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Temporal patterns in the recorded annual incidence of common mental disorders over two decades in the United Kingdom: a primary care cohort study

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Original Article

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Abstract

Background. Common mental disorders (CMDs) including depression, anxiety, and stress are very common, but it is unclear whether the last decades of social, economic, and political change have impacted incidence of CMD. This study explored temporal trends in the recorded incidence of CMD in the United Kingdom.

Methods. We used data from general practices in the United Kingdom (Clinical Practice Research Datalink) to estimate the annual recorded incidence of CMD for 2000–2020, including symptoms, diagnosis, or pharmaceutical treatment. Trends were explored by sex, age, ethnicity, region, deprivation, and comorbidity.

Results. We included 29 480 164 individuals who were followed up for 12.5 years on average (S.D. = 6.4 years). The recorded incidence of CMD episodes was 55.9 per 1000 person-years in 2000 [95% confidence interval (CI) 55.8–56.1], increasing to 79.6 per 1000 person-years in 2019 (95% CI 79.5–79.8). Females had higher recorded incidence rates, as did those living in more deprived areas. We observed striking patterns by age over time, with rates in ages 16–24 increasing from 40.2 per 1000 in 2000 (95% CI 39.8–40.5), to 107.8 per 1000 in 2019 (95% CI 107.0–108.6). In contrast, the rates in those aged ≥55 years decreased since 2014. There were differing patterns of incidence by ethnic group, with a steeper increase in Asian, Black, and mixed groups in recent years.

Conclusions. Overall, the incidence of recorded CMD in the UK general practice increased between 2000 and 2019 with a small decrease in 2020. The overall trends obscured important differences across population subgroups, which may have implications for prevention.

Background

Common mental disorders (CMDs), including anxiety, depression, and non-specific stress, are highly prevalent mental health conditions, contributing to substantial psychological distress and reduced social functioning. In a given year, nearly 20% of individuals meet the criteria for CMD and 25% during their lifetime (Steel et al., 2014). CMD accounted for 12.5% of sickness absences in the United Kingdom in 2018 (Office for National Statistics, 2018) and remained a leading cause of absences through 2020 (11.6%) despite the emergence of COVID-19-related sickness (14.0%) (Office for National Statistics, 2020). Globally, CMD contributes to a substantial proportion of disability-adjusted life years lost, with depressive disorders accounting for 1.5% and anxiety disorders accounting for 1.1% (Vos et al., 2020).

The CMD burden varies across population groups, with higher rates among females, lower socioeconomic groups, residents of deprived neighbourhoods, and individuals with chronic conditions (Doherty & Gaughran, 2014; Fone et al., 2013; Muntaner, Eaton, Miech, & O'Campo, 2004; Steel et al., 2014). Age, ethnicity, and region also influence CMD patterns, with historically marginalised groups experiencing a disproportionate burden of CMD (Cooper et al., 2010, 2013; Lewis & Booth, 1992). Socioeconomic conditions play a critical role, as economic downturns, job loss, and reduced income have all been associated with worsened mental health outcomes (Brignone et al., 2020; Muntaner et al., 2004). The effects of economic crises may particularly impact historically marginalised groups, exacerbating mental health inequalities.

Following the 2007–08 global financial crisis, many countries, including the United Kingdom, implemented austerity measures ostensibly to curb public debt and stimulate the economy. These measures, initiated in 2010, included cuts to health and social services, effectively eroding social support and welfare systems and resulting in growing poverty and income

inequality across the United Kingdom (Innes & Tetlow, 2015). These entrenched inequalities resulting from a decade of austerity measures were further exacerbated by the COVID-19 pandemic. The confluence of these wide macrosocial and economic changes in the last 20 years has the potential to dramatically change rates of CMD across the population. Despite the importance of examining long-term trends of CMD, there is little research in this area.

Our study aimed to investigate the temporal trends in the annual incidence of CMDs in the UK adults using primary care data from 2000 to 2020. We used a broad case definition of CMDs, including anxiety, depression, and stress-related symptoms, disorders, and pharmaceutical treatment. Further, we estimated stratum-specific estimates across key sociodemographic variables. Our hypothesis was that recorded CMD incidence would rise in the decade following the financial crisis of 2007–08, and that these increases would be more pronounced in more deprived areas. As a secondary aim, we explored CMD incidence separately by type to assess if the temporal trends could be attributed to changes in diagnosis and symptom recording or pharmaceutical treatment.

Methods

Study design and data source

We created a longitudinal cohort of over 29 million UK adults aged ≥16 years registered to a general practice using de-identified individual electronic health records (EHRs) from the Clinical Research Practice Datalink (CPRD) Aurum and Gold databases (Clinical Practice Research Datalink, 2021a, 2021b). As practices can change databases, we de-duplicated the data where patients were present in both Aurum and Gold. CPRD includes individual consultation records from general practitioners (GPs) and contains patient demographic information, symptoms, diagnoses, prescriptions, referrals to secondary care, and death date. CPRD is broadly representative of the UK population with respect to age, sex, ethnicity, and region (Herrett et al., 2015).

Cohort entry occurred when participants were at least 16 years of age and registered at their general practice for at least 12 months between 1 January 1999 and 31 December 2020. Cohort exit occurred when patients left the practice, died, or developed CMD, whichever was earliest. CPRD data were linked to Office for National Statistics (ONS) death registration data, as death dates are more accurately recorded in ONS compared to CPRD. When only the year of death was available, we used the median calendar date in that year (2 July) as the death date. This study was approved by the Independent Scientific Advisory Committee for CPRD research (Protocol 21_000354). This protocol was agreed by co-authors and pre-registered on Open Science Framework (https://osf.io/ka7uw/).

Outcomes

The outcomes of this study were a record of CMD within primary care. CMD codes included (i) symptoms or diagnosis of an anxiety disorder, or a depressive disorder, or a mixed depressive and anxiety disorder, or stress, or (ii) pharmaceutical treatment for an anxiety or depressive disorder, including prescriptions for antidepressants and anxiolytics. Clinical procedures, assessments, diagnoses, symptoms, and prescriptions are recorded in patient records using Read and SNOMED codes (online Supplementary Appendix 1 for code list).

CMDs are commonly recurrent, episodic disorders over lifetimes. We used the clinical expertise of GPs (KW & SG) and a psychiatrist (DO) on our research team to define an incident episode of CMD. The first record of CMD diagnoses, symptoms, or pharmaceutical treatment in primary care records was considered an incident episode. Further, an individual was classified as having an incident episode of CMD when a new CMD episode was recorded in their primary care records where there had been no such code in the prior year, allowing us to capture the recurrent episodic nature of CMD across the life course (Kaster et al., 2021; Wang et al., 2013). We reviewed data from 1 January 1999 to exclude prevalent cases at the start of follow-up (1 January 2000). For similar reasons, we excluded the first year of registration at a practice to avoid misclassifying prevalent cases who had transferred from another practice or were receiving treatment for CMD elsewhere.

Covariates

We included sex (female, male), age (10-year age groups), ethnicity, nation (England, Scotland, Northern Ireland, and Wales), and physical comorbidity as covariates. We included region and area-level deprivation for those registered to English practices.

We categorised patients into five ethnic groups: Asian, Black, mixed, other, White, or unknown, based on recorded values in their patient records. Patients with multiple ethnicity codes were categorised in the following way. When all recorded ethnicity codes were concordant, the patient was assigned that ethnicity. However, if a patient had received two or more discordant ethnicity codes, we selected the modal ethnicity as recorded in their CPRD records. Where there was no modal code, the participant was flagged as having mixed ethnicity. Finally, patients who had no record of ethnicity codes were categorised as 'unknown.'

For those registered to English practices, we included 10 subnational geographic regions: North East, North West, Yorkshire and the Humber, East Midlands, West Midlands, East of England, London, South West, and South East. We included area-level socioeconomic deprivation using quintiles of the index of multiple deprivation: quintile 1 (low deprivation) to quintile 5 (high deprivation), measured at the practice level.

We used the Charlson comorbidity index (CCI) to assess physical comorbidities present before the diagnosis of CMD. The CCI is calculated based on the number of physical comorbid conditions assigned an integer weight from one to six, with six representing the most severe morbidity burden (Charlson, Pompei, Ales, & MacKenzie, 1987). The total CCI score was calculated as the sum of these points, which we categorised into three levels: 0, 1, and 2 or more. Comorbidities were considered to be cumulative over the follow-up period. For example, a patient experiencing a myocardial infarction in 2004 (1 point) would be assigned a CCI score of 1 for the rest of the study period, which would be increased if there was a record of any further comorbidities. If this patient went on to develop localised cancer in 2007 (2 points), their CCI score would be 3 from 2007. If there was no record of physical comorbidities in the patient record, we assumed there were no comorbidities present.

Statistical analysis

Participants were entered into the cohort at the start of follow-up (1 January 2000), their 16th birthday, or registration at an eligible GP practice, if later than the start of follow-up. We split the records

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using the Lexis expansion to calculate the annual incidence rates (IRs), and time-varying covariates were calculated after the expansion. As patients were re-entered into the cohort following 365 days without receiving a code for CMD, we assumed multiple ordered failure events with discontinuous risk intervals. We calculated the annual incidence of recorded CMDs (per 1000 person-years at risk) with 95% confidence intervals (95% CIs). Annual IRs per 1000 person-years at risk were stratified for all covariates. Analysis was conducted using Stata v.17.

Sensitivity analysis

We conducted a sensitivity analysis to explore incidence by type: recorded diagnosis/symptom of CMD or pharmaceutical treatment of CMD with antidepressants or anxiolytics. When comparing outcomes ascertained via diagnosis/symptom *v.* prescription, the two outcomes were considered independently, so individuals could contribute to incidence counts of both outcomes if they had received both diagnoses and prescription in that calendar year.

Results

Descriptive statistics

The analytic sample included 29 480 164 participants from 2248 general practices across the United Kingdom, accounting for 237 123 186 person-years, with a mean follow-up time of 12.5 years [standard deviation (S.D.): 6.4 years]. Table 1 provides descriptive statistics of the study sample in 2000, 2010, and 2020.

There were similar proportions of females and males at all time points (e.g. females comprising 50.5% of the sample in 2000, 50.8% in 2010, and 50.5% in 2020). The mean age increased over the study period, from 46.8 (S.D. 18.7) to 51.8 (S.D. 17.9). In 2000, 68.5% of the sample did not have a recording of ethnicity, which decreased to 42.4% in 2010 and 31.6% in 2020. Of those with recorded ethnicity, the largest ethnic group was White ethnicity (2000–28.5%, 2010–48.2%, and 2020–54.3%) followed by Asian ethnicity (1.6, 4.9, and 7.4%, respectively). The proportion of the sample from each of the devolved nations remained relatively stable over time, between 83.3% and 84.7% from England, 8.0–9.0% from Northern Ireland, 5.2–5.8% from Wales, and 1.8–2.0% from Scotland.

Within England, the South East was the most common region of residence in 2000 and 2010, accounting for 17.3% and 17.8% of the English population, respectively. In 2020, London was the largest region (18.5%) with the South East retaining a large proportion of participants (17.6%). In 2000, the level of deprivation was higher than expected with 23.0% and 24.6% in the highest two quintiles of deprivation with lower proportions (16.1% and 17.4%) in the least deprived quintiles. This persisted through the follow-up time, with 23.6% and 22.8% in the most deprived quintiles in 2020.

There were large changes in proportions with physical comorbid conditions over the study period. In 2000, 3.1% had one comorbid condition and 1.7% had two or more. By 2020, this increased to 11.2% with one comorbidity and 13.6% with multiple comorbid conditions.

Incidence rates

The overall IR for any newly recorded episode of CMD was 55.9 per 1000 person-years in 2000 (95% CI 55.8–56.1), and it increased over time until 2019 (IR 79.6, 95% CI 79.5–79.8), followed by a slight decline in 2020 (IR 76.9, 95% CI 76.8–77.1) (Fig. 1; online Supplementary Appendix 2). We noted an increase between 2005 and 2006, with overall incidence increasing from 63.6 per 1000 person-years (95% CI 63.5–63.8) to 72.5 (95% CI 72.4–72.7).

IRs were substantially higher among females than males across the study period, with broadly parallel trends over time in females and males (Fig. 2).

We observed large differences in the IR of recorded episodes of CMDs over time by age. We found evidence for increasing incidence in all age groups in the first decade of follow-up (2000–2010), but differing patterns from 2011 onwards, with incidence continuing to increase in the youngest age groups, but stable in those aged 35–54 years, and decreasing rates in those aged ≥55 years. There was a steep increase in the annual incidence of CMD among those aged 16–24 years, more than doubling from 40.2 per 1000 person-years (95% CI 39.8–40.5) in 2000 to 107.8 (95% CI 107.0–108.6) in 2019. The IR also increased in those aged 25–34 years over the same period, but the increase was not as pronounced (2000: 57.0, 95% CI 56.7–57.4; 2019: 90.7, 95% CI 90.2–91.2). In contrast, the IR in those aged 34–44 years remained stable between 78.5 and 81.4 per 1000 person-years from 2010 to 2020. The incidence decreased in all age groups 55 or older after 2010. Those aged ≥75 years, for example, had an IR of 88.1 per 1000 person-years (87.5–88.6) in 2011 and 74.3 per 1000 (95% CI 73.9–74.8) in 2019 (Fig. 3).

We found distinct patterns of incident episodes of recorded CMD by ethnic group. IRs in Asian groups were stable for much of the study period, but we found a large increase in 2016 (IR 62.5, 95% CI 61.9–63.1) to 2018 (74.3, 95% CI 73.7–75.0). For the Black ethnic group, we observed that the recorded incidence of CMD increased over the study period, from 52.9 per 1000 (95% CI 51.4–54.3) in 2000 to 83.0 per 1000 (95% CI 82.1–84.0) in 2019, with much of this increase occurring between 2016 and 2019. In the mixed ethnicity group, we observed an increase in recorded incidence from 2000 (65.6 per 1000, 95% CI 63.0–68.2) to 2003 (82.0 per 1000, 95% CI 79.5–84.5), but remained stable through the later study period. There was an increase in recorded CMD for the White ethnic group between 2005 and 2006, followed by stable rates through 2012 and declining rates after 2013 (Fig. 4).

For all nations, there was evidence of increasing IRs from the beginning of the study (2000–2004), including increased recorded incidence between 2005 and 2006 (Fig. 5). In Northern Ireland, Scotland, and Wales, there was relative stability between 2007 and 2012, with decreasing rates after 2013. In contrast, the incidence increased in England over the same time. All nations saw a decrease in recorded incidence in 2020 compared to 2019.

Within England, the level of incidence of CMD varied across sub-national regions, with London showing consistently lower incidence (from 47.0, 95% CI 46.7–74.4 in 2000 to 73.2, 95% CI 72.8–73.6 in 2019) than all other regions. In contrast, the North East had elevated rates across the study period, ranging from 62.5 per 1000 (95% CI 61.6–63.4) in 2000 to 92.3 (95% CI 91.1–93.5) in 2019. Despite these differences, the temporal pattern was similar across the regions: increasing incidence from 2000 to 2004, a notable increase between 2005 and 2006, followed by a decrease in 2008, and a further decrease in 2020 (Fig. 6).

When exploring patterns by deprivation (England only), we found evidence of a dose–response relationship between the recorded incidence of CMD and deprivation quintile, with lower rates of CMD in areas with lower levels of deprivation

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Table 1. Descriptive statistics, 2000, 2010, 2020

	2000		2010		2020	
	(*n* = 12 268 174)		(*n* = 13 425 117)		(*n* = 11 327 412)	
	n	%	*n*	%	*n*	%
Sex						
Male	6 067 417	49.5	6 609 243	49.2	5 606 733	49.5
Female	6 200 757	50.5	6 815 874	50.8	5 720 679	50.5
Age						
Mean (s.d.)	46.8	18.7	49.4	18.0	51.8	17.9
Ethnicity						
Asian	199 705	1.6	656 727	4.9	841 516	7.4
Black	107 659	0.9	346 702	2.6	379 977	3.4
Mixed	41 636	0.3	175 664	1.3	246 093	2.2
Other	18 864	0.2	82 614	0.6	123 199	1.1
White	3 500 401	28.5	6 471 445	48.2	6 152 977	54.3
Unknown	8 399 909	68.5	5 691 965	42.4	3 583 650	31.6
Nation						
England	10 336 554	84.3	11 374 246	84.7	9 434 368	83.3
Northern Ireland	1 045 298	8.5	1 078 992	8.0	1 015 518	9.0
Scotland	244 173	2.0	239 535	1.8	222 480	2.0
Wales	42 149	5.2	732 344	5.5	655 046	5.8
Region						
North East	332 681	2.7	357 579	2.7	271 106	2.4
North West	1 765 571	14.4	1 942 646	14.5	1 701 088	15.0
Yorkshire & the Humber	447 970	3.7	432 803	3.2	311 080	2.8
East Midlands	367 486	3.0	353 989	2.6	208 993	1.9
West Midlands	1 523 184	12.4	1 626 161	12.1	1 445 522	12.8
East of England	665 832	5.4	674 558	5.0	365 932	3.2
London	1 804 872	14.7	2 133 638	15.9	2 090 294	18.5
South East	2 118 493	17.3	2 390 348	17.8	1 994 273	17.6
South West	1 310 465	10.7	1 462 524	10.9	1 046 080	9.2
Deprivation						
Quintile 1 (least deprived)	1 971 226	16.1	2 186 704	16.3	1 882 706	16.6
Quintile 2	2 139 284	17.4	2 355 564	17.6	2 082 295	18.4
Quintile 3	2 312 030	18.9	2 572 617	19.2	2 106 906	18.6
Quintile 4	2 824 558	23.0	3 153 913	23.5	2 675 256	23.6
Quintile 5 (most deprived)	3 021 076	24.6	3 156 319	23.5	2 580 249	22.8
Comorbidity						
No comorbid conditions	11 676 278	95.2	10 869 942	81.0	8 529 294	75.3
1 comorbid condition	380 151	3.1	1 222 252	9.1	1 262 637	11.2
2 or more comorbid conditions	211 745	1.7	1 332 923	9.9	1 535 481	13.6
Incident CMD						
No	11 639 106	94.9	12 524 328	93.3	10 549 822	93.1
Yes	629 068	5.1	900 789	6.7	777 590	6.9

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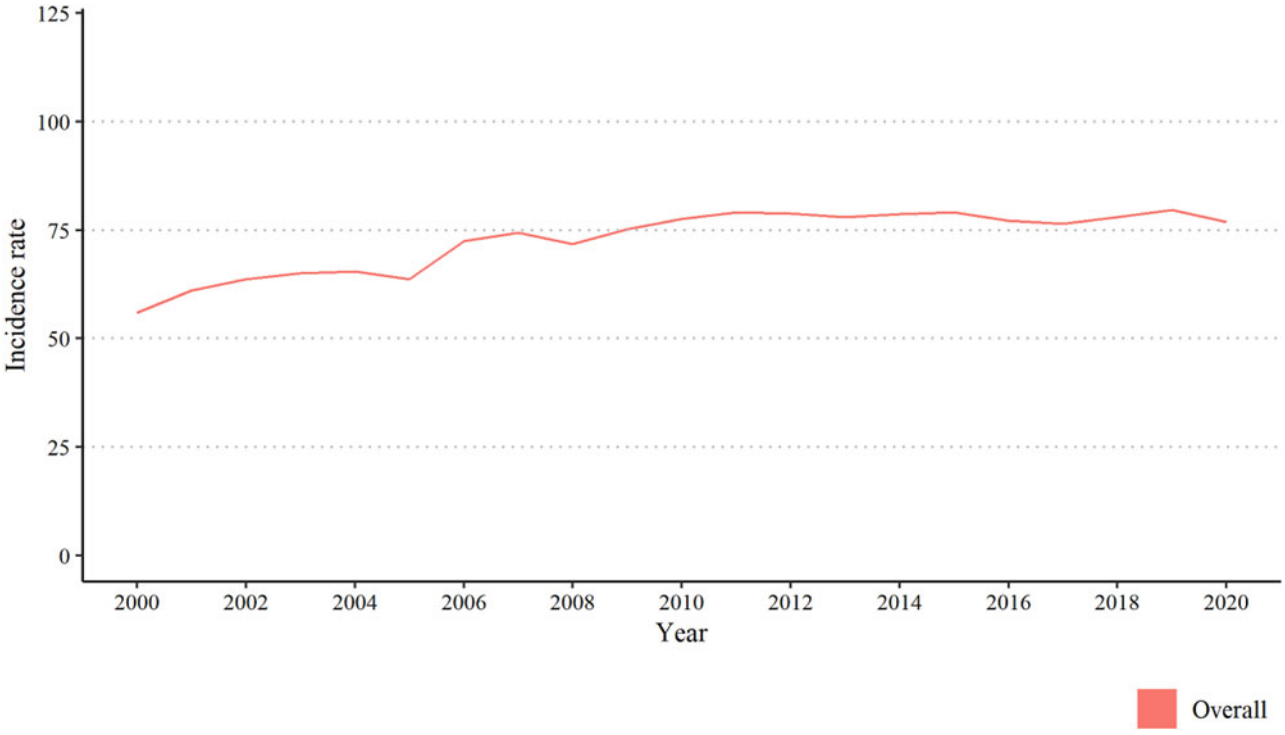

Figure 1. Recorded annual incidence rate of common mental disorders (per 1000 person-years), overall.

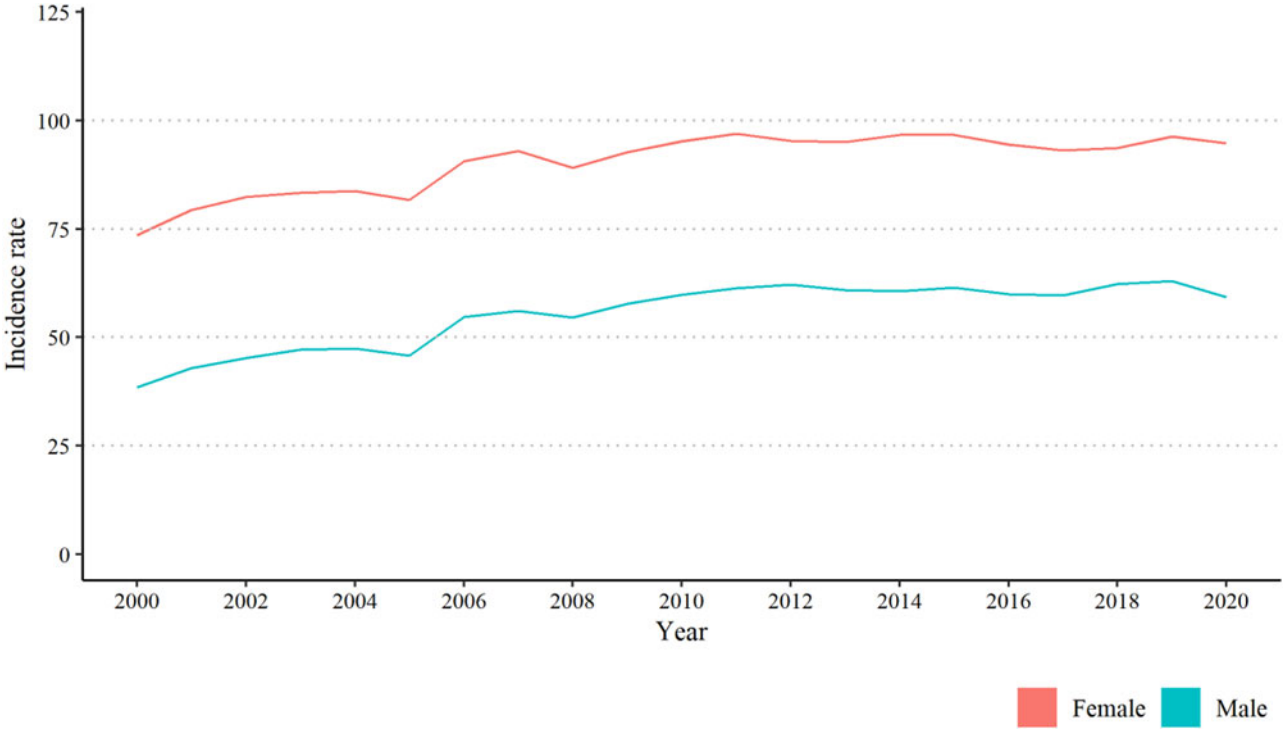

Figure 2. Recorded annual incidence rate of common mental disorders (per 1000 person-years), by sex.

and higher rates of incidence of CMD in higher quintiles of deprivation (Fig. 7). There appeared to be a divergence in the IRs between deprivation quintile over time, with steeper increases in the most deprived quintiles when compared to less deprived areas. In 2000, the incidence in the lowest quintile was 55.4 per 1000 person-years (95% CI 55.1–55.8), which increased to 71.7 per 1000 person-years (95% CI 72.3–73.1) in 2010 and 74.8 per 1000 person-years (95% CI 74.4–75.2) in 2019. The recorded IR in the most deprived quintile was 57.8 per 1000 person-years (95% CI 57.9–58.1) in 2000 increasing to 85.4 per 1000 person-

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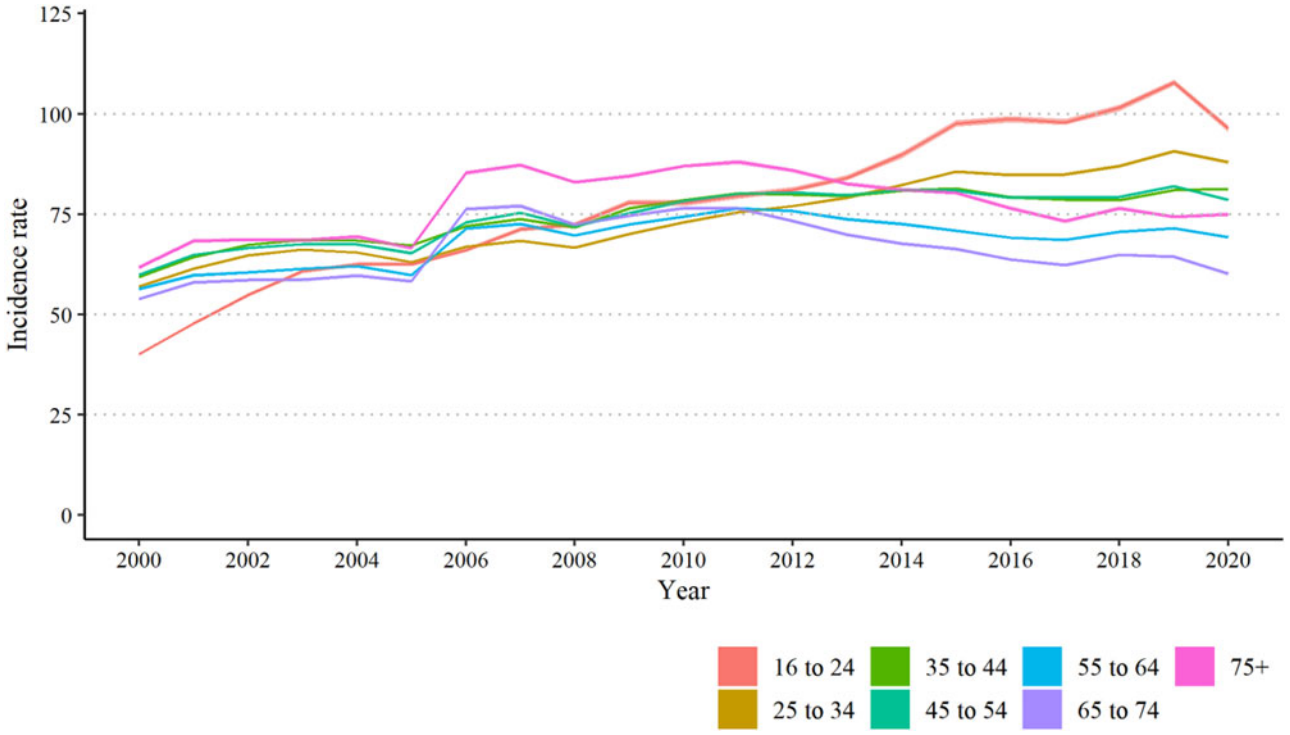

Figure 3. Recorded annual incidence rate of common mental disorders (per 1000 person-years), by age.

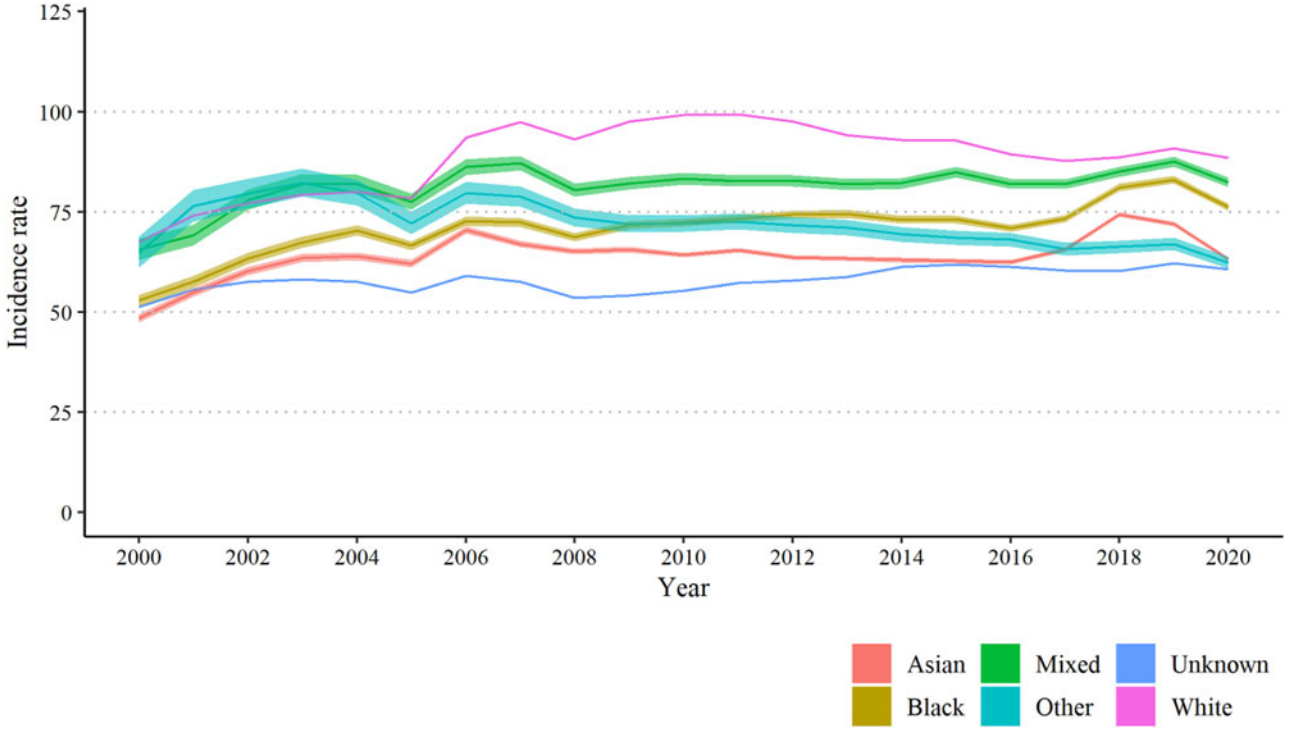

Figure 4. Recorded annual incidence rate of common mental disorders (per 1000 person-years), by ethnicity.

years (95% CI 83.1–83.8) in 2010 and 85.9 per 1000 person-years (95% CI 85.6–86.3) in 2019.

There were marked differences in IR of CMD episodes by comorbidity score (CCI), including much higher rates of CMD in those with higher CCI scores. In 2000, those without comorbidities had an incidence of 54.0 per 1000 person-years (95% CI 53.9–54.1), those with a CCI score of 1 had an IR of 78.9 per 1000 person-years (95% CI 78.0–79.9), and those with a score of 2 or more had an IR of 123.2 per 1000 person-years (95% CI 121.6–124.8; Fig. 8). Visual inspection suggested that

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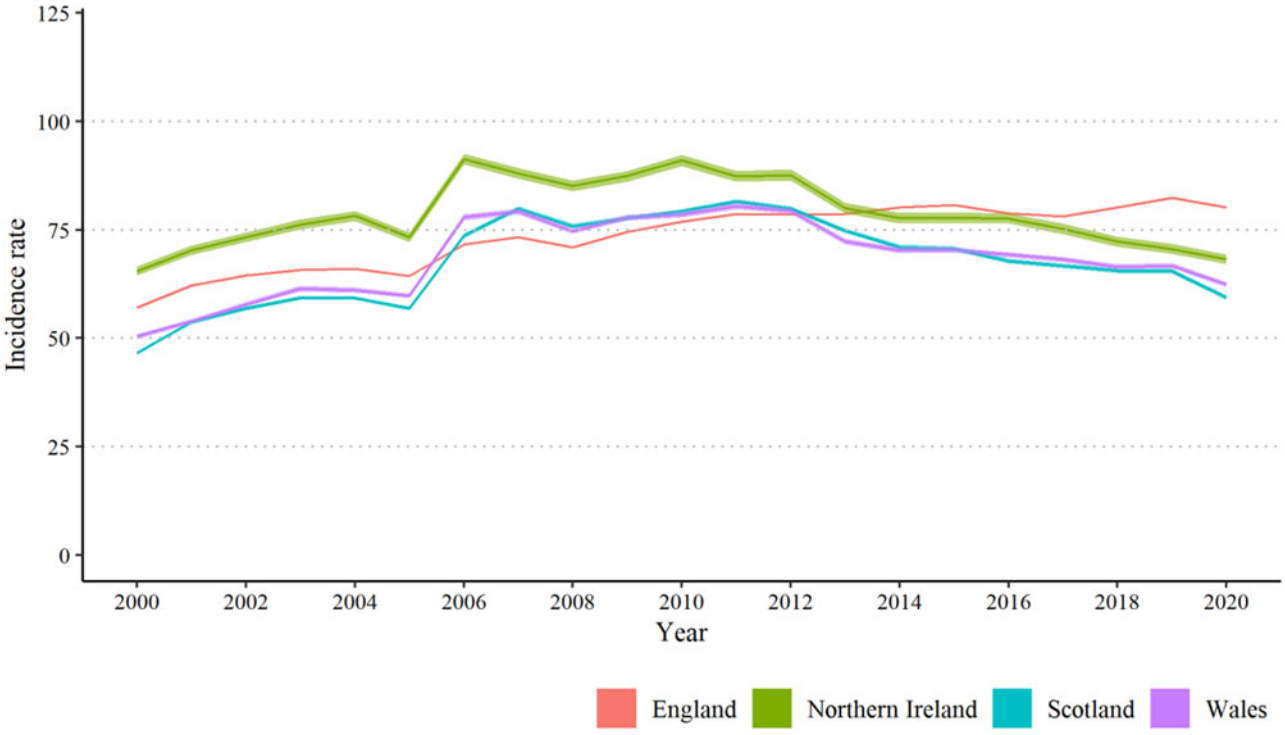

Figure 5. Recorded annual incidence rate of common mental disorders (per 1000 person-years), by nation.

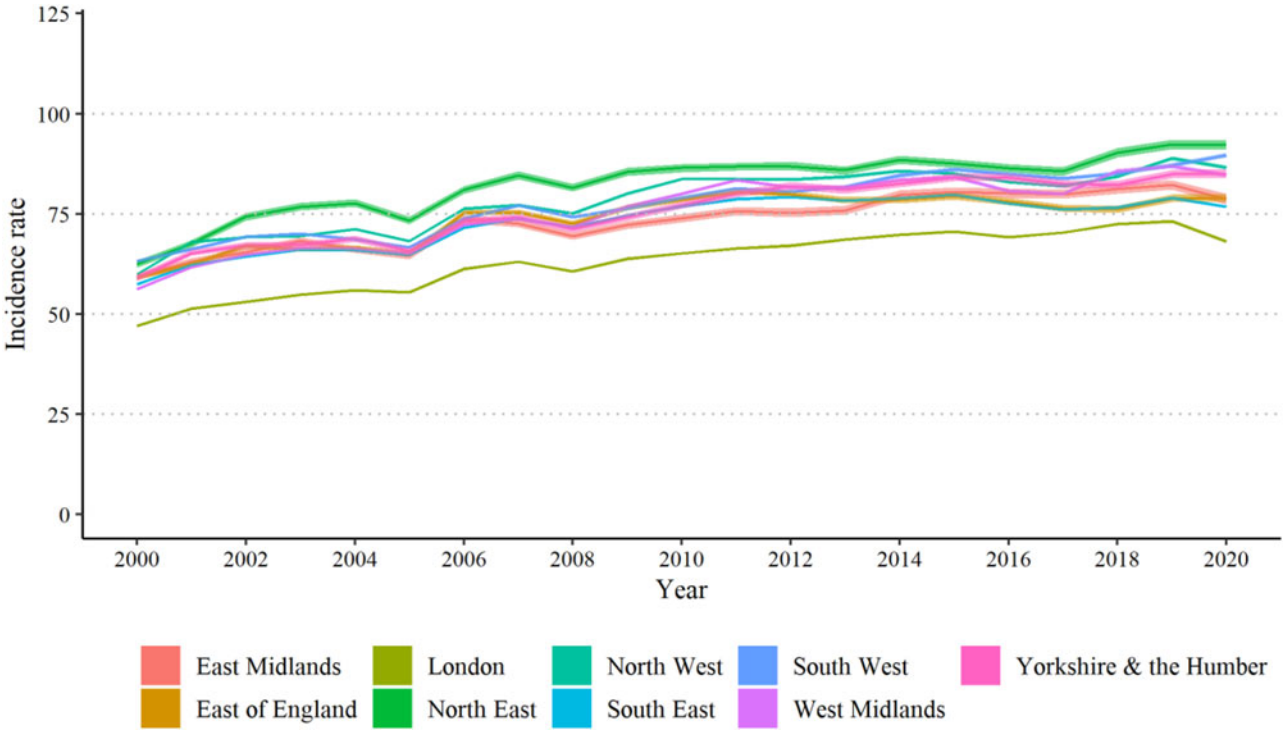

Figure 6. Recorded annual incidence rate of common mental disorders (per 1000 person-years), by region.

these rates were converging over time due to increased incidence in the group without comorbidities and decreased incidence in the group with the highest comorbidity burden, although we did not test for a statistical interaction with comorbidity score and time.

In our sensitivity analysis, we divided the incidence of CMD by type to compare IRs of those who had new episodes of CMD due to recorded symptoms or diagnosis included in their records, compared to those who were considered incidence cases due to receipt of prescriptions to treat CMD (e.g.

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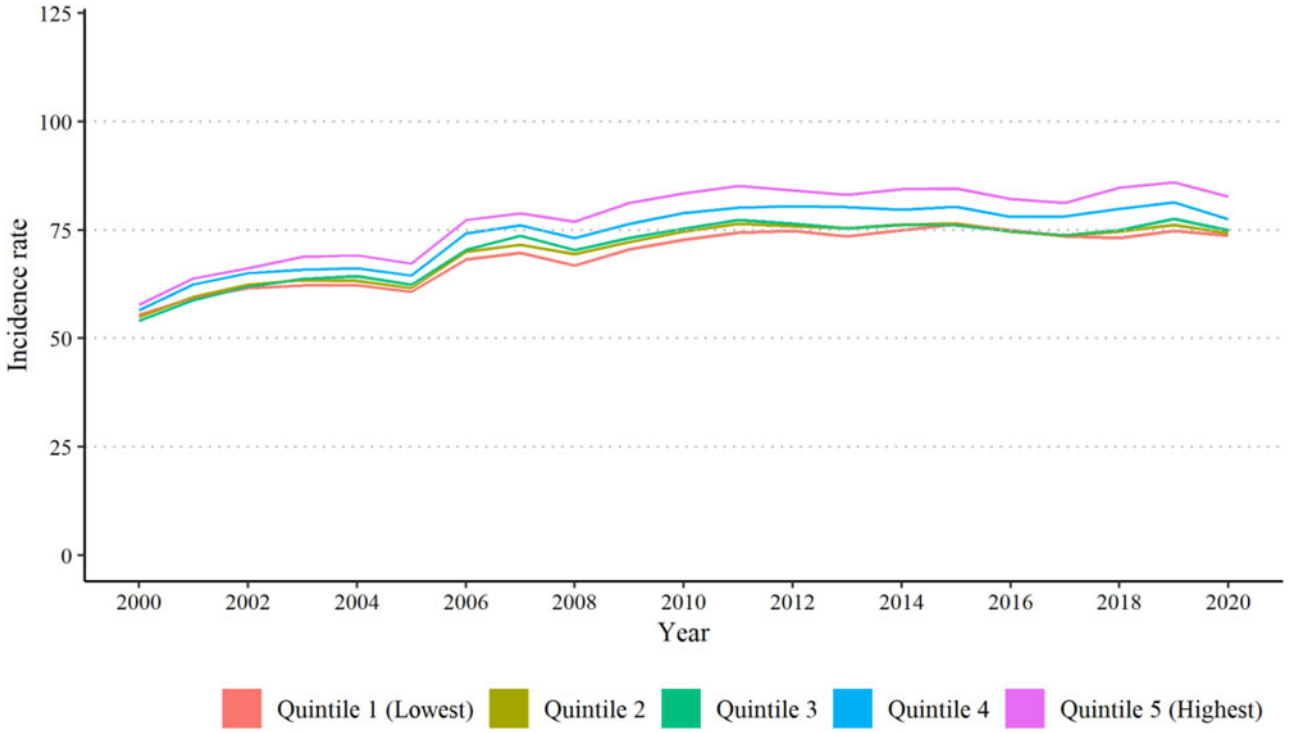

Figure 7. Recorded annual incidence rate of common mental disorders (per 1000 person-years), by deprivation.

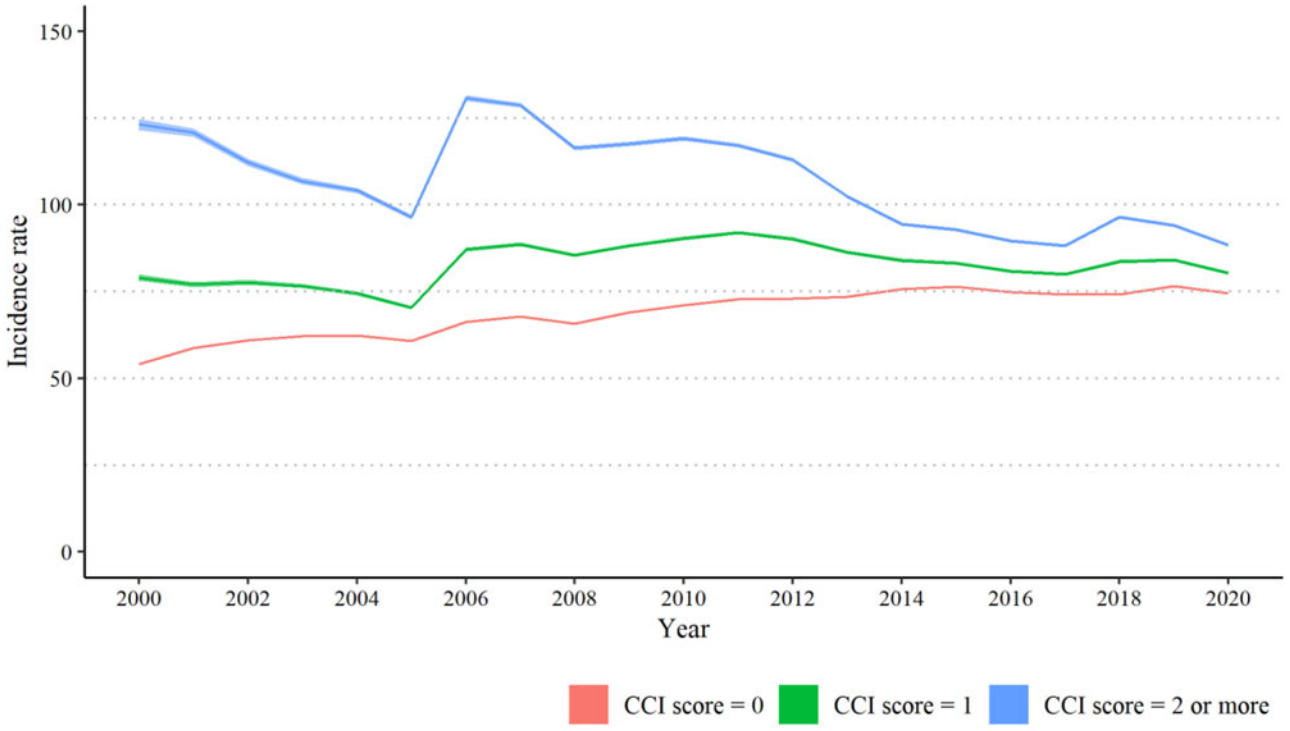

Figure 8. Recorded annual incidence rate of common mental disorders (per 1000 person-years), by comorbidity.

antidepressants or anxiolytics). At the start of the study, nearly twice the number of incidence cases were due to prescriptions than recorded symptoms/diagnosis (49.6 per 1000 person-years, 95% CI 49.4–49.7; 25.5 per 1000 person-years, 95% CI 25.5–25.6; respectively). Over time, the IR of recorded CMD episodes due to prescribing increased from 2000 (49.6 per 1000 person-years, 95% CI 49.4–49.7) until 2014 (63.5, 95% CI 63.3–63.6), and with a slight decrease until 2019 (58.5 per 1000 person-years, 95% CI 58.3–58.6). There was a larger increase in incidence cases due to recorded diagnoses or symptoms, more than doubling

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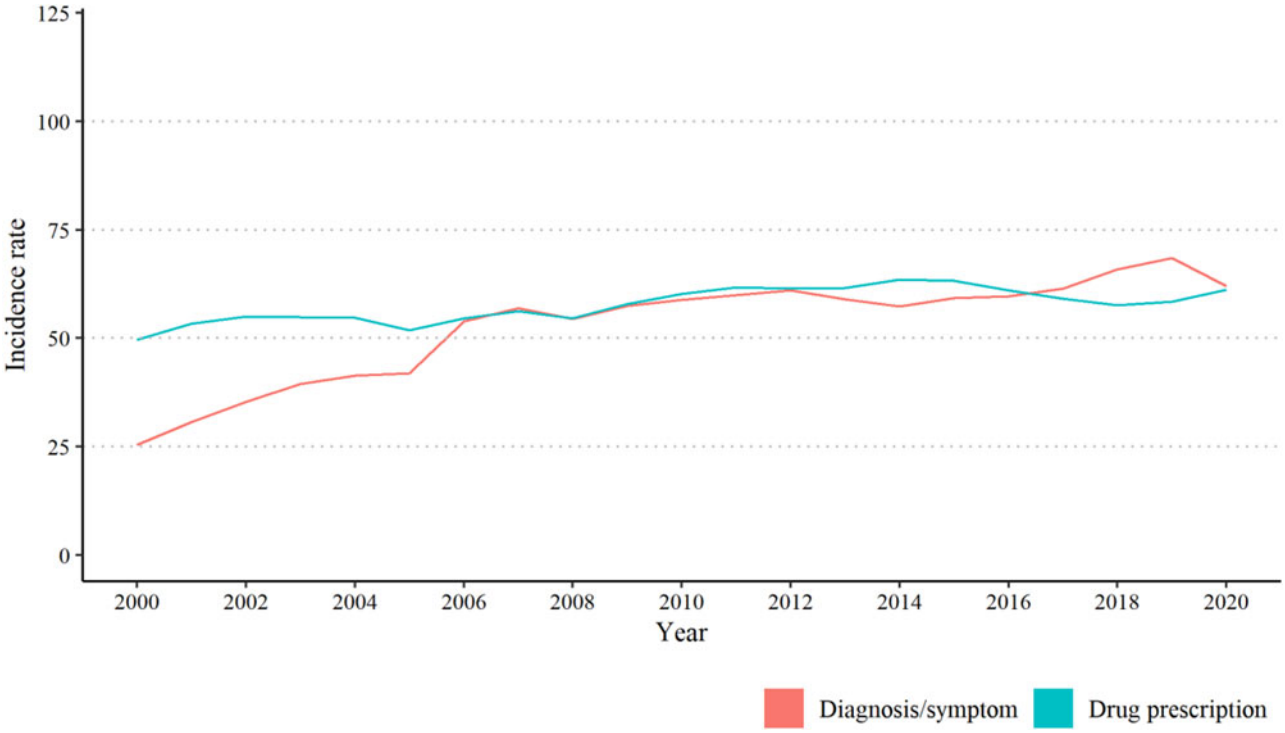

Figure 9. Recorded annual incidence rate of common mental disorders (per 1000 person-years), by type.

from 25.5 per 1000 person-years (95% CI 25.5–25.6) in 2000 to 68.5 per 1000 person-years (95% CI 68.3–68.7) in 2019. The pattern was markedly different by type between 2019 and 2020. In 2020, compared to rates in 2019, the IR in 2020 increased for prescriptions (61.2 per 1000 person-years, 95% CI 61.0–61.3) and decreased for recorded symptoms or diagnoses (62.0 per 1000 person-year, 95% CI 61.8–62.2; Fig. 9).

Discussion

We observed an increasing incidence of recorded CMDs in the United Kingdom over the past 20 years, with important differences by population group. Much of this increase was observed before 2005, with stable rates from 2006 to 2019 and a decrease in 2020. Contrary to our hypothesis, we did not find clear evidence linking the temporal trends of recorded CMD incidence to the 2007–08 financial crisis and subsequent austerity measures.

Possible explanations for the observed increase in recorded CMD incidence include (1) a genuine rise in anxiety, depression, and stress symptoms; (2) changes in help-seeking behaviours, including increased rates of consulting with GPs for mental health concerns; or (3) changes in diagnosing, prescribing, and recording mental health symptoms and diagnoses in general practice. Firstly, the increased incidence of recorded CMD may reflect a true increase in CMD symptoms. Recent research has noted increasing levels of psychological distress, supporting this explanation (Daly, 2022; Daly & Macchia, 2023). Secondly, the increased incidence of CMD recorded in primary care may reflect changing public attitudes towards discussing mental health problems and a growing willingness to seek help. Anti-stigma programmes and mental health awareness campaigns may have contributed to higher mental health literacy, and lower levels of stigma, which may reduce barriers to seeking care (Bonabi et al., 2016; Clement et al., 2015; Sampogna et al., 2017; Schnyder, Panczak, Groth, & Schultze-Lutter, 2017). The different patterns we observed by age may be linked to generational shifts in mental health stigma, including lower levels of stigma observed in younger age groups and more recent birth cohorts (Evans-Lacko, Corker, Williams, Henderson, & Thornicroft, 2014). Thirdly, changing diagnostic practices within primary care could have contributed to the observed trends. The introduction of the Quality and Outcomes Framework (QOF) in 2006, which provided financial incentives for physicians to deliver and document evidence-based care, may have increased the recording of CMD symptoms and diagnoses during that period (McLintock et al., 2014). The decline in recorded CMD incidence from 2019 to 2020 provides further support to the second and third explanations. While it is unlikely that the observed decrease reflected an actual reduction of CMD symptoms during the COVID-19 pandemic, changes in patient help-seeking behaviour, including the inability or reluctance to access mental health care during the wider public health crisis, could partially account for the decrease. This is consistent with previous research, which shows a considerable reduction in primary care-recorded CMDs during the first 6 months of the pandemic, a period of high demand on the healthcare system (Carr et al., 2021). In addition, many GPs radically changed their working patterns during the pandemic, including shifting to remote patient consultations while navigating high levels of pressure on the healthcare system, which may have resulted in fewer recorded symptoms and increased use of pharmacological treatment (Murphy et al., 2021). While all three explanations may contribute to the overall trend, our study was not able to elucidate the underlying mechanism for these changes.

Comparison to previous research

Our study adds to the existing CMD literature by producing annual estimates over a 20-year period and providing detailed

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estimates stratified by key sociodemographic factors, which have not been explored in previous research. Our IRs were higher than previous estimates using UK primary care data. This discrepancy can be attributed, in part, to our inclusive case definition of CMD, which included anxiety, depression, and stress-related diagnoses, symptoms, and pharmaceutical treatment. A study on recorded diagnoses and symptoms of anxiety and depression in Wales found a lower IR (20.3 per 1000 person-years in 2000) with evidence of increasing IRs from 2000 to 2006 (John et al., 2016). Our estimates of recorded incidence for symptoms and diagnosis only revealed similar estimates (25.5 per 1000 person-years in 2000) with an increasing trend in the first decade of follow-up. Other studies examined anxiety and depressive disorders separately. One study estimated that in 2000 the incidence of diagnosed depression was 18.1 per 1000 person-years (95% CI 17.8–18.3) and the incidence of depressive symptoms was 8.72 per 1000 person-years (95% CI 8.6–8.9) (Rait et al., 2009). Another study estimated that the incidence of anxiety diagnoses and symptoms was 7.2 per 1000 person-years (95% CI 7.0–7.3) in 2000 (Walters, Rait, Griffin, Buszewicz, & Nazareth, 2012). While the magnitude of incidence estimates was lower than our study, these studies also found similar patterns across sex and deprivation.

These overall trends obfuscated differences between population groups, particularly the notable differences by age. Individuals aged 16–24 years had the lowest IR in 2000 but experienced a more than twofold increase by 2019. A smaller increase was also observed among those aged 20–34 years. Conversely, older age groups had higher IRs in 2000, followed by stable or decreasing rates after 2011. This rising incidence among young people aligns with previous research, which found an increase in anxiety from 2003 to 2018 (Archer, Turner, Kessler, Mars, & Wiles, 2022; Cybulski et al., 2021). These divergent trends across age groups may reflect changes in help-seeking behaviours, with younger people being more willing to discuss mental health problems than older individuals. While there may be temporal changes in diagnostic practices, we do not expect that these changes would be more pronounced for older or younger ages, suggesting that they are unlikely to fully explain the observed trends.

Differences in CMD incidence were observed by ethnic group. In 2000, the overall rate of recorded CMD incidence was highest among individuals from White, mixed, and other ethnic groups. The rate remained elevated in White and mixed ethnic groups throughout the study period, with a decrease observed in the White ethnic group from 2011 to 2020. Conversely, an increasing CMD incidence was found in Black and Asian ethnic groups between 2016 and 2019. It is important to note that these results are based on recorded diagnosis and treatment of CMD, and the broader picture is nuanced. Lower rates of recorded CMD do not mean that there are lower rates of clinically relevant CMD symptoms in Black and Asian ethnic groups but may be more indicative of the well-documented barriers to mental health care for minoritised groups (Bansal et al., 2022; Cooper et al., 2013; Le Cook, Trinh, Li, Hou, & Progovac, 2017; Memon et al., 2016; Nwokoroku, Neil, Dlamini, & Osuchukwu, 2022). However, caution is needed when interpreting these results due to changes in the accuracy and completeness of ethnicity recorded in primary care (Mathur et al., 2013; Shiekh et al., 2023). Ethnicity was not stated or not known for a substantial proportion of the sample in 2000 (68.5%). While recording improved by 2020, ethnicity was still missing for 31.6% of our sample. Further, while the number of missing data has decreased, the proportion of patient records marked as 'not known' or 'not stated' has increased, which may introduce bias if minoritised ethnic groups are systematically excluded from health statistics.

The overall increase in incidence over time was driven by the rates in England, as 85% of the sample was from England. In the other three nations, IRs were stable between 2007 and 2012, followed by a decrease. Variations in healthcare policies and priorities between the devolved nations may explain these differences over time. In England, the North East and North West consistently had higher CMD rates than other regions, while London had the lowest incidence. Incidence of CMD showed a dose–response relationship with deprivation quintile, where areas with low deprivation had lower CMD levels, and vice versa. The disparity between the highest and lowest fifths of deprivation appeared to be widening over time, but no statistical test was conducted to confirm this trend.

There was also a dose–response relationship between comorbidity and CMD, with high IRs in those with high comorbidity scores. These differences were more pronounced at the start of the study, suggesting a convergence over time, with decreasing rates in those with high comorbidity scores and increasing rates in those with low comorbidity scores. This convergence might be linked to the growing proportion of people who have longstanding illnesses, which corresponded to a 10-fold increase in the proportion of people with chronic illnesses in their primary care records in the past 20 years. Further investigation is needed to explore if these increased comorbidity rates are due to improved linkages among primary, secondary, and tertiary care records or a changing burden of chronic disease across the aging population of the United Kingdom.

From 2000 to 2017, psychotropic prescribing accounted for more incident CMD episodes than recorded symptoms or diagnoses, underscoring the importance of including prescribing information in an inclusive case definition of CMD. The overall increase in CMD incidence was driven by increasing rates of physician-recorded symptoms and diagnoses over the study period, while prescribing rates remained stable. This contradicts evidence of increased psychotropic prescribing in recent decades (Bogowicz et al., 2021; Lockhart & Guthrie, 2011). Yet, these findings are supported by research which shows that higher antidepressant prescribing rates may be the result of more long-term use of these medications, rather than incident prescriptions (Lockhart & Guthrie, 2011; Mars et al., 2017; Moore et al., 2009).

Limitations

It is important to reflect on the limitations associated with using EHR data for this analysis. First, we do not have a true population denominator for these estimates, as this cohort includes only those registered to a GP who access care, excluding individuals who are not registered with a GP (e.g. institutionalised individuals). While most UK residents are registered with a GP, accurately establishing the population denominator continues to pose a challenge as there are individuals who infrequently access healthcare (Cocoros, Ochoa, Eberhardt, Zambarano, & Klompas, 2019). The analysis assumes that individuals without a GP record did not require mental health care during that year, which overlooks the well-documented barriers that vulnerable and marginalised groups encounter, leading to potential underestimation of population rates of CMD. Further, EHR data are collected for clinical, not research, purposes. While there were quality checks for data

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accuracy, regular audits of coding practices are not conducted, potentially affecting the accuracy of recorded symptoms, diagnoses, and prescriptions. Changing coding practices over the 20-year study period, especially with the introduction of QOF incentives, could have partially explained the observed results. Symptoms and diagnoses may be coded in the free text sections of the patient record, which would underestimate the true rates of CMD, as the free text was not analysed.

These results should be interpreted within the broader landscape of mental health care provisions in the United Kingdom over time. Notably, the introduction of the 'Improving Access to Psychological Therapies' (IAPT) initiative in England in 2007 has implications. As IAPT data were not linked to CPRD, we would miss any individuals who received CMD care through IAPT if they had not also discussed their symptoms with their GP. While IAPT has not been adopted by the other devolved nations, they have other mental health initiatives which may provide mental health support outside of general practice. Analytically, this study provided a descriptive look into temporal trends of CMD, but we generated unconditional IRs or rates conditioned on a single variable. Further research could explore these patterns in a multivariate framework.

Strengths

This study benefits from a 20-year follow-up, an inclusive case definition, and stratum-specific estimates, providing a detailed exploration of temporal trends in recorded CMD incidence. This study includes more than 29 million participants, broadly representative of the UK population as more than 98% of the population is registered with a GP. Despite the limitations of EHR data, they provide an accurate and useful estimate of clinical demand and service provision. Our study employed a broad case definition for CMD, encompassing the shared psychopathology, high comorbidity, and diagnostic overlap between anxiety and depressive disorders (Kessler et al., 2008; Zbozinek et al., 2012). This definition accommodates pragmatic behaviours in primary care, such as coding symptoms of mental health issues that do not use diagnostic thresholds or using non-specific codes (e.g. stress-related problems) instead of specific diagnostic categories to capture the broad range of patients presenting to primary care for CMD.

Conclusions

The incidence of CMDs recorded in primary care in the United Kingdom increased over the last two decades. While the overall incidence increased over the study period, much of the increase was observed between 2000 and 2006, with relatively stable overall rates after that point. These overall findings obfuscated important differences across demographic characteristics, which may have implications for the identification, assessment, and treatment of CMD across the population. Specifically, the notable rise in CMD incidence among adolescents and young adults over the last 20 years demands further investigation and public health action.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S0033291723002349

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Author contributions. All authors contributed to the design of the study. A. I. L. was responsible for the data management and statistical analysis. J. D. finalised the results and manuscript. All authors contributed to the interpretation of the results and manuscript.

Competing interest. None.

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