was correlated with Time Two peer-assessed subordinal victimisation - in other words, socioemotional maladjustment predicted future psychological victimisation independently of shared method variance. However, it was only the children who initially saw themselves as victims, rather than those seen as victims by their peers, who tended at follow-up to report greater distress. That is, victims of different forms of aggression were not at risk for future maladjustment independently of shared method variance. As in Chapter Nine, the evidence for hypotheses concerning the etiological relationship between victimisation was not limited by shared self-assessment method variance. Change scores controlled to some extent for shared method variance (c.f. Kochenderfer & Ladd, 1996a) in the prospective analyses involving self-reports of both victimisation and maladjustment.

Finally, the interpretation of the results is limited in the same way as in Chapter Nine with respect to causal inference. Prospective analyses provide persuasive evidence for etiological relationships (Cohen & Wills, 1985). But longitudinal follow-up designs such as this one lack random assortment of participants, and the experimental manipulation of independent variables, which would allow stronger inferences about causal relationships to be made (Parker & Asher, 1987).

Chapter Twelve

Conclusion: Towards a theory of peer victimisation

Abstract

This chapter is in three sections. With reference to each of the central aims of the thesis in turn, the first section summarises the main findings, conclusions and contributions made to the literature, and discusses the limitations and implications of the present research. Victimization was positively related to concurrent and future socioemotional distress, particularly to depression. Over time, victimisation appeared to lead to increasing distress, and distress to increasing victimisation. These relationships between victimisation and distress were generally more pronounced (1) when victimisation was psychological rather than physical, and (2) when it was assessed by self-report rather than peer-report. The second section integrates the conclusions of the first within the context of social rank theory, and presents a new model, the victim cycle, which is intended to account for the maintenance of victimisation. The victim cycle suggests that psychological victimisation causes increasing depression, and depression and related distress affect victims' behaviour, making them easy targets for continued psychological victimisation. The final section discusses ways of testing predictions made from the victim cycle, and outlines its implications for anti-bullying work.

12.1. Summary and evaluation of main findings

Measurement of victimisation

The first aim of the thesis (Aim 1) was to develop a new measure of victimisation. The scales developed assessed self- and peer-reported physical, subordinal and relational victimisation and their composite. The psychometric properties of the composite scales were good. Those of the subscales for different forms of victimisation were not optimal, though still acceptable - notably, both self- and peer-report subscales were stable between Time One and Time Two (despite changes in the procedure for measuring them in some schools), and peer-report subscales showed good convergent and discriminant validity. Because the psychometric properties of these subscales were not as good as might be desired, it was considered important to identify consistent patterns of results in investigating the maladjustment victims of different forms of aggression. The limited adequacy of the measures of victimisation in this thesis is a disadvantage which must be acknowledged at the outset of a summary of findings. But no measure is perfect, and previous researchers have often not reported the psychometric properties of their measures of victimisation.

If the measures developed here are to be used in future research they would benefit from modification. For instance, internal consistency and test-retest reliability may have been low for some subscales because they consisted of too few items. The degree of agreement among participants about the extent to which their peers were victims may have been limited because they were effectively asked to make ratings on a two-point scale for each form of victimisation. Some of the following methods, most of which were not implemented here, may produce more reliable and valid measures of victimisation:

- deriving scales from factor analyses, which should start with a large pool of victimisation items, including many prototypical examples (Tabachnick & Fidell, 1996) of each form of victimisation, and should reduce the number of items in order to produce homogenous subscales;
- using 5-point or 7-point (rather than 3- or 2-point) rating scales, which generally produce good factor solutions (Cattell, 1952);
- employing several items (rather than one) in peer-assessment of each form of victimisation (c.f. Ray, *et al.*, 1997); and
- establishing construct validity using multi-trait, multi-method matrices (Campbell & Fiske, 1959) to investigate correlations of self- and peer-reports of victimisation with reports of other informants, such as teacher-reports, observational data, and school records (c.f. Farrington, 1993).

Type of distress associated with victimisation

The second aim of the thesis (Aim 2) was to investigate the forms of distress felt by victims. Victims tended generally to report greater socioemotional distress than non-victims. If any one of the socioemotional adjustment variables was more strongly related to victimisation than the others, it was depression. Depression and loneliness (which is sometimes seen as a depression-related variable, e.g., Kazdin, 1990; Shaver & Brennan, 1991) were the only forms of maladjustment in the study which were related to composite victimisation independently of shared method variance. The only form of maladjustment which victims were significantly at greater risk for than non-victims was depression. Depression was not so important in comparison to other forms of socioemotional maladjustment when victimisation was assessed by self-report, when socioemotional

maladjustment was used to predict later victimisation, or in cross-sectional analyses of the maladjustment correlates of different forms of victimisation. But in these analyses no other maladjustment variable was consistently more strongly related to victimisation than depression.

These findings were broadly consistent with social rank theory, which is primarily a theory about depression, and with previous empirical research, which has shown that victimisation tends to be more strongly related to depression than to other forms of socioemotional maladjustment. But the present study was the first to demonstrate the importance of depression by comparing several maladjustment variables, within the same statistical analyses, in terms of their relative correlations with victimisation.

Some authors have given a high priority to describing anxiety or low self-esteem, rather than depression, as primary characteristics of victims. The historical reason for this bias is probably that in Olweus's (1978) influential research, victims' anxiety and self-esteem were assessed but their depressed mood was not. In the present research, when self-report shared method bias, and the correlations of depression with anxiety and low self-esteem, were controlled for, depression remained independently related to victimisation, and anxiety and self-esteem did not. These findings of the relatively small influences of self-esteem and anxiety may be limited by the instruments used to assess self-worth and anxiety. Eiser, *et al.* (1995) challenged the validity of the Harter's (1985) global self-worth scale when used among British schoolchildren, arguing that its items are not well understood by this population. In the present sample the global self-worth scale was not as internally consistent as other scales used. Given that victimisation is an aspect of

children's social relationships, social anxiety may be a more appropriate maladjustment variable to assess than generalised anxiety. Future research concerning the form of maladjustment associated with victimisation would benefit from the use of well-validated measures of social anxiety and self-esteem.

There are several reasons to believe that the present findings would be replicable even after these modifications. First, the test-retest reliability of the global self-worth subscale was high even among the younger participants. Second, if maladjustment variables are more related to victimisation when they are more oriented to social interaction, then it is surprising that victimisation was more strongly related to depression than to social acceptance (Table 2.6; section 8.3). Third, previous research (Table 2.4) suggests that social anxiety is no more strongly related to victimisation than general anxiety is. Finally, the pattern of previous results suggests that victimisation is more strongly related to depression than to low self-esteem or to any form of anxiety (Table 2.6).

Shared method variance and different informants' reports

The third aim of the thesis (Aim 3) was to find out the relative extent to which peer- and self-assessed victimisation were related to maladjustment. The strength of association between victimisation and maladjustment variables was generally greater when victimisation was assessed by self-report than when it was assessed by peers' reports. Since all maladjustment variables were measured by self-report, this meant that the strength of association was greater when the two variables were assessed by the same informant than when they were assessed by different informants.

A similar pattern of results was found in a meta-analysis in Chapter Two, and is often found when both self- and peer-reported victimisation are assessed within the same study (Crick & Bigbee, in press; Graham & Juvonen, in press; Haselager, 1997). Haselager (1997) suggested that self-reports of victimisation are the best indicators of children's *experiences* of being victims, and that aggregated peer-reports are the best indicators of their *reputations* as victims. Crick and Bigbee (in press) observed that self-reports were associated with maladjustment just as peer-reports were. They concluded that self-reports and peers' reports were equally valid and suggested that each type of informant's assessment was based on information not available to the other.

Crick and Bigbee (in press) and Haselager (1997) suggested that an alternative explanation of these results is shared method variance. That is, self-reported maladjustment is more strongly associated with self-reported than with peer-reported victimisation *simply because the same informants are used to assess both victimisation and maladjustment*. The present author suggests that shared method variance is the most parsimonious explanation, because it does not imply that the different informants' reports represent different psychological entities. The alternative explanations, which do imply as much, must be tested against the shared method variance hypothesis.

Haselager's (1997) hypothesis could be tested by comparing self-reports and peer-reports of children's reputations among their peers. Since Haselager's hypothesis was based on social psychological theory, and was not intended to apply only to victimisation, it is not necessarily victimisation reputations which can be compared. Faust, Baum, and Forehand (1985) collected sociometric ratings of peer popularity from adolescents, and also asked

the participants to guess the average rating that they would receive from their peers. Self-assessed depression was more strongly related to self-estimates of popularity reputation than to the measure of reputation based on peer reports. These findings are more compatible with the shared method variance hypothesis than with Haselager's.

Crick and Bigbee's (in press) differential information hypothesis can be tested by comparing covert victimisation with covert aggression. Victims may be unaware that they are being targeted for covert aggression, but the aggressors themselves should be even more aware than their peers of their own aggressiveness. So if Crick and Bigbee were correct, the prevalence of covert victimisation should be lower when estimated by self-report than by peer-report, while the prevalence of covert aggression should be higher when estimated by self-report than by peer-report. Österman, *et al.* (1994) found that the reverse appeared to be true. Children were more covertly aggressive according to their peers' than to their own reports. Österman and colleagues assessed covert victimisation but only reported the discrepancy between self- and peer-estimated victimisation for a composite of covert and overt victimisation. Children experienced far more composite victimisation according to their own than their peers' reports.

In the opinion of the present author, these findings offer a third alternative explanation to shared method variance. Österman, *et al.*, explained their results in terms of a self-serving attributional bias. That is, they suggested that under-estimates of self-assessed aggression, and over-estimates of self-assessed victimisation, are made because they favour children's self-perceptions. It is likely that such an attributional bias affects self-reports of socioemotional maladjustment as well as self-reports of victimisation. The bias would then

account for the higher correlations among self-reports of victimisation and adjustment. It could be avoided by using different informants to assess victimisation and adjustment - that is, by avoiding shared method variance. But a self-serving attributional bias is not sufficient to explain why peer-reported victimisation and peer-reported adjustment are more highly correlated than self-reports and peer-reports of the same (Crick & Bigbee, in press; Graham & Juvonen, in press; Haselager, 1997).

The hypotheses outlined by Crick and Bigbee (in press) and Haselager (1997) - or by the present author, from the results of Österman and colleagues - do not stand up to empirical scrutiny as explanations of the greater effect sizes when the same informants' reports are used. That does not mean that the hypotheses are wrong in themselves. In the present research peer-assessed victimisation was far more stable than self-assessed victimisation over a ten-month period, suggesting that the peer reports may have been based on reputation, as Haselager suggested. It is intuitively plausible, as Crick and Bigbee suggested, that unique information can sometimes be available to victims and not their peers, and *vice-versa*. The findings of Österman, *et al.* (1994) suggested that self-reports of victimisation are affected by a self-serving attributional bias. Shared method variance does not entirely explain the sizes of correlations between self-assessed victimisation and self-assessed maladjustment, as maladjustment variables were more strongly correlated with each other than with victimisation. But it is a more tenable explanation than the alternative hypotheses for the discrepancy between effect sizes of self- and peer-assessed victimisation.

Leaving aside shared method variance, the present study illustrates the importance

(underlined also by Crick & Bigbee, in press, Graham and Juvonen, 1997, and Haselager, 1997) of measuring more than one type of informant's report of victimisation. Self-reported victimisation data are more economical to collect than peer-reported data. Their stronger relationship to self-reported maladjustment is useful in research designs which have not previously been used widely (such as Chapter Ten), as the association between peer-reported victimisation and self-reported maladjustment may be reduced by low statistical power (as in Chapter Nine). In assessing different forms of victimisation they may cause fewer problems of multicollinearity than peers' reports (Chapter Ten). But if peer-reported victimisation is correlated with maladjustment, that correlation cannot be explained away so easily as an artifact of shared method variance. Future research would benefit from further multi-informant measurement of both victimisation and maladjustment.

Risk status of victims

Aim 4 of this thesis was to investigate the extent to which victims were at risk for greater socioemotional maladjustment than non-victims at follow-up. This study is the first to have assessed the accuracy with which victimisation predicts future depression, using the method outlined by Loeber and Dishion (1983) and advocated by Parker and Asher (1987), and to have calculated odds ratios to assess risk. Children who were self-reported victims at baseline were more than six times more likely than self-reported non-victims to report levels of depressive symptoms, at follow-up, which are taken by Kovacs (1992) to indicate suspected clinical depression. Victimization was a risk factor only if it was self-reported and psychological, and depression was the only form of future maladjustment it predicted. The present results did not demonstrate that victimisation predicted *diagnoses* of

depression. But the true nature of victims' risk for different types of maladjustment may have been obscured by low statistical power, as several follow-up studies have also shown that victimisation predicts future socioemotional maladjustment, at seven-year follow-up (Olweus, 1993) as well as over shorter periods (e.g., Boivin, *et al.*, 1995; Kochenderfer & Ladd, 1996a; Vernberg, 1990). Their results and the present results are consistent also with the predictions of social rank theory; the need to belong hypothesis (Baumeister & Leary, 1995); the interactional theory of depression (Coyne, 1976); and studies showing that children with associated peer relationship difficulties (such as peer rejection and social withdrawal) are at risk for later maladjustment (e.g., Hymel, *et al.*, 1990; Morison & Masten, 1991; Parker & Asher, 1987).

Etiological models supported

Aim 5 of the thesis was to investigate what causes victims to be distressed. Prospective statistical analyses of the relationship between maladjustment and a measure which indexed all three forms of physical, relational and subordinal victimisation, were carried out for the first time. These are also the first prospective analyses of the victimisation-adjustment relationship to be carried out using separate indices of more than one form of victimisation; using separate reports of victimisation from more than one type of informant; or in a British sample. Finally, they are unique in their presentation as Popperian tests of the two types of simple main effects models outlined by Parker and Asher (1987).

Neither of these simple main effects models were supported by the present findings. Self-assessed psychological victimisation predicted increasing depression over ten months, making the simple incidental model less tenable. Anxiety, loneliness, and depression, and

a composite of all three, were related to increasing victimisation (largely psychological) over the same period, making the simple causal model less tenable. To some extent, these internalising problems predicted changes in both peer- and self-reported victimisation, and in both forms of psychological victimisation. The weight of evidence was stronger against the simple causal model than against the simple incidental model. That is, there was more evidence that distress caused victimisation than there was that victimisation caused distress. But the results of three previous prospective studies which used both I-prospective and C-prospective analyses have been inconsistent either with both main effects models (Egan & Perry, 1997; Vernberg, 1990), or with the simple incidental model (Kochenderfer & Ladd, 1996a). Therefore the current and previous findings tend not to support simple main effects models, and are more consistent with transactional models of the relationship between victimisation and maladjustment. Processes would operate in such models such that victimisation and internalising distress would reinforce each other over time. Children's experience of victimisation would cause them to be emotionally distressed, and this stress would in turn lead to further victimisation.

Transactional models are also consistent with a lot of relevant empirical and theoretical work. The likely consequences of victimisation for emotional distress have been the focus of much recent research (Ambert, 1994; Anderson & Harrison, 1996; Arora & Thompson, 1987; Basilisco, 1989; Boivin, *et al.*, 1995; Boulton & Underwood, 1992; Craig & Pepler, 1997; Egan & Perry, 1997; Gilmartin, 1987; Hoover, *et al.*, 1992; Kochenderfer & Ladd, 1996a, 1996b; McLaughlin, *et al.*, 1997; MacLeod & Morris, 1996; Matsui, *et al.*, 1996; Mooney & Smith, 1995; Olweus, 1993b; Sharp, 1995, 1996; Slee, 1993; Vernberg, 1990). Other research has suggested that factors inherent in the victim, such as behaviour,

temperament, or attachment relationships, contribute to their being made a target of aggression (Bowers, Smith, & Binney, 1994; Egan & Perry, 1997; Finnegan, Hodges, & Perry, 1997; Kochenderfer & Ladd, 1997b; Olweus, 1993b; Patterson, Littman, & Bricker, 1967; Schwartz, Dodge, & Coie, 1993; Smith, Myron-Wilson, & Sutton, 1997; Troy & Sroufe, 1987; Vernberg, 1990). The clearest way to reconcile the results of these two types of studies is to suggest that together they are consistent with transactional models. To account for research findings in the clinical or peer relations literature, many authors have also outlined transactional models of the link between problems in social interaction and mental health (e.g., Coyne, 1976; Crick & Dodge, 1994; Gotlib & Whiffen, 1991; Hammen, 1992; Parker, *et al.*, 1995; Rubin, *et al.*, 1990; Sameroff, 1997). Similar models have been proposed by some victimisation researchers, albeit in less detail (e.g., Besag, 1989; Crick & Grotpeter, 1996; Matsui, *et al.*, 1996; O'Moore & Hillery, 1991; Smith, *et al.*, 1993). Thus much of previous research is in accord with the type of model supported by the present findings, and articulated as a transactional model in social rank theory. A more detailed exposition of this type of model, and how it may be developed from the present findings, is presented in the section 12.2.

Types of victimisation associated with distress, and age and gender effects

Aim 6 of this thesis was to investigate the extent to which different forms of victimisation are associated with maladjustment, and Aim 7 was to investigate whether there were gender or age differences in these associations. These aims are dealt with together because of their implications for social rank theory.

In this thesis the adjustment correlates of the three forms of victimisation (physical,

relational, and subordinal victimisation) were compared within the same statistical analyses for the first time. The thesis also includes the first prospective comparisons of different forms of victimisation in terms of their prediction of future, or prediction by previous, maladjustment. Socioemotional maladjustment was more strongly related to psychological (relational or subordinal) forms of victimisation than to physical victimisation. This result was found consistently here, over a number of cross-sectional and longitudinal analyses. For each form of maladjustment, victims of at least one of the forms of psychological aggression tended to be more distressed than non-victims, whether or not they were also targets of the other form of psychological aggression or of physical aggression. To the extent that physical victimisation was related to distress (e.g., Table 10.2), the relationship was accounted for by the correlation of physical victimisation with psychological forms of victimisation. Notably, when Type I error rate was controlled, physical victimisation showed virtually no significant relationships with socioemotional maladjustment.

In cross-sectional analyses, maladjustment variables appeared to be more strongly related to relational than to subordinal victimisation, but the difference in effect sizes was not large. In longitudinal analyses, there was some tendency for maladjustment to be most strongly related to relational victimisation when victimisation was assessed by self-report, and to subordinal victimisation when victimisation was assessed by peers' reports. The pattern of results did not consistently suggest that maladjustment was more strongly related to one form of psychological victimisation than to another. Relational and subordinal victimisation were strongly correlated when assessed by peer-report, and doubts were expressed about the adequacy of their psychometric properties when they were assessed by self-report. For these reasons, it was considered unwise to draw strong conclusions

about the relative influence of relational vs subordinal victimisation. A more trustworthy conclusion is that psychological victimisation of either form was more strongly related to socioemotional distress than physical victimisation was.

From social rank theory it was suggested that this kind of result would be found among groups characterised by the hedonic mode of social structure. Such groups are characterised by affiliative behaviour more than aggressive behaviour, and their social rank structures are based on attractiveness and SAHP, rather than aggressive encounters and RHP (Gilbert, 1992). The analyses reported in section 10.5 were designed on the assumption that the participants' ages encapsulated a transition period from agonistic to hedonic mode, and that boys tended to interact primarily in the agonistic mode and girls in the hedonic mode. If these assumptions are true then both age and sex should moderate the relationship between distress and the different forms of victimisation. Specifically, physical victimisation should be more strongly related to distress among primary than secondary school children; subordinal victimisation should be more strongly related to distress among secondary than primary school children; and subordinal and relational victimisation should be more strongly related to distress among girls than among boys.

The search for gender and age interaction effects was limited to cross-sectional analyses involving self-reports of different forms of victimisation.¹ Not including interaction terms

¹Interaction terms were not included in analyses in which a composite measure of victimisation was used, because there was no *a priori* reason for doing so. Social rank theory could not be used to predict moderating effects of gender or age on composite victimisation, and there is no consistent evidence from previous empirical research that such effects exist (Anderson & Harrison, 1996; Boivin, *et al.*, 1995; Boulton & Smith, 1994; Graham & Juvonen, 1997; Kochenderfer & Ladd, 1996a; Pierce, 1990). Interaction terms were not included in longitudinal analyses because of the need to conserve power with smaller sample sizes. They were not included in cross-sectional

in other analyses reduced the complexity of results presented, but also represents a limitation. Future research may benefit from examining the moderating effects of gender or age within a larger sample of children. Nevertheless, the present study has been the first to investigate the moderating effect of age or gender on the association of internalising maladjustment with more than one form of victimisation.

In fact age did not moderate the relationship between subordinal or physical victimisation and maladjustment. Instead, there was a slight tendency (which was not consistently found in all analyses) for relational victimisation to be more strongly related to anxiety and low self-worth in secondary school children than in primary school children. Questions about the validity of self-reported relational victimisation suggest that it may be safer to conclude that these are moderating effects on the association between *psychological* victimisation and maladjustment. In that sense, as subordinal victimisation is also psychological, these findings are not unsupportive of social rank theory - except that anxiety and self-esteem, rather than depression (in social rank theory the most important of the forms of distress measured here), were implicated in the moderated relationship. But further investigation of moderating effects is warranted, especially among younger children (for whom, according to social rank theory, physical victimisation may be more strongly related to maladjustment) and using better validated measures of different forms of victimisation.

There was no evidence of a moderating effect of gender on the relative strength of association between socioemotional adjustment and different forms of victimisation. This

analyses involving peer-assessed victimisation because their inclusion led to too many outlying cases.

finding was inconsistent with the different-cultures model, as advocated by Maccoby (1988) and Tannen (1990), which suggests that rank-related social interaction (c.f. physical and subordinal victimisation) has greater implications for boys' development, and that affiliation-related interaction (c.f. relational victimisation) is more important for girls. According to Thorne's (1993) argument, the present results are in accord with previous empirical findings, which have also failed to support the different-cultures model.

The absence of gender and age differences does not undermine social rank theory, because it was not possible to be certain about the mode in which children of different ages and sexes were interacting. Indeed, one reason that socioemotional maladjustment was more strongly related to psychological than to physical victimisation may have been that most of the participants' (younger and older, male and female) social interaction was hedonic rather than agonic. Some authors have emphasised the influence of rank-related victimisation, and others have emphasised the importance for development of belongingness themes which are prevalent in relational victimisation. Social rank theory is the only theory of which the present author is aware which can be applied to explain the present empirical findings about the relative influence of both forms of psychological victimisation on maladjustment.

All these findings are summarised in Table 12.1, and the main original contributions made by the thesis in Table 12.2.

Table 12.1. Summary of main findings (continued on the next page)

Measures of victimisation (Aim 1)

- Measures of composite victimisation had good psychometric properties; psychometric properties of measures of different forms of victimisation were less satisfactory.
- Experiences of different forms of victimisation were moderately (if self-assessed) or highly (if peer-assessed) inter-correlated.

Types of distress associated with victimisation (Aim 2)

- Victims' socioemotional distress was generally greater than non-victims'.
- The adjustment variable most strongly related to victimisation was usually depression.

Shared method variance and different informants' reports (Aim 3)

- (Self-reported) socioemotional maladjustment was generally more strongly related to self-reported than to peer-reported victimisation.

Risk status of victims (Aim 4)

- Self-reported victims were six times more likely than self-reported non-victims to report depression at ten-month follow-up.

Etiological models supported (Aim 5)

- Self-assessed psychological victimisation predicted increasing depression over ten months.
 - Anxiety, depression, and loneliness, predicted increasing self-assessed psychological victimisation over ten months.
-

Table 12.1 (continued)

Types of victimisation associated with distress (Aim 6)

- Socioemotional maladjustment was primarily related to psychological forms of victimisation, in cross-sectional and prospective longitudinal analyses.
 - There was no strong evidence that maladjustment was more strongly related to one form of psychological victimisation than another.
-

Age and gender effects (Aim 7)

- Greater self-assessed psychological victimisation was associated concurrently with greater anxiety and lower self-worth among secondary school children but not primary school children.
 - There were no moderating effects of sex on the contemporaneous association between maladjustment and different forms of victimisation.
-

Table 12.2: Main original contributions to research (continued on next page)

Contributions to scholarship:

- application of social rank theory to the study of peer victimisation among children and its relationship with their socioemotional maladjustment;
 - outline of a new way of defining separate forms of victimisation;
 - meta-analysis of cross-sectional studies of the relationship between victimisation and socioemotional maladjustment;
 - evaluation, using the types of etiological models outlined by Parker, *et al.* (1995), of empirical evidence for a causal link between victimisation and maladjustment;
 - review of the literature on the associations between different forms of victimisation and maladjustment.
-

Table 12.2 (continued)

Contributions to the empirical literature:

- investigating the reliability and validity of new measures of victimisation;
 - discovering the influence of depression and loneliness, independently of their relationship with other forms of maladjustment, on concurrent victimisation;
 - showing that peer victimisation was a developmental risk factor for British children;
 - demonstrating that psychological victimisation led to increasing maladjustment;
 - demonstrating that maladjustment led to increasing psychological victimisation;
 - finding that both relational and subordinal victimisation were correlated with maladjustment, independently of their correlations with each other and with physical victimisation;
 - investigating sex and age differences in the socioemotional maladjustment of victims of different forms of aggression.
-

12.2. Social rank interpretation and a model of the maintenance of victimisation

Social rank theory can be used to interpret many of the findings, as discussed already in parts of section 12.1. The theory concerns the role of two social psychological states in the development of depression: low social power or rank, and a lack of belonging (Gilbert, 1992). Physical and subordinal victimisation have been identified with low power in this thesis, and relational victimisation with not belonging. To some extent, all of these forms of victimisation were associated with internalising maladjustment, and independently of

each other, showing that they were distinct. Gilbert (1992) saw themes of power and belonging as having equal importance in social rank theory. In the present results it was certainly difficult to say that one theme was definitely more important than another. The overall pattern across statistical analyses was that both subordinal and relational victimisation were independently associated with maladjustment.

This thesis also distinguished another pair of concepts in social rank theory: agonistic and hedonic mode. Physical victimisation was identified as taking place usually during the agonistic mode of social interaction, in which power struggles are settled through physical aggression. Subordinal victimisation was identified as characteristic primarily of the hedonic mode, where social rank is determined more by attractiveness than physical strength. Relational victimisation was seen as prevalent in both the agonistic and the hedonic mode, though slightly more so in the latter, which is more based on affiliative relationship structures. With social rank and belongingness determined in different ways in these two modes, maladjustment should be more strongly related to physical victimisation in the agonistic mode, and to subordinal (and to a lesser extent relational) victimisation in the hedonic mode. Gilbert (1992) saw the hedonic mode as characterising human social interaction, and the present results (in which psychological victimisation had greater influence than physical victimisation) suggest that it characterises social interaction in the middle childhood of humans.

Depression is the main maladjustment variable which social rank theory aims to account for. Gilbert (1990, 1992) outlined how the theory can also explain the development of related forms of internalising or socioemotional maladjustment. Several forms of

socioemotional maladjustment related to depression (such as loneliness, anxiety, and poor self-perceived social acceptance) were correlated with victimisation in the present thesis. But overall it was depression which was most strongly related to victimisation, as might be expected, given that some of the earliest (Price, 1972) and longest (Gilbert, 1992) expositions of social rank theory concerned the development of depression.

The type of etiological model represented by social rank theory is transactional. Social rank theorists argue that people remain depressed when they are maintained in an involuntary subordinate position (Price, *et al.*, 1994) within their social relationships. Involuntary subordination is maintained as long as the dominant partner in the interaction refuses to stop being aggressive towards the subordinate partner - or as long as subordinal or physical victimisation continues. Social rank theorists are not so specific about the mechanism by which depression is maintained by a lack of belonging. But by analogy one might suggest that relational victims become "involuntary outsiders". Their position as outsiders is maintained as long as the relational aggressor refuses to allow them to participate in social interaction, and thus emotional states associated with the outsider position are maintained.

Some aspects of social rank theory can be fleshed out more fully by drawing on other theories of the relationship between social interaction and internalising problems. Baumeister and Leary's (1995) need-to-belong hypothesis further supports the notion that relational aggression, in excluding victims from relationships, attacks their sense of belonging. Coyne (1976) argued that depressed adults are unattractive to others and thus likely to be covertly rejected by them, and that their depression worsens when they guess

that they are rejected. Overt rejection (as relational victimisation) is probably more likely to occur among children than among adults, particularly among aggressive children who may not be disturbed by signs of victims' suffering (Perry, Willard, & Perry, 1990), and who therefore may exacerbate their targets' depressed mood even more.

A social rank model of the victimisation-adjustment relationship

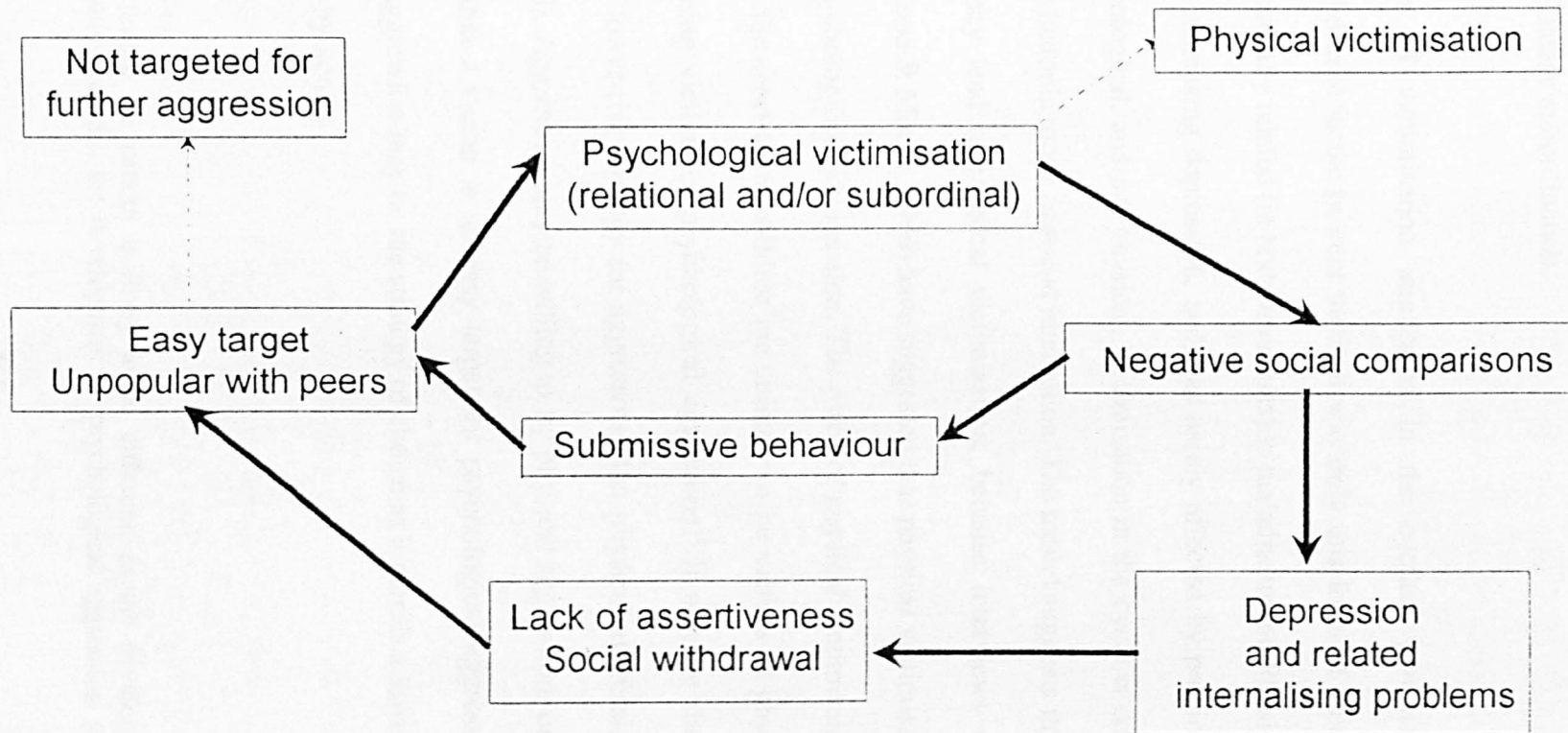
Transactional models specifically accounting for the relationship between victimisation and negative self-cognitions have been suggested before, speculatively (e.g., Crick & Grotpeter, 1996) or in a discussion of empirical evidence from case studies (Lang & Gilbert, 1994) or prospective analyses (Vernberg, 1990). From the present research it seems likely that psychological victimisation causes depression, and that depression and related socioemotional maladjustment variables cause psychological victimisation. The steps in between these two variables are a matter for informed speculation. A new model of the relationship between victimisation and socioemotional maladjustment is illustrated in Figure 12.1. It is inspired by previous models (Boivin & Hymel, 1997; Crick & Grotpeter, 1996; Lang & Gilbert, 1994), and based on the present and previous findings, and social rank and other theories. This model, entitled the **victim cycle**, is designed as an attempt to account for the maintenance of victimisation in middle childhood - that is, between the ages of approximately eight and thirteen - and in the hedonic mode of social interaction. It may also be applicable to adolescents, though it is suggested that physical victimisation may play a greater role among younger children, to the extent that their social interaction is agonistic.

The victim cycle operates in the hedonic mode, and suggests that being targets of

psychological aggression leads children to compare themselves negatively with their peers. Negative social comparisons cause the development, on the one hand, of depressed mood and related internalising problems, and on the other hand, of submissive behaviour towards aggressors. Internalising problems tend to make children socially withdrawn and unassertive. The combination of submissiveness, unassertiveness, and social withdrawal, tends to make children unpopular with their peers and easy targets for psychological aggression - unless the aggressor accepts their submissive gestures and stops being aggressive. Psychological victimisation then leads to further negative social comparisons, and the cycle continues. The longer it continues, the more the links between psychological victimisation and distress are strengthened. There is also some tendency for psychological victimisation to lead to physical victimisation, although the latter (at least in the hedonic mode) does not itself lead to negative social comparisons or maintain the cycle. This description of the cycle is justified more fully in the description which follows Figure 12.1.

Figure 15.1. The victim cycle:

A speculative model of the maintenance of peer victimisation



The first feature to note is that the victim cycle is transactional - that is, children's experiences with peers and their internalised distress influence each other to aggravate and maintain victimisation and distress over time. In social rank terms, children are stuck in a cycle of involuntary subordination.

The only form of victimisation implicated in the cyclical part of the model is psychological, because in the present thesis it was only this form of victimisation which appeared to be causally related (in both directions) to maladjustment. Physical victimisation did not lead to increasing depression, and was barely affected by previous distress. The place for psychological, and not physical, victimisation in the cycle is consistent with its operating in the hedonic mode of social interaction. The model suggests that psychological victimisation may lead to physical victimisation, because interviews with victims of bullying (MacLeod & Morris, 1996) have suggested that physical victimisation is normally preceded by psychological victimisation. The place of physical victimisation in the model implies that, in the short term, children are unlikely to be victims of physical aggression without first being victims of psychological aggression.² It may be that psychological aggression is a lower-risk strategy for aggressors than physical aggression (c.f. Crick & Grotpeter, 1996). Aggressors may be willing to try physical aggression, only after proving to themselves that a victim is an easy target for psychological aggression. Even then, psychological aggression may be the strategy of choice as it carries a lower risk and is less easily detected by adults.

²Over the lifespan the pattern is likely to be different, as the development of physical aggression probably precedes the development of psychological aggression (Björkqvist, *et al.*, 1992).

The line between psychological victimisation and physical victimisation is dotted to indicate that the connexion between them is weaker than other links in the victim cycle. This reflects the finding from several analyses in this thesis that, when Type I error for multiple significance testing was controlled, physical victimisation was not significantly related to maladjustment. Physical victimisation should not be excluded from the victim cycle for the reasons listed above, and because there are methodological reasons why correlations may not have reached significance; but it did not seem to be a key variable in the link between victimisation and maladjustment, at least in middle childhood. However, it is suggested here that among younger children, socialising in the agonistic mode, physical victimisation is an integral part of the cycle, and leads to negative social comparisons in the same way that psychological victimisation does in middle childhood.

Lang and Gilbert (1994) suggested that psychological victimisation can lead to negative social comparisons. Results from the present sample (not reported in detail here because of constraints on space) have shown that children who compared themselves negatively to their peers (seeing themselves, for instance, as nastier, uglier, or liked less than their classmates) were nominated by more of their peers as victims than children who saw themselves as no better or worse than their peers (Hawker, 1996). In social rank terms negative social comparisons are unfavourable self-assessments of RHP or SAHP (Gilbert, 1992), and as such are integral to the development of the involuntary subordinate strategy which, if maintained, is manifest as depressed mood (Lang & Gilbert, 1994; Price, *et al.*, 1994). Allan and Gilbert (1995) showed that negative social comparisons were related to psychopathological disturbance among adults, and in the present sample they were also related to greater socioemotional maladjustment (Hawker, 1996).

Other types of internalising or socioemotional maladjustment are implicated in the victim cycle because they are related to depression, and to internal experiences of shame. Gilbert (1992, 1997) described shame as an affective state which is particularly relevant in social rank theory, in that it embodies feelings of being inferior, ridiculed, ostracised, humiliated, and small. Empirical studies suggest that feelings of shame are related to other feelings of internalised distress, such as anxiety and low self-esteem (Cook, 1995; Gilbert, 1997). Low self-esteem did not appear to be as important as other forms of maladjustment in the present research, but is implicated in the victim cycle as a form of internalising maladjustment, on the strength of previous research (see Chapter Two) which has shown that victims have lower self-esteem than non-victims. In the present results, anxiety and loneliness were to some extent related to victimisation, including future victimisation, independently of depression. It might be concluded from these findings that anxiety and loneliness should occupy a separate position in the model from depression, and be more implicated in preceding victimisation than following it. But empirical and theoretical research does not suggest an obvious independent role for anxiety or loneliness in the model. Low statistical power may be the reason that studies (e.g., Chapter Nine, present volume; Olweus, 1993b) have previously failed to demonstrate that victimisation led to future anxiety. For now, therefore, these internalising adjustment variables are grouped together at a single point in the victim cycle.

The victim cycle suggests that children's depression leads to their being socially withdrawn and lacking assertiveness, and thence to their being easy targets for aggression and unpopular as partners in social interaction. One of the diagnostic criteria of depression is a lack of interest in activity, and one of its major symptoms among children is social

withdrawal (American Psychiatric Association, 1994). Socially withdrawn children tend to be unassertive in social interactions (Rubin & Coplan, 1992). Even if depressed children do not withdraw fully from social interaction, their lack of interest in it will probably mean that they will not be assertive and will fail to display the kind of socially competent prosocial behaviour which, according to reviews by Coie, Dodge and Kupersmidt (1990), and Putallaz and Wasserman (1990), makes children popular. As unpopular partners they may be targeted for relational aggression. Results from cross-sectional studies have suggested that victims are socially withdrawn (Boivin, *et al.*, 1995; Boulton & Underwood, 1992; Deasy & Hennessy, 1997; Rivers & Smith, 1994). Longitudinal studies have shown that victimisation is preceded by both social withdrawal (Boivin, *et al.*, 1995) and non-assertive behaviour (Schwartz, *et al.*, 1993).

The pathway from social withdrawal, through peer unpopularity and then victimisation to internalising problems, resembles the model developed by Boivin and Hymel (1997) and Boivin, *et al.* (1995) to account for the origin of depression from peer relationship problems. They found statistical evidence, using the procedures recommended by Baron and Kenny (1986) for demonstrating mediation effects, that the pathway from social withdrawal to internalising distress was mediated by popularity with peers and peer victimisation (a composite of generic, subordinal and physical victimisation). Particularly important in the context of the victim cycle, they found no evidence that the number of children's affiliative relationships (rather than victimisation) mediated the relationship between social withdrawal or unpopularity and internalising problems. The model developed by Boivin and colleagues was not cyclical, although it was described in the context of a larger transactional model of the association between poor peer experiences

and later distress (Rubin, *et al.*, 1990). The empirical support for the model was limited, because Boivin and colleagues failed to establish that the causal assumptions behind mediation (Baron & Kenny, 1986 - for instance, that the mediator must cause the outcome and not be caused by it) were satisfied. Nevertheless, their results provide partial support for the victim cycle.

The other pathway through which the victim cycle is maintained leads from negative social comparisons to submissiveness, and thence to the child being an easy target for aggression. The behavioural expression of involuntary subordination is a state of submission to the dominant partner (Gilbert, 1992; Price, *et al.*, 1994). If the dominant partner accepts the surrender of the subordinate partner, by making friends or bringing the aggression to an end, then the involuntary subordination comes to an end and the cycle is broken. If the dominant partner refuses to make friends (i.e., is relationally aggressive) or continues to be aggressive, involuntary subordination is maintained and the cycle carries on with the links between victimisation and distress strengthened. Thus submissive behaviour is important in social rank terms, as it determines the course of the involuntary subordination which leads to depression. In descriptions of social rank theory (e.g., Gilbert, 1992) submissiveness is described in terms of appeasement gestures, as an active form of behaviour, and is not quite the same as a (passive) lack of assertiveness; hence its separate place in the victim cycle.

It seems that among children, victims' submissive gestures often fail. Perhaps they present too much of a temptation to aggressors, who do not seem to care that the victims are distressed and who know they will not fight back (Perry, *et al.*, 1990). In other words

victims are, as Crick and Grotpeter (1996) suggested, easy targets for aggression. Thus the pathway out of the victim cycle is marked by a dotted line; psychological victimisation is more normally the consequence when victims are seen as easy targets.

The link between victimisation and submissiveness is supported in cross-sectional correlational studies (Björkqvist, *et al.*, 1982; Boulton & Smith, 1994; Crick & Bigbee, in press; Dodge, *et al.*, 1990; Graham & Juvonen, in press; Lang, 1990; Lowenstein, 1978). The role of submissiveness in the cycle is further supported by findings that submissive gestures made by children (such as crying) appear to precede and to follow their being targeted for aggression (Patterson, Littman, & Bricker, 1967; Schwartz, *et al.*, 1993), and that children's socioemotional distress is particularly great when they are both submissive and victims of aggression (Hawker & Boulton, 1996a).

It is important to emphasise that the cycle does not imply that victims are to blame for their being bullied. Factors in the victim's behaviour appear, according to the present research, to contribute to the maintenance of victimisation. But it is possible for a victim to enter the cycle at any point (including becoming depressed for uncontrollable reasons), and the cycle depends not only on the victim's behaviour but on peers' responses to it. It should also be noted that the model is based empirically on variations among and differences between children, and so it does not follow that every victim of peer aggression becomes trapped in the cycle, that every distressed child becomes a victim, or that in every case physical victimisation is preceded by psychological victimisation. Rather, psychological victimisation has a tendency to lead to internalising distress, and internalising distress has a tendency to lead to psychological victimisation.

12.3. Implications for future research and practice

The victim cycle is based on research findings and well-argued theoretical ideas, but it needs to be tested. The following are some of the testable predictions which may be derived from it, and which can be used to establish how well the model accounts for peer victimisation in middle childhood or beyond.

- (1) Interventions which reduce psychological victimisation will also reduce internalising problems.
- (2) Interventions which reduce psychological victimisation will also reduce physical victimisation.
- (3) Interventions which reduce only physical victimisation, and not psychological victimisation, will not reduce internalising problems.
- (4) Interventions which reduce internalising problems (e.g., cognitive therapy, work on self-esteem) will also reduce psychological and physical victimisation.
- (5) Victims who make positive or neutral social comparisons to their peers will suffer fewer internalising problems than victims who make negative social comparisons.

(6) Submissive behaviour among targets will lead others to be aggressive towards them.

(7) Negative social comparisons will be positively associated with psychological victimisation, internalising problems, submissive behaviour, social withdrawal, and peer rejection.

(8) Interventions focussed on changing victims' behaviour, including assertiveness training and interventions to reduce social withdrawal, should reduce victimisation and internalising problems.

(9) Psychological victimisation should lead to greater physical victimisation over time, but there should be no such progression from physical victimisation to greater psychological victimisation.

(10) The strength of correlations among the variables in the model should increase in proportion to the chronicity of victimisation.

Testing the victim cycle

The victim cycle has several implications for interventions aimed at reducing bullying or victimisation. One interesting prediction made by the victim cycle is that interventions need not specifically target bullying or victimisation to succeed in reducing them (c.f. predictions 4 and 8). Interventions aimed at reducing internalising problems, negative social comparisons, non-assertive behaviour or social withdrawal, if they work, should also reduce victimisation. The advantage of this approach is that some of these kinds of

interventions have been shown to be effective (e.g., Coplan & Bourdeau, 1997; Jaycox, Reivich, Gillham, & Seligman, 1994; Kendall, 1994; Wood, Harrington, & Moore, 1996) in changing behaviour or cognitions. Future research may reveal whether they also reduce victimisation, although there is some evidence that assertiveness training does have this effect (Sharp & Cowie, 1994).

Clinical interventions may not be easy to carry out in schools, and may be seen by victims as placing the blame on them. There are many anti-bullying interventions available (see Olweus, 1993a; Paley, 1992; Rigby, 1996; Ross, 1996; Smith & Sharp, 1994). Most of these focus on the victim, the bully, or the school system (including both the bully and the victim - c.f. Farrington, 1993), but many of them have not yet been evaluated (Farrington, 1993; Ross, 1996). According to the victim cycle, interventions with any of these foci should reduce not only victimisation, but also internalising problems, negative social comparisons, social withdrawal and submissive behaviour among victims - as long as the interventions concern psychological victimisation (see Ross, 1996, and Paley, 1992, for examples of such interventions) rather than just on physical victimisation. If an intervention is concerned with reducing only physical victimisation (e.g., simply banning physical aggression from the playground), the victim cycle should continue, although it may be partially stopped among young children who interact in the agonistic mode. Moreover, the cycle suggests that there is no need to target resources specifically at reducing physical victimisation. If an intervention reduces psychological victimisation, physical victimisation should also be reduced as a consequence (prediction 2).

At present, most of the empirical evidence on which the victim cycle is based is derived

from correlational studies, cross-sectional or prospective. Further support for the cycle from such studies is needed, because some of its links in are better supported by empirical evidence than others. Each variable in the cycle should be correlated with, and precede and follow over time, each other variable in it. Prospective analyses should show that psychological victimisation predicts increasing physical victimisation, but that physical victimisation does not predict increasing psychological victimisation (prediction 9), except among young children interacting in the agonistic mode. Negative social comparisons should be shown to be correlated with other variables in the model, in cross-sectional and prospective analyses (prediction 7). If there are victims who do not make negative social comparisons, these victims should have fewer internalising problems than victims who do (prediction 5). Social withdrawal, and sociometric peer rejection, should be examined in prospective analyses as precursors and consequences of victimisation, and submissive behaviour as a consequence as well as a precursor. The strength of the relationship between the variables in the cycle should increase over time (prediction 10), as is the case with transactional models (Sameroff, 1987). Longitudinal research methods have been used to test the effect of chronic (vs short-term) peer rejection on maladjustment (DeRosier, Kupersmidt, & Patterson, 1994), and could be applied to victimisation. All other things being equal, children who have been victims for a year should be more depressed than children who have been victims for a month.

Cross-sectional studies are very poor guides to causal relationships among variables. There are limitations to the conclusions drawn from prospective studies about etiology, because there is no random allocation of participants to comparison groups (see Parry & Watts, 1989). There are many factors which are difficult to control in intervention designs, and

again, complete random allocation of participants is not always possible. Some of the predictions of the model can be tested in experimental designs, in which many confounding variables can be held constant, and participants randomly assigned to conditions. One type of experiment might be based on prediction 6, concerning submissiveness. Participants might be given indications of submissive or non-submissive behaviour of a confederate, and asked to make responses to them which can vary in their degree of (psychological) aggressiveness towards the peer. Aggressive responses could be recorded in the absence of the confederate (c.f. Perry & Perry, 1974), so that they would not be able to harm any target.

Experimental methods could also be used to circumvent biases due to social desirability or shared method variance. Biases in the processing of emotion-related words are often found among people with emotional disorders, through a number of experimental techniques (e.g., Williams, Watts, MacLeod, & Mathews, 1990). Children with emotional disorders also exhibit such biases. For example, Martin, Horder, and Jones (1992) found that children who were afraid of spiders, compared to children who were not afraid of spiders, appeared to be distracted by the presence of spider-related words (but not neutral words) when processing information unrelated to spiders. Information-processing experiments could be carried out to investigate elements of the victim cycle. For example, compared to non-victims, victims might be expected to show biased processing of words indicating negative emotions or social comparisons (e.g., sad, lonely, stupid, ugly, useless, boring, fat). Former victims should not retain information-processing biases.

General limitations

Several limitations of the work presented here would benefit from being addressed in future studies. Some of these were discussed in section 12.1, and the remainder are considered below.

A greater variety of items should be used to assess victimisation, including instances of victimisation which are covert and overt; relational and subordinal; physical and psychological; threatened and actual; instigated by the aggression of groups and individuals; and provoked and unprovoked. Most of these dichotomies were ignored in the present research. It was argued that the dichotomies of subordinal/relational and psychological/physical victimisation were most relevant for the experience of victims. Empirical distinctions among different forms of victimisation should be made using factor analytic studies (with larger samples than that studied here; c.f. Björkqvist, *et al.*, 1992a; Crick & Bigbee, in press; Crick & Grotpeter, 1996) or classification studies (Hawker & Boulton, 1996c). An important contrast would be between the dichotomies of covert/overt and relational/subordinal victimisation, because of the different ways these have been defined in the literature (Björkqvist, *et al.*, 1992b; Crick, 1995; Crick & Grotpeter, 1996; Österman, *et al.*, 1994). It is suggested that relational victimisation would be more strongly distinguished from subordinal victimisation, than covert from overt victimisation.

The nature of the research (being time-limited, with data collected by a single investigator) put several limitations on its design. It has been noted several times that non-significant results may have been due to low statistical power, which could be increased in future studies by greater sample sizes. The gap between initial data collection and follow-up, at an average of ten months, was greater than in some longitudinal studies (e.g., Egan &

Perry, 1997; Kochenderfer & Ladd, 1996a, 1996b; Vernberg, 1990). But only one *long-term* follow-up study of victims has been published (Olweus, 1993b), and more are needed.

Another limitation was in the population of participants sampled. This was a group of white, largely working-class or lower middle-class British children, in state schools and of just two age groups. Empirically it is uncertain how well the results will generalise to samples from different populations, although it has been noted throughout the thesis that similar findings have been made in a variety of cultures and different age groups. There was also some heterogeneity in the sample. The catchment area of one of the schools (B) was more middle-class than the others. Five of the classes from which the children were drawn were of mixed intellectual ability, while one (C) was a middle ability group. This heterogeneity is not a great limitation of the present results, which do not include a comparison of schools. It is possible that the results would not generalise well to schools with more deprived catchment areas, because there may be greater physical aggression at such schools (Farrington, 1993; McNeilly-Choque, *et al.*, 1996; Österman, *et al.*, 1994; Schuster, 1996; but see Olweus, 1993a; Rigby, 1996, for different conclusions). If this is so, it is possible that the agonic mode is more prevalent in those schools than the ones investigated in the present research, and that physical victimisation would be more strongly related to maladjustment than here. The present research contributes to the literature in demonstrating aspects of the victim cycle which have not previously been investigated in the population studied. Future research would benefit from replication of the methods used among samples of children among whom the victimisation-adjustment association has not been studied so extensively, such as adolescents and infants, or children in multi-ethnic or private schools.

The schools whose pupils participated in the present research were generous enough to allow the investigator to disrupt their lessons for weeks on end. But the progress of the participants' education in these schools had to be a greater priority than, and in some ways placed limitations on, the smooth progress of the research. One of these limitations was that data collection at both time points was spread over several weeks, raising doubts about whether Time One should take a singular or a plural verb. But no participant's Time Two data were collected earlier than 244 days (approximately 8 months - or over twice the length of the longest gap between collecting different types of data at Time One) after the equivalent Time One data. A second limitation was imposed by changes in most of the schools at Time Two. One school dropped out; participants from three class groups were dispersed into different classes; and data collection was only possible in group sessions at three schools. All these variations in procedure across participants and schools may have affected the validity of the results. But these alterations did not seem to affect greatly the extent to which participants, relative to each other, saw themselves (or - even more so - were seen by their peers) as victims, as all forms of victimisation were stable over the ten months. And intuitively it is more likely that the changes increased the "noise" in the data, rather than making distress seem more strongly related to certain experiences of victimisation than it actually was. Future research would benefit from greater control of procedural factors, although the nature of research in schools can make this difficult.

Additional implications for research

There are also several issues not raised in this thesis which are not exactly limitations, but which would (according to the present results) be worth investigating in the future. One is that social rank theory has great potential as a theoretical context for research on peer

victimisation. To date the main concern of social rank theorists has been with accounting for adult psychopathology such as depression (Gilbert, 1992; Price, *et al.*, 1994). They have not applied the theory specifically to children. They have not articulated at length the likely processes involved in rank-related victimisation, nor those by which a lack of belonging is related to depression. Social rank theory is not a fixed set of ideas, but is evolving constantly (c.f. Price, 1972, 1988; Gardner, 1982; Gilbert, 1989, 1990, 1992, 1997; Price & Gardner, 1995). The present thesis has demonstrated the utility of applying social rank theory to peer victimisation. Its concepts could be developed further to give a fuller explanation of the phenomenon, and one way to develop them would be to draw on other, conceptually related theories (e.g., Baumeister & Leary, 1995; Birtchnell, 1996).

Victimisation is not the only type of peer relationship problem to which social rank theory may be applied. Themes of power and belonging are also evident in children's dominance relations (Omark, Strayer, & Freedman, 1980) or peer group status (Asher & Coie, 1990). Aspects of dominance and peer status have been included in the victim cycle, but there is greater scope for investigating their implications for social rank theory (Hawker & Boulton, 1994; Hawker & Boulton, 1996a). J. Parkhurst (personal communication, April 1997) has suggested that the developmental implications of dominance relationships have been neglected, and a recent discussion among some of the leading experts in the study of peer rejection pointed to the importance of investigating its relationship with peer victimisation (Coie & Pepler, 1997). Social rank theory offers a conceptual framework for integrating research on aggression, victimisation, dominance, peer rejection, social withdrawal, and their relationship with internalising problems. Future work could make use of social rank theory to integrate research on these variables.

The magnitude of the relationships between victimisation and maladjustment was generally small in this thesis. Correlations were moderate, often lower than $r = .3$, corresponding to less than 10% of variance shared between victimisation and maladjustment. The meta-analysis in Chapter Two showed that similar effect sizes are common in related research. Does this undermine the importance of the victim cycle? Not necessarily - Rosenthal (1990) showed that even smaller effect sizes can have great clinical significance, and the children studied here who initially saw themselves as victims seemed far more likely than non-victims to be depressed at follow-up. The low percentages of variance shared between victimisation and maladjustment show that, while these experiences influence each other to some extent, there are many variables which need to be measured if larger proportions of the variance are to be explained. Such variables might include family and attachment influences on the development of victimisation (e.g., Bowers, *et al.*, 1994; Smith, *et al.*, 1997; Troy & Sroufe, 1987), perceptions of dyadic relationships between aggressors and victims (Haselager, 1997; Pierce & Cohen, 1995), cognitive biases among certain types of victims (Graham & Juvonen, *in press*), and influences of the physical environment on victims' social interaction (Pierce & Cohen, 1995). It is an onerous task to measure all these variables, but future studies of the relationship between victimisation and maladjustment would benefit from taking at least some of them into account. As Sameroff (1987) noted, in a discussion of transactional models, children's development is determined by a multiplicity of factors.

It is important to demonstrate not only what victimisation is related to, but also what it is not related to. The internalising forms of maladjustment assessed in this thesis were relatively homogenous, although entirely consistent with social rank theory and with

empirical research into the adjustment of victims. Other forms of maladjustment commonly measured in the peer relations literature, as outcomes of peer relationship problems, include externalising problems and poor adjustment to school (Parker & Asher, 1987). The relationship of victimisation with these forms of maladjustment, alongside internalising distress, has been studied in the past (e.g., Kochenderfer & Ladd, 1996b; Olweus, 1993b), and should continue to be studied in the future - particular with regard to how they might connect with the victim cycle.

Aggression is one form of externalising maladjustment whose overlap with victimisation was not accounted for in the present research. Most victims are submissive or non-aggressive, but a minority are aggressive (e.g., Alsaker, 1997; Farrington, 1993; Graham & Juvonen, in press; Olweus, 1978; O'Moore & Hillery, 1991; Perry, *et al.*, 1988; Perry, *et al.*, 1992; Smith, *et al.*, 1993). It has often been argued in empirical studies that aggressive victims should be considered separately from non-aggressive victims. It is not a great limitation of the present research that this was not done, however. The available empirical studies suggest that aggressive victims are no more and no less socioemotionally maladjusted than non-aggressive victims (Alsaker, 1997; Austin & Joseph, 1996; Graham & Juvonen, in press; Haselager, 1997; Kochenderfer & Ladd, 1997a; Mynard & Joseph, 1997; O'Moore & Hillery, 1991). The difference between the two types of victims seems rather to be that aggressive victims have greater externalising problems (Schwartz, Dodge, Pettit, & Bates, in press; Haselager, 1997; Kochenderfer & Ladd, 1997a). Externalising problems are common among peer-rejected children (Coie, *et al.*, 1990), and probably provoke further aggression against those who display them (Kochenderfer & Ladd, 1997b) - indeed, Olweus (1993a) has called aggressive victims "provocative victims". Boivin and

Hymel (1997) found statistical evidence that peer unpopularity and victimisation mediated the pathway from aggressive, as well as withdrawn, behaviour to internalising problems. Thus it is possible that aggressive victims are caught up in a different cycle from that displayed in Figure 12.1 - or a double cycle, in which their victimisation is maintained by both externalising and internalising problems.

Summary

Victims of peer aggression showed greater socioemotional distress than non-victims. Victimization appeared to lead to increasing distress, and the distress to increasing victimisation. The effects were stronger, in both directions, for psychological than for physical victimisation. Social rank theory presented a framework for explaining these results, and it was suggested that victims are caught up in a transactional cycle which maintains their victimisation. Several predictions derived from the cycle could be used to test its validity and to guide professionals in work against bullying.

School staff, pupils, and parents need to be made aware that psychological forms of bullying can be damaging - and even more emotionally damaging than physical forms. Bullying is typically seen by children and adults as consisting of physical aggression, though most of them also agree that it can include subordinal aggression (Arora, 1996; Boulton, 1997; Guerin, 1996; Hawker & Boulton, 1996b; MacLeod & Morris, 1996; Madsen, 1996). But several studies have shown that only a minority of children and adults agree that relational aggression can be bullying (Boulton, 1997; Hawker & Boulton, 1996b; MacLeod & Morris, 1996) or that it is as important to reduce as physical or subordinal aggression (Warden, *et al.*, 1996). By focusing specifically on something called "bullying",

in separate anti-bullying policies, schools may fail to teach children that relational victimisation can be upsetting.

It may be more appropriate for a school to include relational aggression as an unacceptable, and harmful, type of behaviour within its behaviour policy. Children should benefit if all adults connected to children's welfare in schools, including teaching staff, playground supervisors, and parents, are made aware of the importance of subordinal and relational victimisation, and encouraged to identify it, and to intervene to stop it as readily as they would stop physical violence among children. Children should also benefit from being taught about the importance of subordinal and relational victimisation in the curriculum, and being given a chance to explore how they would feel if bullied in these ways. The present research has suggested that socioemotional distress contributes to the maintenance of victimisation. Awareness among adults and children of the signs of socioemotional distress, and how to support distressed children, should help reduce victimisation.

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Appendix I

Meta-analytic procedure

This appendix gives full details of the procedure used in the meta-analytic review of contemporaneous victimisation-maladjustment associations presented in Chapter Two. Pearson's r was chosen as the measure of effect size (Rosenthal, 1984). Direct estimates of r were available from some studies as Pearson's r s (Alsaker, 1993; Austin & Joseph, 1996; Boivin & Hymel, 1997; Boivin, *et al.*, 1995; Callaghan & Joseph, 1995, for maladjustment of self-assessed victims; Kochenderfer & Ladd, 1996a; Mynard & Joseph, 1997; Neary & Joseph, 1994, for maladjustment of self-assessed victims; Rigby & Slee, 1992; Slee, 1994a, 1994b, 1995c; Vernberg, 1990), multiple R s (Crick & Grotpeter, 1996) or ϵ s (Olweus, 1978). When r s were not available (Björkqvist, *et al.*, 1982; Boulton & Smith, 1994; Byrne, 1994; Callaghan & Joseph, 1995, for maladjustment of peer-assessed victims; Neary & Joseph, 1994, for maladjustment of peer-assessed victims; O'Moore & Hillery, 1991; Sharp, 1996; Slee & Rigby, 1993b), r s were computed from the statistics reported by the authors, according to formulae provided by Rosenthal (1984). As effect sizes were r s, they were based on correlations between a continuum of victimisation, and internalising maladjustment. In terms of a categorical test, these r s amounted to a comparison of victims with non-victims. In some studies (Björkqvist, *et al.*, 1982; Boulton & Smith, 1994; Lagerspetz, *et al.*, 1982; Olweus, 1978) victims were compared with more tightly defined groups, such as bullies, well-adjusted children, or not-involved children. In these studies, effect sizes (ω s, equivalent to r s - Howell, 1992) were calculated from the omnibus F s (if available) from analyses in which data from all groups of participants had been included. Omnibus F was not available in Lagerspetz, *et al.* (1982) and Slee and Rigby (1993), but means and standard deviations within groups were. From these, r s were

computed via omnibus F s (for Lagerspetz, *et al.*, 1982), and Hedge's g (Rosenthal, 1984; for Slee & Rigby, 1993).

The present author calculated Z -statistics, and mean effect sizes and significance levels, using formulae provided by Rosenthal (1984) and Strube (1985), and tables for Fisher's transformation of r to r' (necessary for the computation of unbiased mean effect sizes) from Howell (1992). When effect sizes were reported separately for more than one independent group of participants (e.g., males and females in Slee, 1994a, 1994b, 1995b, 1995c), the means of the r s and Z s reported or computed, were displayed in the meta-analysis. When more than one test of the same hypothesis was carried out within the same study on a single group of participants (Alsaker, 1993; Boivin, *et al.*, 1995; Crick & Grotpeter, 1996; Slee, 1994b; Kochenderfer & Ladd, 1996a; Vernberg, 1990), mean r s were calculated using Rosenthal's (1984) formula, and mean Z s using Strube's (1985) adjusted formula for non-independence of hypotheses. Correlations between repeated measures were used in adjusting for dependence, as recommended by Strube (1985). There was one instance in which different analyses of the same data set had been published separately (Boivin & Hymel, 1997; Boivin, *et al.*, 1995). When effect sizes could be estimated from both publications (as for loneliness) they were taken from the study with the larger data set (Boivin & Hymel, 1997). When more than one test had been carried out, but full details (i.e., statistic and, if necessary, sample size) had not been reported (Björkqvist, *et al.*, 1982; Callaghan & Joseph, 1995; Olweus, 1978), the present author computed the smallest possible effect size from the results available. This was not possible in Callaghan and Joseph's (1995) study, as they published only the maximum effect sizes in their report, and so these were used instead.

Appendix II

Behaviour Target Questionnaire

Behaviour Target Questionnaire interview

The BTQ-I was administered in an individual interview with each participant, whose responses were marked on the response sheet shown on the following two pages (and reduced in size by 75% to conform to the presentational format of this thesis). This was the response sheet used at Time One. At Time Two this procedure was streamlined to facilitate data entry, and the response sheet displayed a class list and a column for each type of peer nomination. But the information recorded was essentially the same as on the response sheet shown here.

Stimulus cards were used in collecting the data for the BTQ-I. Each item was mounted on a separate laminated white card, 155mm x 600mm. The text of each item was printed in black, bold, type and in Helvetica 36pt font (i.e., with capitals 9mm high). There were three stimulus cards for the assessment of perceived distress responses, but full descriptions of these are not given here because the data are not presented in this thesis. Each of the three forms of victimisation was represented on a stimulus card of similar format to the stimulus cards for each of the BTQ items, with a label for the form of victimisation displayed in bold black block capitals on the card (Helvetica font, 48pt). Physical victimisation was labelled as "TOUCH", subordinal victimisation as "PUT DOWNS", and relational victimisation as "LEAVE OUT". These three cards will be referred to as **victimisation form cards**.

My good and bad experiences

Name: _____ Age: _____

School: _____ Date: _____

Girl Boy

ITEM	Happen,			Upsetness, (rank)			Bullying? (Tick)
	a lot	some	not much	very	bit	not	
1	No-one will talk to you						
2	Someone gives you a sweet						
3	Someone says, "You're not my friend"						
4	Someone asks you for help						
5	People won't let you play with them						
6	Someone steals something from you						
7	Someone says they like you						
8	You get called names						
9	Someone pushes you						
10	Another child says you're no good at something						
11	Everyone has a secret and they won't tell you						
12	You get punched						
13	You get teased						
14	Another child throws something at you						
15	You get kicked						
16	Another child comes and sits by you						
17	Another child tells you to do something you don't want to						
18	Another child laughs at you						

Key: a lot = a lot; some = sometimes; not much = not much
 very = very upset; bit = a bit upset; not = not at all upset

Now I'm going to ask you about the people in your class. See if you can tell me anyone who gets LEFT OUT of things? who gets things like this [indicating relevant pile] happening to them?.

How would you feel if things in that set happened to you?

Who gets PUT DOWN - that is, gets things in the PUT-DOWN pile happening to them?.

How would you feel if things in that pile happened to you?

Who gets hurt by being touched - that is, by having things in the TOUCH pile happening to them?.

How would you feel if things in that pile happened to you?

And these things in the TOUCH pile - are any of them bullying things? Would they be bullying if they happened to anyone?

Are things in the PUT-DOWN pile bullying? Which things?

Are things in the LEAVE OUT pile bullying? Which things?

Do you get bullied?

BTQ-I protocol

This following is an instruction sheet for administration of the BTQ-I. Underlined text represents verbal instructions given by the interviewer to the participant. Italicised text indicates phrases given special emphasis given in the reading of these instructions. Text in square brackets is replaced by a proper noun appropriate to the interviewee. Normal text represents instructions for the interviewer's use only.

I'm trying to find out about things people do to each other in school, and whether people think they're nice or nasty, and things like that. On these cards I've got things that might sometimes happen to you when you're with other children in school - or they might not happen at all. Say this while shuffling through the stimulus cards so the participant can see them briefly. What I'm going to ask you about is: how much they happen to you; what they'd make you feel like if they did happen to you; who do you know who gets these things happening to them; and whether any of these things are bullying things.

I've asked [your teacher] if you can talk to me, and I sent a letter to your Mums and Dads /parents to ask if it's OK to me to talk to you, but even if they say it's OK, you don't have to talk to me - it's up to you whether you want to talk to me or not. If you don't want to talk to me, that's OK. You're allowed to say at any time that you don't want me to ask you any more questions. All you have to do is tell me. That's all right. So is it OK to ask you about these things? Give this full explanation of consent at the first encounter with the participant; subsequently restrict it to the last four sentences.

Everything you tell me will be private (confidential in secondary schools) - I won't tell anyone else in school what you told me. I'm not going to go around saying that [you] said this, or that anyone said something about [you]. I might say that this is what [your class] said, but I won't say who said it or anything like that. So I'd like you not to tell anyone else what you told me. But, what I say, that's *not* private - you can tell anyone you like what I said and did. That's not a secret. It's just what you said to me that I want to keep private. OK? Give the preceding full explanation of confidentiality at the first encounter; subsequently modify it as follows. What you tell me is *private*, so I won't tell anyone about what you told me, and I'd like you not to tell anyone what you told me; but what I say is *not private* - you can tell that to anyone you like.

There aren't any right or wrong answers here - it's not like a test. And if you don't know what I mean any time, just tell me, then I can say what I mean. Think about what it's like if other children in school do these things. Not any grown-ups, or any children at home - just children in your school - OK?

Some of these things might *not* happen *much* to you; some of them might just happen *sometimes*; some of them might happen *a lot*. When you're with other children in school, how much does it happen that no-one will talk to you? Not at all, or sometimes, or a lot?

Show the participant each BTQ item on the appropriate stimulus card, one by one, in the predetermined random order indicated on the score sheet (reversed for approximately half the participants at Time Two), asking him or her to rate each item in a similar manner. Record their responses in the appropriate column of the response sheet (marked with the

subscript a in the response sheet shown here). Read items to secondary school children; ask primary school participants to read them out loud at the first presentation, in order to draw attention to any items which they have difficulty reading. If a participant hesitates over a word, or reads it inaccurately, then read it out to him or her (or correct the mistake), and continue to read out the whole item whenever it is subsequently presented to the same child. Ask participants who give responses other than "a lot", "sometimes", or "not much", to clarify what they mean, by repeating to them the options (except for "always", which is assumed to mean "a lot"; or "never" or "not very much", or "not a lot" which are all taken as meaning "not much"). When reading items, make every effort to ensure that each is read out in the same tone of voice. If a participant asks for an explanation of what an item means, give explanations which repeat the information on the card, without embellishment.

Ratings and rankings of perceived distress responses follow (column marked b). Since these are not the focus of the thesis, the protocol is not presented here in detail, although a brief description of the procedure follows as a context for the subsequent questions. Ask the participant to place each item in one of three piles or sets, to indicate how upset he or she would feel if experiencing the item. Then ask the participant to rank the items within each set from the most upsetting to the least upsetting.

Now it's my turn to put these in piles. And I've got one set called "TOUCH", which is for nasty (replace nasty with bad for secondary school children) things where you get hurt by being touched. And one called "LEAVE OUT", which is for nasty things where you get left out. And one called "PUT-DOWNS", and that's for nasty things where you don't get

touched, but someone tries to show that they're bigger or better than you, and they try and make you look smaller or not as good as them.

Illustrate the differences among the three forms of victimisation by placing each of the items sequentially below the appropriate victimisation form card (see Table 6.4 to match items to cards). Encourage the participant to engage actively in this process, because pilot work suggested that otherwise children tended to nominate peers as victims of individual items in each category, rather than as victims of each category as a whole. First give examples of each form of victimisation by placing one of the relevant items from Table 6.4 under each of the three victimisation form cards. Then ask the participant to guess where each subsequent item would be placed.

If the guess disagrees with Table 6.4, explain why the item belongs to the category indicated, in terms of the definition of the appropriate form of victimisation - e.g., for subordinal victimisation items, say, I thought that would be a put-down, because someone would be trying to show that they were bigger or better than you, and trying to make you look smaller or not as good as them; for relational victimisation items, say, I thought that would be a left out thing because if no-one would talk to you at all then you'd be left out on your own with no-one to talk to; for wrongly-placed physical victimisation items, repeat that you'd get hurt by being touched. For "Another child throws something at you", say, though they're not touching you, the thing they're throwing would be touching you, so you'd get hurt by being touched. For the item, "Another child tells you to do something you don't want to do", say, I thought that would be a bit like a dare with your friends trying to get you to do something to get in with them, and if you didn't do it, then they

might leave you out. Go through the items in the sequence they are left in after the ranking of perceived distress responses, and do not classify the four filler (prosocial target) items.

Repeat the following procedure¹ in collecting peer nominations for each form of victimisation (see subscripts c). Give the participant the opportunity to nominate names first, as pilot work suggested that immediately going through the class list produced low nomination rates. After names are no longer forthcoming, ask the participant to look at the class list, to ensure that no peers are forgotten. Read out loud the names to participants identified by the investigator as slow or inaccurate readers, or have them read the list out loud. Participants are allowed to nominate themselves as targets.

Follow peer nominations for each form of victimisation with a question about the participant's perceived distress response to that form. Follow peer nominations with questions about whether the participant sees the items as examples of bullying, and a final question about whether the participant is bullied or not. The responses to these questions were not investigated in this thesis because there were enough data without them, and so these procedures are not described more fully.

¹Approximately a third of participants were asked first about physical victimisation, then about relational victimisation, and then about subordinal victimisation. Approximately a third were asked first about subordinal, then about physical, and then about relational victimisation. The remainder were asked first about relational, then about subordinal, and then about physical victimisation. Three different versions of the BTQ-I response sheet were developed to ensure that sufficient participants would give peer nominations in each of these three orders, which were then randomised among participants. The version shown is for the first order of presentation.

Behaviour Target Questionnaire group interview: First part (self-ratings)

The first part of the BTQ-G is shown on the next six pages. The questionnaire presented to participants took the form of a three-page, double-sided A4 booklet, stapled twice in the left margin, and was reduced in size by 82% in order to fulfil presentation requirements of this thesis. Instructions on the first page were read out to participants, who were then allowed to complete the BTQ-G at their own pace.

My good and bad experiences

Name: _____ Date _____

This is a sheet asking about some of the things I asked you about last year, on your own. They're all things that might sometimes happen to you when you're with other pupils in school. Or they might not happen at all. But only you can tell me about these things - there are no right or wrong answers - again!

And again, everything you write here will be private - so don't show other people what you're writing. If there's anything you don't want to answer, again you don't have to. And if there's anything you don't understand, make sure you tell me.

Think about what it's like if other children in school are doing these things - not any children at home, and not any adults doing them - just other children in school.

The first thing I'd like to know is how much each of these things happen to you. You've got three choices of box to tick: some of them might happen a lot to you. Some of them might happen sometimes, and some of them might not happen much. Make sure you tick a box for each question, and make sure that it's only one box that you tick.

So, think how much each of these things happens to you when you're with other children in school. Now you can turn over.

1. No-one will talk to you

- happens a lot
- happens sometimes
- does not happen much

2. Someone gives you a sweet

- happens a lot
- happens sometimes
- does not happen much

3. Someone says, "You're not my friend"

- happens a lot
- happens sometimes
- does not happen much

4. Someone asks you for help

- happens a lot
- happens sometimes
- does not happen much

5. People won't let you play with them

- happens a lot
- happens sometimes
- does not happen much

6. Someone steals something from you

- happens a lot
- happens sometimes
- does not happen much

7. Someone says they like you

- happens a lot
- happens sometimes
- does not happen much

8. You get called names

- happens a lot
- happens sometimes
- does not happen much

9. Someone pushes you

- happens a lot
- happens sometimes
- does not happen much

10. Another child says you're no good at something

- happens a lot
- happens sometimes
- does not happen much

11 Everyone has a secret and they won't tell you

happens a lot

happens sometimes

does not happen much

12 You get punched

happens a lot

happens sometimes

does not happen much

13 You get teased

happens a lot

happens sometimes

does not happen much

14. Another child throws something at you

happens a lot

happens sometimes

does not happen much

15 You get kicked

happens a lot

happens sometimes

does not happen much

16 Another child comes and sits by you

happens a lot

happens sometimes

does not happen much

17 Another child tells you to do something you don't want to do

happens a lot

happens sometimes

does not happen much

18 Another child laughs at you

happens a lot

happens sometimes

does not happen much

Now the next thing I want you to do is to say how upset you would be if each of these things happened to you.

Some of them might not make you upset at all. Others might make you a bit upset. And some might make you very upset.

But even for the things that never happen to you, just think how upset they would make you if they did happen to you.

Again, make sure you tick a box for every question, and make sure you only tick one box for each question.

Now you have read this, you can turn over.

1. No-one will talk to you

- very upset
- a bit upset
- not at all upset

2. Someone gives you a sweet

- very upset
- a bit upset
- not at all upset

3. Someone says, "You're not my friend"

- very upset
- a bit upset
- not at all upset

4. Someone asks you for help

- very upset
- a bit upset
- not at all upset

5. People won't let you play with them

- very upset
- a bit upset
- not at all upset

6. Someone steals something from you

- very upset
- a bit upset
- not at all upset

7. Someone says they like you

- very upset
- a bit upset
- not at all upset

8. You get called names

- very upset
- a bit upset
- not at all upset

9. Someone pushes you

- very upset
- a bit upset
- not at all upset

10. Another child says you're no good at something

- very upset
- a bit upset
- not at all upset

11 Everyone has a secret and they won't tell you

- very upset
- a bit upset
- not at all upset

12 You get punched

- very upset
- a bit upset
- not at all upset

13 You get teased

- very upset
- a bit upset
- not at all upset

14. Another child throws something at you

- very upset
- a bit upset
- not at all upset

15 You get kicked

- very upset
- a bit upset
- not at all upset

16 Another child comes and sits by you

- very upset
- a bit upset
- not at all upset

17 Another child tells you to do something you don't want to do

- very upset
- a bit upset
- not at all upset

18 Another child laughs at you

- very upset
- a bit upset
- not at all upset

The last questions are about bullying. I want you to decide whether each of these things is bullying, or not. You must tick only one of the boxes - if you think it's inbetween, you must decide whether it's more like bullying, or more like not bullying.

Now you can turn over.

1. No-one will talk to you

- bullying
 not bullying

2. Someone gives you a sweet

- bullying
 not bullying

3. Someone says, "You're not my friend"

- bullying
 not bullying

4. Someone asks you for help

- bullying
 not bullying

5. People won't let you play with them

- bullying
 not bullying

6. Someone steals something from you

- bullying
 not bullying

7. Someone says they like you

- bullying
 not bullying

8. You get called names

- bullying
 not bullying

9. Someone pushes you

- bullying
 not bullying

10. Another child says you're no good at something

- bullying
 not bullying

11. Everyone has a secret and they won't tell you

- bullying
 not bullying

12. You get punched

- bullying
 not bullying

13. You get teased

- bullying
 not bullying

14. Another child throws something at you

- bullying
 not bullying

15. You get kicked

- bullying
 not bullying

16. Another child comes and sits by you

- bullying
 not bullying

17. Another child tells you to do something you don't want to do

- bullying
 not bullying

18. Another child laughs at you

- bullying
 not bullying

Behaviour Target Questionnaire group interview: Second part (peer nominations)

The second part of the BTQ-G is on the following two pages. It took the form of a double-sided sheet of A4, which was reduced by 75% in size here to conform to presentational requirements. Names have been blanked out here, but were listed in first-name alphabetical order in the leftmost column of the grid. In school F, these were the current classmates of the participant; in schools B and C they were the children who had been classmates of the participant at Time One. Instructions on the first page were read out to participants, and they were asked to turn over and place ticks against names of their peers as indicated.

Name: _____ Date: _____

On the next page is a list of the other people in your form group.
I want you to answer 5 questions about them. Each question is at the top of a column.

The first question is about being left out. Being "left out" includes things like when no-one will talk to you, or when people will not let you be friends with them, or will not let you play with or hang around with them, or when everyone has a secret and won't tell you, or when another child tells you to do something you don't want to do. Put a tick in this column next to the name of anyone who you think gets left out by other people.

The second question is about getting hurt by being touched, and includes things like being kicked, punched or pushed, or when someone throws something at you. Put a tick in the second column by the name of anyone who you think gets hurt by being touched, in these ways or any others.

The third question is about being put down. This is for when you don't get touched, but someone tries to show that they are bigger or better than you, and tries to show that you are smaller or not as good as them. Examples include things like being called names, or teased, or when another child laughs at you, or says you're no good at something, or steals something from you. Put a tick next to the name of anyone who you think gets put down in these ways or others.

The fourth question asks you to say who you hang around with most of the time. Sometimes people hang around in twos, sometimes in groups, sometimes on their own. You might hang around with several people on the list, or perhaps with none of them, if your friends are in other registration groups or teaching groups. Think of the group of people that you hang around with most of the time, and put a tick next to each person in that group who is on the list the next page, in the fourth column.

If you know any other groups of people who hang around together, you can make a list of the people in those groups in the space at the bottom of this page or the next page. Draw a circle around each separate group of people who hang around together.

The fifth question is about people who get bullied. Put a tick in the fifth column against the name of anyone who you think gets bullied.

The sixth question is about how much you see of the people on the list. Since you all have different friends, and since you don't spend all your time in lessons with all of these people, you may see some of them a lot, and some of them hardly ever. In the last column of the table, write a number between 0 and 6 by the name of each person to show how often you see him or her. 0 means you never see them. 6 means you see them all the time. All the other numbers you could use are somewhere in between these two extremes.

Your answers will be confidential, so make sure you keep them to yourself and do not discuss them with other people.

Appendix III

Ethical problems and procedures

Ethical procedures for following up distressed children

During the course of the research a number of participants came to the attention of the investigator as victims of extreme bullying, or as suffering extreme depression or anxiety. The manuals of the RCMAS and the CDI recommend that children scoring above specific cut-off points, or endorsing certain responses, be followed up. These manuals were not available to the investigator until after most of the BTQ-I data had been collected at Time One. Once their recommendations became clear it was necessary to develop a procedure for dealing with cases of extreme distress. The procedure was then applied also to cases of victimisation and other social relationship difficulties reported by participants. Participants who reported severe problems were questioned further, using basic listening techniques, in order to determine and verify the likely extent and causes of the problem. If the problem was still judged serious and pervasive, the participant was asked whether they would like the investigator to ask an appropriate teacher to talk with the participant about it. If participants said they would, the investigator made an agreement with them about the information they were willing to have passed on to the teacher, and passed on the agreed information at the next available opportunity. No intervention was carried out if participants would not give consent, except in three extreme cases where the participants were deemed to be at serious risk. Two of these participants expressed serious suicidal thoughts (see below), and a third had long-standing behavioural and emotional problems. These participants did not refuse consent; it was just that they did not actively give it.

Suicidal thoughts

A specific ethical problem arose around the issue of suicidal thoughts. As noted in Chapter Six, one of the items on the Children's Depression Inventory (Kovacs, 1992) refers to suicidal thoughts. This item was initially retained in the inventory used in the present research, in order to maintain its purity as a measure of depression. During the early stages of administering the socioemotional maladjustment battery, nine participants endorsed the statement, "I want to kill myself". Five of these were in Year Four, and four were in Year Seven.

At this point the investigator sought advice from professionals such as clinical psychologists, teachers, social workers, an educational welfare officer and *The Samaritans* about an appropriate course of action. There were two decisions to be made: what should be done with the item? and what should be done about the children who had endorsed the suicidal response?

The suicidal item was dropped after these consultations - not because in itself it represented a risk to children, but because of the ethical problems it presented in following up those who expressed suicidal thoughts. Some adults may feel that children of the ages studied here are too young to think about suicide, and that asking them about it will give them ideas about harming themselves. But research suggests that children are quite aware of what suicide is, and are frequently exposed to it in the media (Berman & Jobes, 1992). Despite this frequent exposure, Berman and Jobes (1992, p103) stated that "There is no conclusive evidence that there is a media...impact on subsequent suicides among the young...recent studies...have found no evidence of imitative effects of TV presentations on

suicide." Exposure to suicidal behaviour in the media does not lead children to engage in it, and neither does talking about it:

it is well established that talking about suicide will not put the idea into a person's head; on the contrary, it will reduce the risk.

Eldrid (1988, p22)

It was also clear from consultations with professionals that the investigator had a duty to ensure that another adult knew about any children with serious suicidal intent. It was considered that this duty was one which for research purposes was best avoided in future, by not including the suicidal item in the CDI, and so it was subsequently crossed out on each copy of the inventory (although this did not prevent one Year Seven respondent from endorsing the suicidal response at Time Two). Plans were made, using the general procedures outlined at the start of this appendix, to follow up the participants who had endorsed the suicidal response.

The CDI is designed as a reliable and valid predictor of behaviour from aggregated responses across items, not from responses to single items. Since depressed affect tends to predict suicidal behaviour (Baumeister, 1990; Hawton, 1987), the children most at risk were likely to be those who both endorsed the suicidal response and had CDI scores above 19 (recommended by Kovacs, 1992, as the cut-off point for following up respondents).

One of the Y7 participants who endorsed the suicidal response moved to a different school before the investigator could make contact with him, but since he had a CDI score of only

14 he was not deemed essential to follow up. The other nine participants who endorsed the response (including the one who endorsed it at Time Two) scored 19 or above on the CDI. All of these were seen individually, within weeks of completing the CDI, most of them in order to collect sociometric data which were not reported in this thesis because of its limited space. They were first reminded that they had said they wanted to kill themselves, and then asked whether they really meant it. Seven participants denied they had expressed suicidal thoughts, or said they had been joking, and so were not asked any further questions about suicidal feelings. Two participants affirmed that they did sometimes want to kill themselves.

Both these suicidal children were in Year Four. Endorsement of the suicidal response is not, at their age, an accurate prediction of suicidal behaviour - McClure (1994) noted that between 1960 and 1990 there were no recorded suicides of children aged younger than ten. But their feelings were taken seriously. Both participants said that they sometimes thought about killing themselves because of family problems, but neither had ever been so suicidal that they had attempted suicide, or thought about how they might go about it. These participants were encouraged to tell an adult when they had suicidal thoughts, and both said that they could think of one whom they would be willing to tell. The investigator subsequently talked to each child's head teacher. Both head teachers were aware of the nature of the children's problems (if not specifically their suicidal thoughts) and said they would attend to them.

As noted earlier, neither of these participants explicitly gave their consent for confidentiality to be broken. However, neither of them reproached the investigator for

having broken confidentiality, and both willingly participated in subsequent data collection sessions.

Appendix IV

Loneliness and Social Dissatisfaction Scale

On the next six pages is the questionnaire used in this study to measure loneliness, which was based on Asher and Wheeler's (1985) loneliness and social dissatisfaction scale. The questionnaires given to participants¹ took the form of a booklet made up of three double-sided pages of A4, stapled together twice in the left hand margin. The instructions on the first two pages were read out to the participants. The investigator encouraged them to use the practice items, and emphasised that they should consider all the available responses before choosing the one which was most true of them. References to "kids" in the original scale were changed to refer to "children" here, and the original statement, "I like science" was replaced by "I like maths".

¹The size of text was reduced by 75% here, in order to conform to thesis presentation requirements.

Name: _____

Date:

School

This form is about things you like and do in school, and stuff like that. It's full of sentences like, "I like going home", and, "I like roller-skating". Each sentence has FIVE boxes under it. Every time you read a sentence, I want you to pick one of the boxes under it that says how true the sentence is about you. Put a tick in the box that you pick.

You don't have to do answer these questions if you don't want to, but if you do want to, then make sure you answer all of them.

Here is an example.

I like roller-skating				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

You need to think how true it is to say that you like roller skating. If it's always true to say that you like roller-skating, you'd put a tick in the box under "always". If you like it most of the time, you'd put a tick in the box under "most of the time". If you like it sometimes, you'd put a tick under "sometimes", and so on.

Over the page there are some more like this for you to try. I'll read them out to you in a moment. There are no right answers or wrong answers - just tick the box that is most true of you under each question. Sometimes it'll be on one side of the page, like, "always", another time it'll be on the other, like, "not at all"; sometimes it'll be in the middle, if it's true sometimes. And sometimes you'll tick the "hardly ever" box, or the "most of the time box". So make sure you look at all the boxes before you decide which one to tick.

Make sure you only tick one box for each question. And make sure you tick the right box for the right question. If you can't decide which box to tick, don't tick more than one box - just tick the box that describes you best.

OK. Try reading these sentences and picking one of the boxes under it that says how true the sentence is of you. And think which box someone else would tick if the answer was different for them.

1. I like watching Neighbours				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. I like eating pencil sharpeners				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. I like school dinners				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Don't start the rest of the questions yet.

I'm not going to tell anyone else what boxes you ticked, because I don't want you to worry if you don't want your friends to know what you're putting. So make sure you keep your answers private - don't let anyone else see what box you've ticked.

Remember to tick the box that's most true of you. Make sure you look at all the boxes before you decide. And don't forget to tell me if you don't understand anything

Tick the box that's most true of you, after looking at all the boxes.
Remember to tell me if you don't understand anything.

1. I eat sweets a lot				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. I like playing with animals				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. I'm pleased when I go swimming				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. It's easy for me to make new friends at school				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. I like to read				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. I have nobody to talk to in class				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. I'm good at working with other children in my class				
always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TURN OVER AND ANSWER THE QUESTIONS ON THE NEXT PAGE...

Tick the box that's most true of you, after looking at all the boxes.
Remember to tell me if you don't understand anything.

8. I watch TV a lot

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. It's hard for me to make friends at school

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. I like school

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. I have a lot of friends in my class

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. I feel alone at school

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. I can find a friend in my class when I need one

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. I play sports a lot

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tick the box that's most true of you, after looking at all the boxes.
Remember to tell me if you don't understand anything.

15. It's hard for me to get children in school to like me

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. I like maths

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. I don't have anyone to play with at school

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. I like music

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. I get along with my classmates

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. I feel left out of things at school

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. There's no other children I can go to when I need help in school

always	most of the time	sometimes	hardly ever	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TURN OVER AND ANSWER THE QUESTIONS ON THE NEXT PAGE...

Tick the box that's most true of you, after looking at all the boxes.
Remember to tell me if you don't understand anything.

22. I like to paint and draw

always most of the time sometimes hardly ever not at all

23. I don't get along with the other children in school

always most of the time sometimes hardly ever not at all

24. I'm lonely at school

always most of the time sometimes hardly ever not at all

25. I am well liked by the children in my class

always most of the time sometimes hardly ever not at all

26. I like playing board games a lot

always most of the time sometimes hardly ever not at all

27. I don't have any friends in class

always most of the time sometimes hardly ever not at all

THE END!! Make sure you've answered everything. Thank you!!

Appendix V

Modifications to wording of instructions for Self-perception Profile for Children

The instructions for the administration of the Self-perception Profile for Children are given in full in Harter's (1985) manual for the instrument. These instructions were read out to the respondents, with the following minor modifications intended to make the instructions more suitable for use with a British sample. The sentence, "This is a survey, *not* a test", was altered to omit the phrase, "a survey"; "kids" was changed to "children"; "sort of true" was changed to "a bit true"; "really true" to "very true"; and "check" to "tick". The response alternatives given by Harter for each item were similarly changed from "sort of true" to "a bit true", and from "really true" to "very true". Each item was read out to the primary school children, and the investigator waited until all respondents had completed one item before reading out the next. Secondary school respondents were permitted to read out the items themselves, as Harter (1985) recommended that children in their age group should.

Appendix VI

Absence of bias in peer reports at Time Two

This appendix describes a brief investigation into the possible effects on peer-reported victimisation, of the dispersion of participants across classes at Time Two. Agreement among peers about the targets of different forms of victimisation was investigated in Chapter Seven (see Table 7.4). The classes in Schools B, C and D had been split up between Time One and Time Two, so that participants who had been in the same class at the beginning of the study saw less of each other at follow-up. These splits raised the question as to whether agreement was affected by the dispersion of participants to different classes at Time Two.

Additional peer-report data were collected from the participants' Time Two classmates in School D. It was therefore possible to compare Kendall's *Ws* calculated from responses of both Time Two classes in School D (including those of their Time One classmates who were also in the same class at Time Two), with *Ws* calculated at Time Two from their previous Time One classmates' responses. All of these *Ws* represent nominations given only to the original Time One participants, and not to peers who were classmates at Time Two but who were not in the original Time One data set. These *Ws* are presented in Table VI. The classes in which the participants were taught at Time Two are denoted Class D1 and Class D2.

Table VI: Agreement among present and former classmates at Time Two, School D

Type of victim nomination		Source of data: Responses given by		
		Time Two Class D1	Time Two Class D2	Original Time One Class D
Subordinal	<i>W</i>	.05	.12	.09
	χ^2	26.26	54.46	76.69
	<i>p</i>	<.04	<.0001	<.0001
Physical	<i>W</i>	.02	.10	.05
	χ^2	10.18	45.16	42.62
	<i>p</i>	>.1	<.0001	<.05
Relational	<i>W</i>	.13	.13	.14
	χ^2	65.41	55.77	112.12
	<i>p</i>	<.0001	<.0001	<.0001

Agreement among the original participants was often as strong, and in some cases apparently stronger, than agreement among these participants' Time Two classmates. Although agreement among children from Class D2 about Time One participants' physical victimisation was perhaps even stronger than agreement among the original participants, the agreement among children from Class D1 was relatively poor.

When these results are compared with those displayed in Table 7.4, it can be seen that at Time Two former (Time One) classmates in Schools B, C and D still agreed about who was victimised in each way, even though many of them were no longer taught together. These results suggest that the reliability of peer nominations was not reduced by the splitting of some classes at Time Two. Therefore there were justifiable reasons for using peer reports to index victimisation at Time Two as well as at Time One.

Appendix VII

Further analyses of the validity of self-reported victimisation subscales

Section 7.1 discussed evidence for the validity of the self-report subscales for the three forms of victimisation. One might expect more compelling evidence to be available from factor analytic studies. The results of factor analyses, which were rather complex, are discussed briefly in this appendix along with other empirical evidence for the validity of the self-report subscales.

Factor analysis of BTQ

Several types of factor analyses were carried out on the participants' Time One responses to the BTQ items. As Tabachnick and Fidell (1996) recommended, a variety of criteria were used to determine the appropriate number of factors to extract. Solutions based on two to five factors, and both orthogonal and oblique rotations, were attempted.

No clear, consistent or interpretable pattern of factors emerged from these analyses. For instance, in one solution some physical victimisation items loaded on the same factor as subordinal victimisation items, while others loaded on factors with relational victimisation items. In another solution subordinal and relational victimisation items loaded on the same factor. In fact there was little evidence that solutions were reliable, as eigenvalues and communalities were all fairly low.

The absence of a clear factor structure does not mean that the different forms of victimisation were not distinct. Solutions of factor analyses are often difficult to interpret, especially when the number of items and their range of values is low, as is the case here.

Moreover, the raw data for factor analysis are more usually attitudes or behaviour than experiences. Different experiences of victimisation co-occur empirically (Alsaker, 1993; Crick & Bigbee, in press; Crick & Grotpeter, 1996; Kochenderfer & Ladd, 1996b; Ku, 1997; Chapter Seven, this volume) and hence are likely to be correlated in factor analyses. So there may be more appropriate methods than factor analysis of victimisation experiences for empirically distinguishing different forms of victimisation. These include the methods described in Chapter Seven and those summarised below.

Additional evidence for validity

Participants were also asked about their perceived distress responses to BTQ items, and about whether they thought each item was an example of "bullying" (see section 6.2.1 and Appendix II). Factor analyses consistently separated distress responses to physical victimisation from those to psychological victimisation. All three forms of victimisation were consistently separated in factor analyses of whether or not the BTQ items were seen as instances of bullying.

Further evidence was available from a classification study (Hawker & Boulton, 1996c). 41 seven- to nine-year-old children from a separate sample were given definitions of each form of victimisation and asked to decide which category of victimisation each antisocial BTQ item belonged to. Their responses largely agreed with the classification outlined in Table 6.4 and used to define subscales. Finally, an analysis compared the correlations of BTQ items, at both time points, with all three self-report subscales. All correlations of items with the appropriate subscale were above .6 and were higher than the correlations with the other two subscales.

Appendix VIII

Increase in peer-reported victimisation at Time Two

Peer nominations of victimisation were more numerous at Time Two than at Time One (see section 7.2) - in contrast to self-reported victimisation, which did not increase. Comparisons between Time One and Time Two peer nominations were made separately for participants who gave nominations in individual interviews at Time Two (at Schools D and E), and for those who gave nominations in groups at Time Two (Schools B, C, and F). Wilcoxon tests showed that it was only when Time Two data were collected wholly in groups that peer-reported victimisation was greater than at Time One. In Schools D and E the difference was in the opposite direction, and participants in individual interviews actually gave fewer nominations of relational victimisation at Time Two than at Time One.

These results suggest that the overall increase in peer nominations at Time Two was an artifact of the method of data collection. However, there are some important reasons why it is unlikely that the change in methodology affected results. First, class-based norms, used in all longitudinal analyses, removed bias in the greater percentages of participants nominated as victims in group interviews, by setting all means within classes at zero. Second, practically all longitudinal analyses were based on a regression approach, which is not affected in the same way as analysis of variance by absolute differences between means. Third, it seems plausible to suggest that the change in method created greater "noise" in the data, reducing power rather than inflating Type I error. Despite this "noise", the peer-report subscales showed remarkable subscale-specific stability between Time One and Time Two (Table 7.6). Fourth, conclusions in Chapter Eleven were largely based on patterns of results which were replicated for both peer- and self-reported victimisation.

Appendix IX

Outliers from analyses incorporating gender and developmental differences

For many of the statistical analyses reported in this thesis, participants with outlying values were omitted so that the assumptions of multiple regression could be met. Usually two or three outliers at most were excluded. But between thirteen and sixteen outlying cases were excluded from the analyses reported in section 10.5, in which interaction effects (of age and gender, on the contemporaneous relationship between maladjustment and different forms of victimisation) were incorporated. As these participants represented around 10% of the total n for these regressions, it is pertinent to ask what effect their omission had on the results. Outliers are excluded because they exert undue influence on the overall regression equation (Tabachnick & Fidell, 1996), and so they intrinsically affect regression coefficients. The most important question is whether the consistent pattern of results found in section 10.5 was any different with outliers taken into account.

There are two obvious ways to answer this question. One is to examine the outliers alone, looking for relationships between variables in the raw data. Another is to rerun the regressions from section 10.5, with all participants included. This appendix uses each approach in turn.

Examining outliers

As noted in section 10.2, thirteen cases were excluded from all the regressions reported in section 10.5. These comprised four boys and five girls from Y7, and three girls and a boy from Y4. An inspection of their raw data showed that many of them reported extreme victimisation or maladjustment of one form or another. In the main sample psychological

forms of victimisation and depression-related forms of maladjustment showed the strongest interrelationships. It was these same forms of victimisation and distress which were most often extreme among the thirteen outliers. For example, seven participants (four in Y7 and three in Y4) reported extreme psychological victimisation and distress (although most of them also reported fairly extreme physical victimisation). The other six participants showed discrepant patterns. All reported fairly high victimisation of at least one form (sometimes physical and sometimes psychological) and at least one form of distress at above the total sample mean. The data for each of these participants also included at least one variable - either a form of maladjustment or a form of victimisation, or both - whose value was way below the sample mean. Together they presented no discernably consistent pattern of relationships among variables. Overall there was no evidence that any of these outlying participants' distress and victimisation were related in a way that differed substantially from their relationship in the rest of the sample.

Rerunning MRs

In order to examine further the hypothesis that the deletion of outliers had not affected the overall pattern of results, the MRs reported in section 10.5 were repeated with all cases included. The results are summarised first without and then with the inclusion of gender and age interaction effects. In order to simplify description, only the results for regression coefficients significant at $p < .05$ are reported. Caution should be used in interpreting these results, as the inclusion of outliers means that they violate MR assumptions.

Self-reported subordinal victimisation was uniquely related to depression ($\beta = .25, p < .01$) and anxiety ($\beta = .26, p < .01$), and relational victimisation uniquely associated with

loneliness ($\beta = .21, p < .01$) and social acceptance ($\beta = -.23, p < .01$). None of the regression coefficients for physical victimisation was significant at $p < .05$. Given the emphasis in Chapter Ten on identifying consistency in patterns of results, these findings supported Hypothesis 10.4 and could not alter the conclusion that internalising maladjustment was more strongly related to psychological than to physical victimisation.

The analyses in section 10.5 also included interaction terms for age and gender by form of victimisation. With all outliers included there was only one significant effect of interaction terms in all the analyses - of age X physical victimisation on social acceptance ($\beta = .64, p < .03$). But when this interaction effect was examined by the method described in Chapter Ten (c.f. Baron & Kenny, 1986), the regression coefficients for physical victimisation did not differ significantly between age groups ($t(151) = 1.90, p > .05$). Thus without outliers (section 10.5) there was only limited evidence for developmental differences, and with them there was no such evidence. There was no evidence for sex differences in the correlates of different forms of victimisation either with or without outliers included in analyses.

All in all, the participants excluded from the analyses reported in section 10.5 were more severely bullied or distressed than most. But their experiences of victimisation and distress appeared to be related to each other in essentially the same way as the same experiences were related among the rest of their peers.