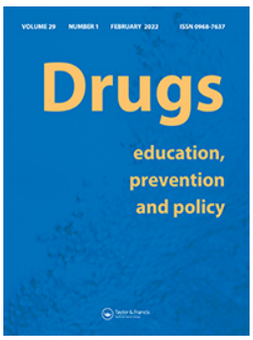

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RESEARCH ARTICLE

What can Jane Goodall teach us about addiction?

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ABSTRACT

In 2017, Jane Goodall, the well-known primatologist, wrote a letter to the United States Food and Drug Administration criticising the use of animals to test brain-based theories of addiction. She reasoned that we already know about addiction by observing humans. Several scientists countered that research with humans cannot answer important questions about understanding, preventing, and treating addiction. This commentary draws on epidemiology, psychology, psychodynamic models, learning theories and existentialism. It highlights effective prevention and treatment approaches that are not based on brain models of addiction. Jane Goodall's letter, has, perhaps unwittingly, provided a focal point for reconsidering what kind of research is required to further our understanding of addiction.

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On 7 September 2017, Jane Goodall wrote to Scott Gottlieb, Commissioner of the United States Food and Drug Administration, urging him to end 'unnecessary nicotine addiction experiments on monkeys' (Goodall, 2017) because she argued that smoking habits can be studied directly in humans. Later that year, an open letter from scientists and leaders in the addiction research community (Rowlett et al., 2017) disputed Jane Goodall's views because 'research with humans cannot answer fundamentally important questions that are basic to progress in understanding, preventing, and treating addiction'. Although this debate centres on the ethics of animal experimentation, it prompts questions about what can be learned by studying addiction directly in humans. By focussing on the brain disease model of addiction (BDMA), it may be that less attention is paid to human experience in understanding addiction (Peale, 1998). Experiments have shown that neuro-scientific information is often appealing even when it is not relevant to psychological phenomena (Weisberg et al., 2008). This paper does not critically evaluate BDMA nor does it provide a comprehensive overview of human psychological research. The focus of this paper is on selected observations drawn from a range of sources including epidemiology, cognitive psychology, psychodynamic models, existentialism and learning theories. These observations highlight how potentially effective interventions can be studied in humans without recourse to animal research.

Even those who support the BDMA highlight that people evaluate their choices. A former heroin user writes that, 'It's an illness that doesn't go away. You put down the drugs and everyone thinks that you have stopped the problem but that's not the case'. The writer goes on to say, 'whatever the situation, a relapse is always a conscious decision' (cited in Ram, 2014). This illustrates the contradiction in conceptualising addiction in terms of the disease model. The language used to discuss addiction frames perceptions not only about the nature of addiction but strategies to change addictive behaviour (Harland, 1999; de Wit et al., 2018). Davies (1997) employs psychological attribution theory to show how beliefs about addiction can influence people's ability to change their behaviour. A study of 80 people in inpatient detoxification found that higher levels of attribution to personally controllable factors were related to outcome measures including abstinence and lower rates of relapse (Bradley et al. 1992), while a study of 581 participants in methadone treatment, found that higher self-efficacy was associated with adherence to treatment (Yu et al. 2020). The source of these attributions, Davies argues, often derive from current views of addiction rather than scientific evidence.

Talking, thinking and reflecting about individual experience are often important for making behavioural changes (Harland, 1999) and nearly all therapies employ language (Field & Kersbergen, 2020; Schaler, 2000). A study of 254 participants in The Combined Pharmacotherapies and Behavioural Interventions for Alcohol Dependence (COMBINE) study investigated the extent to which drinkers with alcohol dependence verbalize commitment to change their drinking at the start of treatment. The study compared two styles of language characterised as 'change talk' and 'sustain talk'. In 'change talk' counsellors explored behavioural change while 'sustain talk' revolved more around the problematic behaviour. Treatment providers with higher 'change talk' at baseline were associated with lower drinking levels at one year follow up (Houck et al., 2018). A study of 295 treatment

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providers found that treatment providers have a variety of views about addiction with some tending towards a free will explanation while other adhere to the BDMA model (Schaler, 2000). Treatment providers' beliefs about addiction may affect the degree to which treatments offered focus on self-efficacy (Russell et al., 2011) and self-efficacy is associated with higher rates of abstinence (Stuart et al., 1994).

Language is also central in psychoanalytic therapy (Makari & Shapiro, 1993). This therapy pioneered by Sigmund Freud involves using language to explore events that trigger neurotic illnesses and he noted how a patient had referred to this process as the talking cure (Freud, 1909). Psychoanalysis involves exploration of unconscious defence mechanisms that protect the conscious mind. In relation to addiction, two such mechanisms are denial and regression. Denial involves unconscious blocking of events that have an unpleasant emotional impact while regression involves temporarily retreating to an earlier stage of life as a way of avoiding unpleasant events (Holland, 2019). A study of 79 patients at a drug dependence clinic found that participants exhibited elevated scores of self-deception, particularly in the domains of active denial (Martínez-González et al., 2016). Regression has been reported in a case of a heroin addict. Heroin was described as means of regressing to an earlier phase of development involving a close bond between the case and her mother in order to avoid current anxiety (Kaplan, 1977). Enabling patients to engage in self-reflection and identifying alternative ways to manage difficult emotions are part of the psychodynamic approach to addiction treatment (Weegman , 2002). While psychodynamic therapy may be as effective as behaviourally based treatments (Steinert et al., 2017), they are less frequently encountered in addiction therapy. This may be in part due to the holistic nature of psychodynamic therapy compared to other therapies that prioritise current behaviour over sub-conscious underlying issues (Ford, 2019). Evidence-based approaches to treatment often focus on behavioural approaches that lend themselves to experimental procedures (Kottler and Shepherd, 2015, p. 195).

Whereas psychodynamic therapies often require many sessions, measures such as self-help manuals and brief interventions that focus on motivation and barriers to change have been found to be effective ways of reducing addiction (Bien et al., 1993). In one study discussed by Bien and colleagues, 161 problem drinkers with no previous treatment received either a single counselling session or no counselling beyond routine medical care. At 1-year follow-up, the brief counselling group significantly improved both on life problems and on physical problem although the groups did not differ in reported alcohol consumption (Chick et al., 1985) . In a study of 229 adults seeking assistance in abstaining from cannabis use, six session of Cognitive Behavioural Therapy [CBT] resulted in a range of better treatment outcomes compared to one session CBT or the delayed treatment control group (Copeland et al., 2001). A common feature of many therapies is talking about and evaluating the consequences of behaviour (Heyman, 2009). Alcoholics Anonymous [AA], for example, involves discussing the positive benefits of life without drinking (Kurti & Dallery, 2012) alongside development of social bonding, self-efficacy and promotion of alternative behaviours (Moos, 2008). Reforming social relationships is one theme examined in study of 12 people who had attended Narcotics Anonymous (NA); one participant noted 'before recovering, "I was disrespected by my children and family, but after treatment, they respect me again because my behavior towards them has changed' (Jalali et al., 2019, p. 5). However, in a qualitative study of 10 people who had previously attended NA, disengagement occurred for a number of reasons; for example, one participant stated that 'For some, doing the fifth step with a sponsor can be liberating. For me it wasn't. It did not give me the freedom I hoped for' (Vederhus et al., 2020). Overall, participants in the study viewed the 12-step approach as a potentially valuable resource even if it does not suit everybody. Given the multi-faceted nature of addiction, this is likely to apply to all therapies.

Language also features in a range of psychological studies that can help people to change long-standing habits (Gardner et al., 2012). In one randomised control study, the group who regularly read a leaflet about diet and exercise lost significantly more weight than the no-treatment waiting list control group (Lally et al., 2008). Another study found that brief simple advice about quitting smoking increased smoking cessation and its maintenance a year later (Stead et al., 2013). However, if addictive behaviour is portrayed as a brain disorder this may reduce self-efficacy and thus reduce motivation to change behaviour (Davies, 1997). The language used to discuss addiction frames perceptions not only about the nature of addiction but strategies to change addictive behaviour (Harland, 1999).

The theme of addiction depriving individuals of choice is common in the addiction literature (Saaristo, 2006) despite research indicating that personal decision-making is often a key component of finding a route out of addiction. In a study of 201 ex drug addicts, Waldorf (1983) identified several patterns of recovery including, involving changes in personal motivation, encounters with particular events (e.g. religious/social causes) or changes in environments. In as study of 21 adults in a drug and alcohol therapeutic community, the authors investigate how participants' social identities and relationships change during treatment (Dingle et al., 2015). One participant noted that 'you couldn't have anything more healing than being able to talk to someone who knows exactly what you're talking about. From beginning to end … your losses, your gains … everything' (p. 6), while another noted that 'I think all of my self-esteem was just crushed that I had none left, but slowly bit by bit it is coming back' (p. 7). This study highlights the importance of narrative in understanding addiction and recovery. Waldorf recognised that particular experiences can led to cessation and this was further explored in a study of epiphany (Woodruff, 2002). One participant stated, 'I heard this voice – I had no doubt it was God … I felt such acceptance and such love like I had never known. That changed my life forever … I got up the next day, and I haven't found it necessary to drink or use drugs ever since' (p. 148). These quotes illustrate ways in which people interpret, and create meaning from, their experiences (Peele, 1998). This is consistent with existentialism, a philosophy which argues that people have no

'essence' but rather define themselves through their thoughts and actions (Barash, 2000; Grech, 2021). The existentialist credo (Sartre, 1956) is employed in a qualitative study of nine people who had experienced drug abuse (Wiklund, 2008). One participant stated, '"Who am I?" Because when taking drugs I was somebody. But without them, I was nothing, I didn't exist' (p. 2428), while another noted 'I felt so bad, in my own world, in my own circle. Because I was so fixated on my own affairs … I could not put on the brake. It was like a treadmill and at the same time I wanted out' (p. 2430). Exploring dimensions such as meaning/meaninglessness and control/chaos can help health professionals reflect on the subjective aspects of addition (Wiklund, 2008) and offer possible solutions to existential dilemmas which often feature in addiction narratives (Berry, 2011; Smith & Smith, 2021).

Human research also provides also evidence of non-addictive patterns of drug use; for example, a Dutch study found that 50% of a sample of community-based cocaine users never exceeded a low use level defined as less than 0.5 g a week (Cohen & Sas, 1994). Intermittent tobacco smoking (ITS) accounts for 38% of adult smokers in the US. However, the dominant model of smoking behaviour centres on those who smoke daily to maintain nicotine levels in order to avoid withdrawal symptoms (Shiffman et al., 2015). For ITS, the motivation to smoke lies in the social context and psychological factors such as socialising with friends. Thus, while drugs affect neural mechanisms (Hyman et al., 2006), this does not translate into abolition of psychological self-control (Pickard, 2012) although it may modify conscious preferences and motivation (Heather, 2017). Providing information on the negative consequences of behaviour can also lead to behavioural change. Reports during the 1960s that smoking was the cause of lung cancer are thought to be responsible for significant reduction in smoking rates in the United States (Mendes, 2014). Smoking rates have also been influenced by health promotion campaigns (Lewis, 2005). A study of 4040 smokers found that exposure to a mass media campaign was associated with a strong intention to quit smoking (Duke et al., 2015). In addition, legislation and tax changes have also led to changes in smoking behaviour (Yuda, 2013). At an individual level, a study of 200 daily smokers found that the perceived ability to quit was related to implicit model that participant had of addiction (Sridharan et al., 2019). Those more likely to report quitting viewed addiction in terms of what the authors term a 'growth mindset' reflected in statement such as 'people can learn to control their addictions'. Such studies reinforce Jane Goodall's point about learning from studies of human behaviour.

Even those who view addiction as underpinned by neurological processes acknowledge that psychological factors are fundamental to recovery (Tommasello, 2004). This is somewhat paradoxical since where there is motivation to quit, treatment may be unnecessary, while for those lacking motivation, treatment may be less successful (Leavitt, 1995). One form of this paradox is the observation that the majority of people quit smoking through their own efforts with no form of treatment or intervention (Peele, 2004). However, where treatment is necessary, addressing motivation has been found to be an important factor. In a study of 198 alcohol-dependent patients participating is a larger smoking study at an inner-city residential substance abuse treatment program, higher motivation to quit was associated with greater self-efficacy (Martin et al., 2006) while among 235 adults, self-efficacy about ability to quit predicted successful long-term abstinence among smokers in the general population (Garvey et al., 1992).

Despite the insights and practical strategies from psychological research, the dominant model of addiction focuses on brain mechanisms (Volkow et al., 2016). Heilig et al. (2021) argue for an 'intensified neuroscientific study of recovery' because the 'brain is the biological substrate from which both addiction and the capacity for behavior change arise' (p. 1715). Relapsing back into drug use has been explained in terms of changes in the brain as a result of prolonged drug use (Lynch et al., 2010). There have been calls for new research into medicines that could protect individuals from relapse, just as statins protect people from heart attacks (Nutt, 2014). This should be viewed alongside evidence that relapse risk can be treated using a range psychotherapies (Hendershot et al., 2011). In a study of 38 heroin users, brief cognitive behavioural interventions improved confidence in ability to resist urges to use heroin compared to the control group receiving no intervention (Yen et al., 2004). Mindfulness-based relapse prevention (MBRP) was studied in 168 clients with alcohol or other drug use disorders and was found to be associated with significant reductions in self-reported craving during and following treatment (Witkiewitz et al., 2013). Combining psychosocial treatment with pharmacological interventions is associated with significantly improved treatment completion outcomes for opioid detoxification (Amato et al., 2011), but research in this field is weighted toward pharmacological treatments where dose and duration of medication can be standardized and evaluated in controlled trials (Veilleux et al., 2010).

The open letter criticising Jane Goodall concludes, 'addiction is a major public health issue worldwide, and requires and deserves close scientific scrutiny, some of which will require the use of animals'. The letter goes on to say that 'unfortunately, there is still a lot we do not know, including questions such as: Why are some individuals vulnerable to addiction and others not? Why does relapse after any kind of treatment occur at such phenomenally high rates? Why do drug abusers persist in seeking and taking substances that so clearly will lead to incarceration, poverty, even death?' (Rowlett et al., 2017). Rowlett and colleagues acknowledge Jane Goodall's expertise as a primatologist, based on her studies of primate behaviour, but do not accept her view that many aspects of addiction are already understood in humans. Jane Goodall may have, perhaps unwittingly, revealed that the answers to some of the questions posed by Rowlett and colleagues may already lie in human research.

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