Research paper

Management of anxiety disorders among children and adolescents in UK primary care: A cohort study

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ABSTRACT

Background: Anxiety disorders are common in childhood and adolescence but evidence-based guidance on their management is limited in the UK. In the absence of guidelines, we examined what treatment young people with anxiety disorders receive in primary care in the year following diagnosis.

Method: We delineated a cohort of individuals diagnosed with anxiety disorders aged 10–18 using the Clinical Practice Research Datalink (CPRD). We estimated the annual prevalence of antidepressant and anxiolytic prescribing and referrals to mental health services in the year following diagnosis between 2003 and 2019 via Poisson models, adjusted for age, gender, and practice-level deprivation.

Results: 34,490 out of 52,358 (66 %) individuals were not prescribed or referred in the year following diagnosis. Those registered to practices in the most deprived compared to the least deprived areas were less likely to be referred (PR 0.80, 95%CI 0.76–0.84) and prescribed antidepressants (PR 0.77, 95%CI 0.72–0.82). Referrals increased 2003–2008 (22–28 %) and then declined until 2019 (28–21 %). Antidepressant prescribing decreased substantially between 2003 and 2005 (18–11 %) and then increased slightly between 2006 and 2019 (11–13 %). Anxiolytic prescribing declined between 2003 and 2019 (10–2 %).

Limitations: Prescriptions in the CPRD are not coupled with information about indication. Some prescriptions may therefore have been incorrectly attributed to the treatment of anxiety disorders.

Conclusion: The continued use of antidepressants necessitates the development of evidence-based guidance. The lower likelihood of being prescribed medication and/or referred among young people in more deprived practice populations, where incidence of anxiety disorder and other mental illnesses is higher, must also be investigated and rectified.

1. Introduction

Anxiety disorders are a group of conditions that are characterised by excessive fear, worry and avoidance of perceived threats that is disproportionate to the actual risk posed by the object of fear. Whereas fear is a response to imminent danger, anxiety is anticipatory worry about future perceived threats (Craske and Stein, 2016). Current psychiatric nomenclature recognises several anxiety disorders, including generalised anxiety disorder (GAD), social anxiety disorder, panic disorder and specific phobias, which all share the same core symptoms of disproportionate, excessive fear and avoidance. Obsessive-compulsive disorder (OCD) and posttraumatic stress disorder (PTSD) are typically

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considered ontologically distinct but can sometimes be grouped together with anxiety disorders because they share symptoms. Anxiety disorders are particularly common during adolescence when they are the most commonly diagnosed psychiatric disorder (Vizard et al., 2017).

In the UK, the National Institute for Health and Care Excellence (NICE) is responsible for developing and publishing treatment guidelines. Current adult treatment guidelines for GAD list both psychological and pharmacological interventions as first-line treatments as neither is superior to the other (NICE, 2019a). The recommended first-line pharmacological treatment for adults with anxiety disorders are selective serotonin reuptake inhibitors (SSRIs). Anxiolytic drugs such as benzodiazepines, which reduce anxiety, can sometimes be used for short-term treatment of acute anxiety states in GAD and obsessive-compulsive disorder (OCD), but are discouraged for the treatment of panic disorder or social anxiety disorder because their continued use may lead to dependence. Tricyclic antidepressants (TCAs) may be prescribed to treat adults with OCD and panic disorder if SSRIs prove ineffective but are not recommended for the treatment other types of anxiety disorders. Similarly, selective norepinephrine reuptake inhibitors (SNRIs) may be prescribed to treat adults with GAD if SSRIs are found to be ineffective.

Existing NICE guidance for treating children and adolescents are limited to social anxiety disorder and obsessive-compulsive disorder (OCD), but no guidelines exist for GAD, panic disorder or specific phobias, which together constitute the majority (61 %) of all anxiety disorder diagnoses in the UK according to a recent report (Vizard et al., 2017). NICE guidance for OCD suggest that SSRIs may be prescribed in instances where psychological therapies have not been effective, but warn that these medications may be associated with increased suicidal ideation when used to treat depression (NICE, 2020). By contrast, a report issued by the Committee on Safety of Medicines (CSM), a group set up to advise the UK licensing authority, stated that these concerns do not apply to the treatment of anxiety disorders as they are less strongly associated with self-harm (Baldwin et al., 2005). NICE guidelines for social anxiety and post-traumatic stress disorder (PTSD) conversely recommend that children and adolescents are not prescribed psychotropic medications under any circumstances; psychosocial interventions (e.g., cognitive behavioral therapy) are the recommended first-line treatment. The British National Formulary (BNF) advises that anxiolytics may be appropriate for the treatment of acute states of anxiety in specific scenarios (e.g., before a surgery), but only for short periods (British National Formulary, 2019). Moreover, whilst they issue advice on treating young people with depression (British National Formulary, 2020), no equivalent advice currently exists for anxiety disorders.

Whilst there is evidence in favour of SSRIs in the treatment of anxiety disorders (Patel et al., 2018), there is also a wider public concern about overmedicalisation of children and adolescents, and questions remain about the optimal length of treatment (Hathaway et al., 2018), the consequences of stopping, and at what age such treatments are unsuitable (Creswell et al., 2014). Parents generally express a clear preference for psychosocial interventions (Brown et al., 2007). In the UK, psychosocial treatments are primarily accessed in specialist mental health services via referral from primary care. Access to psychosocial treatment is limited (Care Quality Commission, 2017; Vizard et al., 2017) and general practitioners (GPs) may therefore feel inclined to prescribe medication in the absence of alternatives. Indeed, several studies that utilised routinely collected clinical data from UK primary care have shown that the rates of psychotropic prescribing have increased substantially in recent years in adolescent populations (John et al., 2016, 2015; Sarginson et al., 2017).

Previous studies (Jack et al., 2020; John et al., 2016, 2015; Sarginson et al., 2017) have estimated prescribing incidence with rates stratified according to indication (e.g., depression), but it is unclear how children and adolescents with anxiety disorders are managed in primary care following diagnosis. For instance, it is not known what proportion are issued psychotropic medication following diagnosis, and whether this has changed in recent years. Moreover, previous studies have also not

examined referrals to Child and Adolescents mental health services (CAMHS), which is where psychological therapies are accessed. In the absence of clear prescribing guidelines and with increasing incident rates of anxiety disorders (Cybulski et al., 2021), we examined a cohort of children and adolescents aged 6–18 years registered in primary care in the UK for 12 months to describe the treatment that they received following their first anxiety disorder diagnosis.

2. Methods

2.1. Data source

We constructed a cohort using the GOLD and Aurum datasets of the Clinical Practice Research Datalink (CPRD) (Wolf et al., 2019). The two datasets draw their data from two different patient record systems (Aurum: Emis®; GOLD: Vision®) but are otherwise essentially equivalent. For this reason, we combined them to generate a single set of estimates. The CPRD is a primary care database that contains anonymised patient information about diagnoses, prescriptions, and referrals to secondary care services in the UK's National Health Service (NHS). The NHS is a publicly funded health-care system accessible to all UK residents; 98 % of the national population is registered with a general practice (Wolf et al., 2019). Prescribed medications are freely available to all persons below the age of 16 who are registered in primary care, and to 16–18 year-olds as well if they are enrolled in fulltime education. Specialist mental health services are typically accessed via referral from by a general practitioner (GP); recent figures suggest that the median waiting time is 50 days, albeit with considerable regional variability (Edbrooke-Childs and Deighton, 2020). The validity of psychiatric diagnoses recorded in the UK primary care is high, with a confirmation rate for anxiety disorders of 90 % (Martín-Merino et al., 2009). The CPRD can also be linked to other data sources including Hospital Episode Statistics (HES), which stores diagnostic information relating to hospital visits, and the Index of Multiple Deprivation (IMD), which contains a small area composite measure of socioeconomic deprivation based on general practice location and residential neighbourhood (Smith et al., 2015). The Aurum and GOLD dataset cover approximately 13 % and 7 % of the population, respectively, and are considered broadly representative of the UK population in terms of sex, age and ethnicity distributions (Herrett et al., 2015; Wolf et al., 2019). We used the June 2019 GOLD and Aurum release, which contained 18,782,246 and 31,745,393 patients, respectively. We removed practices from GOLD that later migrated to the Aurum dataset to avoid including duplicate patient records. Diagnostic information is captured in the CPRD using Read and SNOMED codes (Benson, 2012); ICD-10 codes are used to record diagnoses in HES. Prescriptions issued by GPs and practice nurses are recorded in the CPRD using Multilex product codes.

2.2. Study population and outcomes

We identified all patients registered between 1st January 2003 and 30th June 2019 who were aged between 6 and 18 years and who had received their first anxiety disorder diagnosis, whether it was recorded in the CPRD or in HES. To reduce the likelihood of prevalent cases being included inadvertently, eligible patients had to have been registered for at least 12 months when they were first diagnosed; 6 % of all patients diagnosed with an anxiety disorder were omitted from the study cohort for this reason at its initial delineation. We also required eligible patients to be registered for at least 12 months after their incident diagnosis to enable examination of treatment received in the year following diagnosis. We identified diagnoses made in HES using the following ICD-10 codes: F40 (phobic anxiety disorders), F41 (other anxiety disorders), F42 (obsessive-compulsive disorder), F43 (reaction to severe stress, and adjustment disorders), F93 (emotional disorders with onset specific to childhood). We used equivalent Read codes to capture diagnoses recorded in primary care (please see Tables S1 and S2 for a complete list

of ICD-10 and Read codes). To increase confidence that a drug was prescribed for the treatment of an anxiety disorder, we removed individuals whose first anxiety disorder diagnosis indicated a comorbid presentation (e.g., 'mixed anxiety and depressive disorder'). Some anxiety-related Read codes are ambiguous as to whether they denote an anxiety disorder diagnosis (e.g., 'anxiety state'). To maximise the probability of ascertaining individuals with anxiety disorder diagnoses specifically, we excluded such codes from our classification. We identified drug prescriptions using Multilex product codes (Table S3) and referrals to mental health services using a combination of 'medcodes' and the 'nhsspec' field (Table S4).

2.3. Statistical analyses

For each year of the study's observation period, we calculated the proportion of individuals with an incident anxiety disorder diagnosis who had been prescribed an antidepressant, an anxiolytic or who had been referred to mental health services in the 12 months following diagnosis. Prescription data in the CPRD are not coupled with information regarding their indication. We therefore followed the convention established by previous studies (e.g., John et al., 2015) by considering a prescription as being likely linked to an anxiety disorder diagnosis if it had been issued within 1 year after first diagnosis. Following methods outlined by Zou (2004), we fitted a Poisson model with a robust variance estimator to determine if the prevalence of antidepressant or anxiolytic prescriptions or referral to mental health services differed by calendar year after adjusting for gender, age at diagnosis, and practice-level deprivation quintile. For each outcome we also generated prevalence ratios to examine the effect of gender, sex, and deprivation. Annual prevalence estimates were also stratified by deprivation quintile, adjusted for by gender and age at diagnosis. We did not examine other drug classes, such as mood stabilisers, stimulants, and antipsychotics, as they primarily are indicated for the treatment of other disorders. For the same reason, we removed some anxiolytic and antidepressant medications that most likely were not issued to treat an anxiety disorder (e.g., melatonin). All analyses were conducted in STATA 16.

3. Results

We identified 52,358 incident diagnoses of anxiety disorders during 2003–2019, of which 66 % were among girls (Table 1) and with almost two-thirds (60 %) recorded in primary care. Almost two thirds of cohort members (34,144; 65 %) had no subsequent anxiety disorder consultation within the first year of their incident diagnosis; 11,052 (21 %) had one further consultation recorded, and 3806 (7 %) had between 3 and 10 more consultations recorded. The likelihood of diagnosis increased linearly with age, peaking in the 16–18 age group. Proportionally fewer cohort members were registered to practices in less deprived neighbourhoods, with those registered to practices in the most deprived quintile accounting for nearly one fourth of all cohort members compared to 16 % in the least deprived quintile (Table 1). Throughout the study period, most individuals (66 %) diagnosed with an anxiety disorder during childhood or adolescence were not referred to mental health services or issued psychotropic medication within 1 year of their diagnosis. Referral to mental health services was more common (25 %) than being prescribed a drug (17 %) and the likelihood of being prescribed a drug or referred to mental health services decreased with increasing practice deprivation (Table 1). Out of the 12,950 individuals who were referred, a fifth were referred on the day of their diagnosis, and just over half (55 %) within one month. Out of the 8616 patients who were prescribed psychotropic medication, two-thirds (66 %) were issued an SSRI as their first drug, whilst 23 % were issued a benzodiazepine, and 7 % a tricyclic antidepressant. In terms of specific medications, fluoxetine (24 %) was the most common first-line treatment, followed by sertraline (22 %), diazepam (21 %), citalopram (16 %), and amitriptyline (6 %). The remaining 11 % of prescriptions were

accounted for by 23 different antidepressant or anxiolytic drugs (please see Table S5 and Fig. S1 in the supplementary materials). Out of those patients who were prescribed medication, 32 % were issued the drug on the day of their incident diagnosis, and just over half within the first month (53 %).

In each full calendar year, the number of diagnoses increased (Fig. 1). The number of individuals who were referred increased linearly up until 2015, at which point it stabilised at around 1200 per year. Antidepressant and anxiolytic prescriptions followed a similar trajectory, levelling off at around 800 prescriptions between 2016 and 2018. As can be seen in Fig. 2, antidepressant prescribing decreased in relative terms between 2003 and 2005, from 18 % to 11 %, after which it increased steadily to 14 % in 2017, and then decreased again to 13 % in 2019. Calendar year was not a significant predictor after accounting for the effects of gender, age at diagnosis and practice-level deprivation (PR 1.00; 95 % CI 0.99, 1.00). However, when we restricted our analyses to 2005–2019, the effect of calendar year was significant (PR 1.01; 95 % CI 1.01, 1.02). We did not observe any gender differences (PR 0.99; 95 % CI 0.95, 1.04) but practice-level deprivation was a significant predictor of being prescribed psychotropic medication (Fig. 3). Individuals registered to practices in the most deprived neighbourhoods were on average 23 % less likely to be prescribed an antidepressant than those in registered to practices in the least deprived areas (PR 0.77; 95 % CI 0.72, 0.82), after adjusting for calendar year, gender, and age at diagnosis. The prescription of anxiolytics decreased steadily over time (PR 0.90; 95 % CI 0.89, 0.91), from 10 % in 2003 to 2 % in 2019, and we did not observe gender differences in overall prevalence (PR 1.05; 95 % CI 0.97, 1.15). Calendar year did not predict the probability of being referred to mental health services, but there appeared to be two temporal trends. Between 2003 and 2008, the proportion of referred individuals increased from 22 % to 28 %, but after this period referrals decreased steadily, with 21 % being referred in 2019. We did not observe gender differences, but as with antidepressants, individuals registered to practices in the most deprived areas were much less likely to be referred than those registered to practices in the least deprived neighbourhoods (PR 0.80; 95 % CI 0.76, 0.83) (Fig. 3). We conducted a post-hoc analysis restricted to individuals with at least 5 years of follow-up from the point of diagnosis ($n = 24,832$; 47 %) to examine if treatment status predicted

Table 1
Cohort members' characteristics and probabilities according to treatment status in the year following diagnosis.

	Total cohort (N = 52,358)	Not prescribed or referred mental health services (n = 34,490)		Antidepressant or anxiolytic prescription (n = 8616)		Referred to mental health services (n = 12,950)	
	N	N	%	N	%	N	%
Age in years							
6 to 9	5437	4201	77	86	2	1181	22
10 to 12	7887	5579	71	469	6	2037	26
13 to 15	15,802	10,534	67	2051	13	4132	26
16 to 18	23,232	14,176	61	6010	26	5600	24
Gender							
Female	34,667	22,676	65	5963	17	8603	25
Male	17,691	11,792	67	2653	15	4347	25
Practice deprivation quintile							
1 (Least deprived)	8620	5336	62	1540	18	2462	29
2	9103	5849	64	1624	18	2304	25
3	9712	6325	65	1642	17	2412	25
4	11,943	7966	67	2020	17	2806	23
5 (Most deprived)	12,980	9014	69	1790	14	2966	23
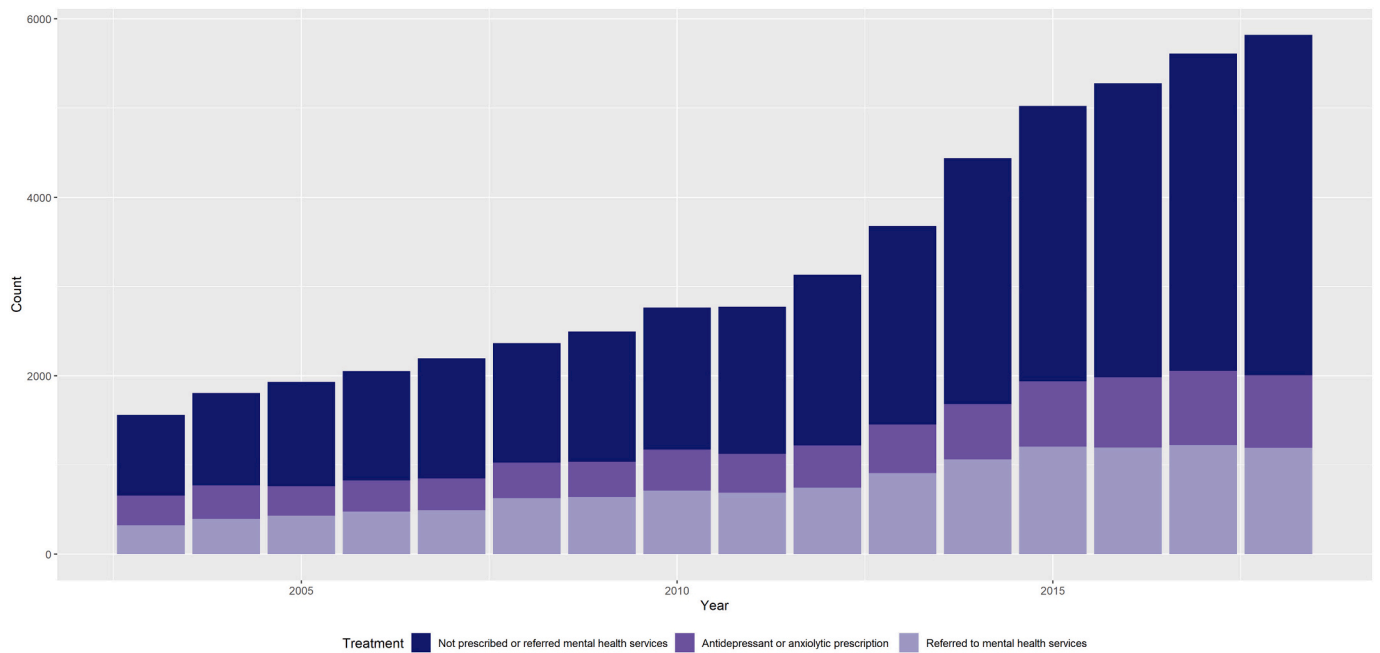
* We excluded data from 2019 as it did not span a full calendar year (i.e., 01 Jan to 30 June)

Fig. 1. Distribution of cohort members by year of diagnosis and treatment status within 1 year of diagnosis.
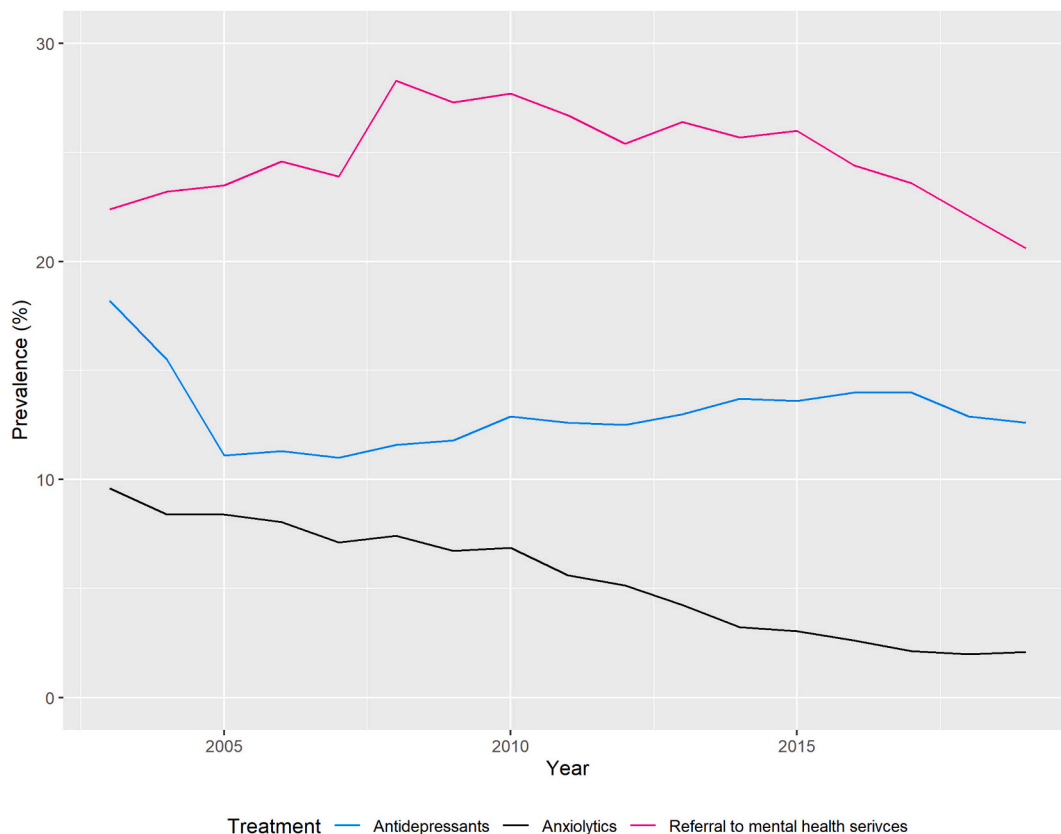

Fig. 2. Annual prevalence of psychotropic prescribing and referrals to mental health services in the year following diagnosis.

having future mental health consultations. Individuals who had been prescribed a drug or referred in the 12 months after diagnosis were more likely to have additional mental health consultations in the 4 years after their first year of follow-up compared those who had no record of being treated (Prescribed: PR 1.58 95 % CI 1.51–1.66; Referred: PR 1.49 95 %

CI 1.42–1.55).

We also considered the possibility that psychotropic medication could have been prescribed for the treatment of another psychiatric disorder. We therefore examined if those young patients who had been issued an antidepressant or anxiolytic within a year of their anxiety
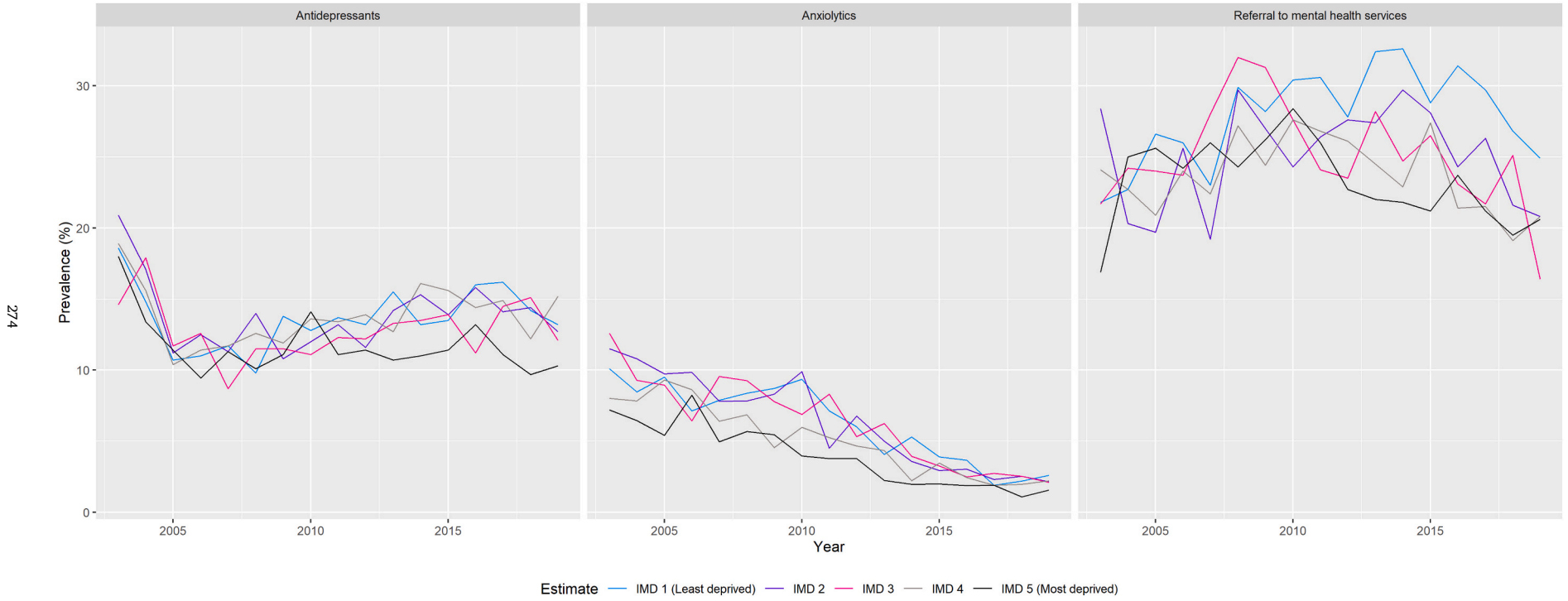
Fig. 3. Annual prevalence of psychotropic prescribing and referrals to mental health services in the year following diagnosis by deprivation quintile.

disorder diagnosis also had been diagnosed with attention-deficit hyperactivity disorder (ADHD), autism spectrum disorder, depression, eating disorders, or had self-harm recorded, within a year prior to the date when the drug was prescribed. Out of the 8616 patients who were prescribed a psychotropic medication following their anxiety disorder diagnosis, 2923 (34 %) had an incident consultation associated with at least one of these other conditions in the year before the prescription was issued. Depression and self-harm were by far the most common pre-existing conditions, accounting for 1344 (45 %) and 1093 (37 %) out of 2, 923 episodes, respectively.

4. Discussion

4.1. Main findings

Most individuals aged 6–18 diagnosed with an anxiety disorder between 2003 and 2019 were not prescribed a drug or referred to mental health services in the year following their diagnosis. Moreover, those registered in practices in the most deprived neighbourhoods were the least likely to receive treatment via their general practice, whether pharmacological or by referral to mental health services. Overall, a smaller proportion of cohort members were prescribed an antidepressant in 2003 compared to 2019, but from 2005 their usage increased following an initial drop. The proportion of referrals to mental health services have decreased steadily since 2008, but in absolute terms, a larger number of individuals have been referred in recent years. The use of anxiolytics has decreased consistently since 2003, both in absolute and relative terms.

4.2. Interpretation and comparison with existing evidence

The reasons as to why relatively few individuals are prescribed medication or referred are likely different and should therefore be considered separately. For instance, there is wide recognition that one of the main barriers to accessing support from mental health services is the limited capacity of services (Care Quality Commission, 2017; Ford et al., 2005; Sharpe et al., 2016). Thus, results from a recent survey on the management of childhood anxiety disorders in primary care indicate that GPs often refrain from referring because of long waiting times and high thresholds for accessing services (O'Brien et al., 2019). This is likely a significant contributor as to why so many patients are not referred as GPs typically endorse the view that mental health services provide effective treatments (O'Brien et al., 2016). As for prescribing, evidence from adult populations indicates that GPs take a cautious approach to antidepressant prescribing, preferring to initiate treatment in circumstances when symptoms are perceived to be persistent, severe, and unresolvable (Bosman et al., 2016). GPs may similarly reserve the use of antidepressants for patients with the most severe presentations or when non-pharmacological options are unavailable. This may explain why the period between diagnosis and prescription surpassed one month for 47 % of individuals who were prescribed medication. Our subgroup analysis showed that patients who had been prescribed an antidepressant or referred were more likely to have subsequent psychiatric consultations. If persistence is a marker for severity and continued morbidity, these findings could indicate that GPs are prioritising referrals and antidepressant treatment for patients with more complex presentations.

We also observed a clear example of Tudor Hart's 'Inverse Care Law' (Tudor Hart, 1971), as children and adolescents registered at practices in the most deprived areas were the most likely to be diagnosed with an anxiety disorder, yet the least likely to have received treatment. Similar results have previously been observed in adults who have experienced their first self-harm episode (Carr et al., 2016). There is evidence that the distribution of funds for specialist health services in the UK is not proportional to geographical differences in morbidity (Kontopantelis et al., 2018). Thus, competition for resources may be higher in more deprived

neighbourhoods where morbidity is higher. Moreover, practitioners who practice in less deprived neighbourhoods also rate themselves as being more confident in treating patients with anxiety disorders (O'Brien et al., 2019), potentially yielding higher prescribing probabilities.

Previous studies that have examined temporal trends in the incidence of antidepressant prescribing among young people registered in primary care in the UK have observed a steady increase since 2005 up until 2017 (Jack et al., 2020; John et al., 2016; Sarginson et al., 2017), which is consistent with our results. The sharp decrease that preceded this period may be due to guidance issued by the Committee on Safety of Medicines in 2003, which advised against the use of all SSRIs in children, except for fluoxetine (Healy, 2003). Increases in frequency of prescribing have since then been attributed to changes in clinical guidelines for treating depression in child and adolescent populations (Mahase, 2019), which may have contributed to a general lowering of the clinical threshold for prescribing. The increasing number of diagnoses that occurred annually is another factor that merits consideration. For instance, in absolute terms the number of young people who were referred increased steadily up until 2015, after which this number stabilised. This increase could reflect the impact of provisions aimed at increasing the number of practitioners who can deliver psychological therapies in mental health services (Department of Health, 2011). However, because the increase in the number of annual diagnoses (i.e., the denominator) was larger relative to the number of referred individuals (i.e., the numerator) in the latter parts of the study, the proportion of referred individual declined in this period. This might also have prompted GPs to prescribe antidepressants more often in the absence of alternative treatments. An alternative explanation to the decrease in the proportion of referrals in recent years could be a general lowering of the diagnostic threshold for anxiety disorders (Cybulski et al., 2021; John et al., 2015). The simultaneous decrease in anxiolytic prescribing that we observed could also indicate that GPs are changing how they manage people with anxiety disorders, and this too, might have contributed to an increased volume of antidepressant prescriptions.

The relative paucity of evidence in favour of anxiolytics in the treatment of anxiety disorders compared to SSRIs, and the fact that their use is discouraged because of their potential for abuse, likely explains why antidepressants are more commonly prescribed (Dobson et al., 2019; Ipser et al., 2009; Wehry et al., 2015). It is therefore somewhat surprising that diazepam accounted for one fifth of all first-time prescriptions overall. Sixty-one percent of cohort members who were prescribed diazepam had diagnoses of specific phobias (e.g., 'fear of flying'), although this number could be higher (e.g., 'panic attack', which conceivably could describe someone with a phobia, was indicated for another 25 % of cases). The prescription of diazepam also appeared to be short-term in most cases. Thus, the use of diazepam in child and adolescent populations with anxiety disorders appears to be mostly consistent with how it is recommended for use in adult populations (NICE, 2019a), which suggests that GPs may be using adult guidelines to guide the treatment of young people diagnosed with anxiety disorders. In terms of specific medications, fluoxetine, sertraline, diazepam, and citalopram accounted for most (84 %) first-line prescriptions. Except for diazepam, these drugs are listed as options for the treatment of child and adolescent depression (NICE, 2019b), but most individuals in our sample who were prescribed them had no recorded depression diagnosis in the year preceding the prescription. Fluoxetine is licensed for the treatment of OCD in children and adolescents, but less than a fifth of cohort members who were prescribed fluoxetine had this diagnosis. Citalopram and sertraline are licensed for the treatment of panic disorder and GAD in adults; it could be that GPs consult these guidelines before prescribing to children and young people. Finally, 7 % of cohort members who were prescribed a drug were issued a tricyclic antidepressant as their first drug, despite evidence showing that they are not better than placebo for treating anxiety disorders (Dobson et al., 2019),

and warnings against their use due to their inherent toxicity and risk for overdose (NICE, 2019b). It could be that these individuals have other underlying conditions for which tricyclic antidepressants are indicated, such as neuropathic pain.

4.3. Strengths and limitations

The CPRD is a nationally representative dataset that captures all prescriptions issued by contributing general practices. As such, our results are broadly representation of prescribing patterns in UK primary care. However, as the prescribed medication data that are recorded in the CPRD do not convey information about indication, we may in some instances incorrectly attribute antidepressant and anxiolytic prescriptions to the treatment of anxiety disorders. For example, 16 % of cohort members who were prescribed an antidepressant or anxiolytic had a record of a depression-related primary care consultation in the year preceding the prescription. For this subgroup of patients, we could not be certain that the primary indication was their diagnosed anxiety disorder. We therefore also excluded individuals who were concurrently diagnosed with an anxiety disorder and depression, thereby enhancing our confidence that prescriptions were issued for the treatment of people with anxiety disorders and not depression. Moreover, although 98 % of the UK population is registered to a general practice, many may not seek help, and thus, we may not have captured all relevant anxiety disorder episodes. Similarly, even though we included Read codes for low-intensity treatments provided in primary care, such as psycho-education, it is unclear how consistently GPs record these 'in-house' interventions. Nevertheless, the proportion of referred individuals that we observed in this study is consistent with the results reported in a recent UK government survey that estimated the prevalence of referrals to mental health services in a large random sample of young people (Vizard et al., 2017).

5. Conclusion

The observed referral and prescription probabilities were relatively low in the study cohort, and patients registered at practices located in the most deprived areas had the lowest likelihood of being treated and/or referred. The reasons for this disparity must be discerned and the deficit rectified. The continued use of antidepressants for the treatment of anxiety disorders among child and adolescent patients also necessitates the development of evidence-based guidelines on how to safely prescribe and manage these medications in primary care. Current guidance for clinicians in the UK is contradictory and outdated and does not take into account results from a growing evidence-base that indicates the efficacy of SSRIs in the treatment of anxiety disorders and OCD in adolescence (Dobson et al., 2019; Locher et al., 2017; Patel et al., 2018; Skapinakis et al., 2016; Strawn et al., 2018). There is still a lack of evidence-based guidance for GPs to follow on the optimal length of pharmacological treatment or on titration of dose. For example, some studies suggest that SSRIs may require higher doses to be effective when used to treat anxiety disorders compared to depression; it may also take longer before a positive response is seen in these patients (Patel et al., 2018), whereas other studies have reported an absence of a SSRI dose-related effect (Strawn et al., 2018). Furthermore, much of the published evidence in favour of SSRIs was generated from relatively small trials, which are prone to bias, and follow-up duration has rarely exceeded a couple of months, making it unclear if they are effective and tolerable over longer periods. Whilst SSRIs appear to be the medication favoured by many GPs, the choice of first-line drug varied, with most choosing fluoxetine or sertraline over citalopram, it is currently unclear if one SSRI is superior to another, and whether they differ in terms of tolerability. Our study has also shown that the use of short-term benzodiazepines is relatively common in the treatment of anxiety disorders, despite the absence of evidence for their use in pediatric populations (Witek et al., 2005). Future treatment guidelines for anxiety disorders in children and adolescents should therefore address their use.

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CRediT authorship contribution statement

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