

Secular trends in primary care utilisation for mental health problems: a Norwegian register-based population-wide study

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ABSTRACT

Background Evidence from several countries suggests increasing mental health problems among children and adolescents, raising concerns about deteriorating population mental health. Whether rising consultation rates reflect worsening morbidity or changes in help-seeking remains unclear. We aimed to describe secular trends in mental health consultations in Norway and compare trends for symptom-coded versus disorder-coded anxiety and depression.

Methods We conducted a nationwide repeated cross-sectional study of all individuals aged 10–46 years in Norway during 2010–2024 (N=3 728 002). Using linked administrative registers of general practitioner contacts, we estimated annual sex- and age-specific prevalence of any mental health consultation (International Classification of Primary Care (ICPC-2) P codes), distinguishing anxiety/depression symptoms (P01, P03) from disorders (P74, P76). Quasibinomial regression estimated annual prevalence ratios (PRs) and post-2020 changes.

Results From 2010 to 2024, the prevalence of mental health diagnoses increased by 62% (9.9% to 16.0%), rising 66% for girls/women (11.8% to 19.6%) and 54% for boys/men (8.2% to 12.6%). Shares of anxiety-symptom consultations increased from 0.44% to 1.7%, while anxiety disorder consultations rose modestly (0.95% to 1.4%). Shares of depressive symptom consultations increased from 0.73% to 1.8%, whereas depressive disorder consultations were stable (2.8% to 2.7%). Annual PRs were consistently higher for symptom than disorder codes, and after 2020 depressive symptom prevalence accelerated among adults aged 21–30.

Conclusion The prevalence of mental health problems increased substantially from 2010 to 2024, driven primarily by symptom-coded consultations. These patterns suggest lowered help-seeking thresholds and/or changes in coding, although changes in underlying distress cannot be excluded. The findings have implications for practitioners and policymakers planning resource allocation.

INTRODUCTION

Mental disorders are among the leading causes of disability worldwide according to the Global Burden of Disease Study. They account for a substantial share of disability-adjusted life years, with onset typically occurring during adolescence and early adulthood.¹

A growing body of evidence suggests that mental health problems have increased substantially

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Mental health problems have reportedly increased in many high-income countries, particularly among adolescents and young adults, but it remains unclear whether rising service use reflects greater underlying morbidity or changes in help seeking and coding.

WHAT THIS STUDY ADDS

⇒ In a nationwide population study covering 3.7 million individuals over 15 years, symptom-coded anxiety and depression consultations increased far more than corresponding disorder-coded consultations. The steepest rises occurred among adolescent girls and young adult women, and depressive symptom consultations accelerated after 2020 among adults, while corresponding disorder-coded trends remained stable or declined.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ The findings suggest that changes in help-seeking behaviour and/or diagnostic recording, rather than worsening underlying morbidity, are key drivers of rising primary care mental health contacts. Primary care systems may need to adapt through redesigned triage, coding guidance and service pathways to manage increasing symptom-level presentations effectively.

over the past two decades, especially among the young.^{2–5} A meta-regression analysis of Norwegian data showed that mean symptom scores increased by 17% among females and 5% among males from 1992 to 2019, with mental health problems increasing continually since the early 1990s, especially among young females.⁶ In the USA, the prevalence of diagnosed mental health conditions among adolescents increased 35% between 2016 and 2023, with anxiety increasing 61% and depression 45%. Similar trends have been documented across high-income countries, with particularly steep increases observed among adolescent girls.⁴

The interpretation of these trends remains contested. One possibility is that they reflect a genuine deterioration in population mental health, potentially driven by factors such as increased academic pressure, changes in family dynamics or the rise of digital technology and social media.^{7–9}



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The COVID-19 pandemic and associated restrictions may have further exacerbated these trends. An alternative interpretation is that the observed increases partly or largely reflect changes in help-seeking behaviour and diagnostic practices rather than true changes in underlying prevalence.

Distinguishing between these two types of explanations has important implications for policy. If trends primarily reflect deteriorating mental health, this would call for interventions targeting underlying causes and expanded treatment capacity. If trends largely reflect increased help-seeking, the appropriate response might instead focus on ensuring appropriate diagnosis and avoiding unnecessary treatment, while directing resources toward those with genuine clinical need.

In this study, we use population-wide administrative health registers from Norway to shed light on these issues. A key feature of the Norwegian primary care reimbursement system is that the causes of contact with a general practitioner (GP) can be coded either as symptoms (eg, 'feeling depressed', 'feeling anxious') or as disorders (eg, 'depressive disorder', 'anxiety disorder'), implying different severity. We examine whether time trends differ between symptom-coded and disorder-coded consultations. A disproportionate growth in symptom-coded contacts would be consistent with a lowering threshold for help seeking and/or changes in clinical recording practices, whereas broadly similar increases across symptom and disorder codes would be more consistent with a rise in clinically diagnosed disorders.

Specifically, we aimed to: (1) estimate sex- and age-specific population-wide secular trends in primary care consultations for mental health problems among children, adolescents and adults (up to age 46) in Norway in the 2010–2024 period; and (2) examine to what extent these trends differed between age groups and consultations coded as symptoms versus established disorders. To assist in the interpretation of age-specific trends among children, adolescents and young adults, we included an adult age group (31–46 years). This group represents a stage in which major developmental and transitional changes have stabilised.

METHODS

Study design and participants

This population-based cross-sectional study includes all individuals born between 1964 and 2014 who are registered in the Norwegian Population Register as alive and residing in the country in the year of study. The register contains information about gender, year of birth and year of death. Using pseudonymised identification numbers, it was linked to individual-level records of consultations with GPs in primary care retrieved from the Norwegian Control and Payment of Health Reimbursements Database over the period 1 January 2010 to 31 December 2024. Causes of contact with the GP are recorded using the International Classification of Primary Care coding system (ICPC-2).

The study was approved, and participant consent was waived by the Regional Committee for Medical and Health Research Ethics South-East Norway (REK, approval 2018/434).

Measures

Annual sex- and age-specific population shares with an in-person GP consultation for (1) any mental health problem ('Psychological' chapter of the ICPC-2), (2) anxiety/depression symptom codes (P01: feeling anxious/nervous/tense; P03: feeling depressed), and (3) anxiety and depression disorder codes (P74: anxiety disorder; P76: depressive disorder).

Primary care in Norway

Primary care is publicly funded. All residents are listed with a GP and may change GP through a secure web-based portal. Between 2006 and 2019 over 99% of Norwegian residents had contact with their primary care physician.¹⁰ GPs serve as gatekeepers to specialist services, unless there is an emergency. GPs may provide treatment in primary care or refer patients to specialist care. After specialist treatment, follow-up care may return to the GP. For reimbursement, GPs must submit claims for consultations and procedures to the Norwegian Control and Reimbursement Database.

Statistical analysis

First, we estimated the annual sex- and age-specific population shares with an in-person GP consultation for mental health problems each year between 2010–2024. Next, we estimated the share of the population receiving at least one diagnosis for anxiety or depressive symptoms (P01 and P03) and the sex- and age-specific shares receiving at least one anxiety or depressive disorder diagnosis (P74 and P76) during the year, for the same period. To assess time trends in the prevalence of in-person consultations for anxiety and depressive symptoms and disorders, we estimated prevalence ratios (PRs) representing the average relative change in prevalence per year for each ICPC-2 code using quasibinomial regression with a log link, by sex and age group. Last, we estimated whether PRs changed from 2020 onwards, compared with the period 2010–2019, stratified by age group and sex for each ICPC-2 code. For comparison, we also estimated whether PRs changed from 2020 onwards for all other non-psychological GP consultations (see online supplemental eFigure 1). We included age groups 10–15, 16–20, 21–30, and 31–46 in our analyses. We included the adult age group (31–46 years) to provide contextual comparison with the developmental stages represented in the younger age groups.

RESULTS

Our study included 3 728 002 individuals from birth cohorts 1964–2014. The central finding was a notable divergence between trends in prevalence of symptom-coded and disorder-coded consultations: whereas shares of consultations for anxiety or depressive symptoms increased substantially over the study period (286% for anxiety symptoms, 147% for depressive symptoms), consultations coded as anxiety or depressive disorders showed comparatively modest or stable trends (46% increase for anxiety disorder, –4% for depressive disorder).

Overall trends in mental health consultations

The share of the population aged 10–46 with any mental health diagnosis recorded by a GP increased from 9.9% in 2010 to 16.0% in 2024, a 62% relative increase. There was an increase for both sexes: from 11.8% to 19.6% (66% relative increase) for girls/women and from 8.2% to 12.6% (54% relative increase) for boys/men. [Figure 1](#) shows that the steepest increases occurred among young adults aged 21–30, with relative increases of 69% for women (from 13.0% to 22.0%) and 52% for men (from 8.9% to 13.7%). Among the youngest age group (10–15 years), the share with any mental health diagnosis rose from 3.5% of girls and 5.2% of boys in 2010 to approximately 9% for both sexes in 2024. [Figure 1](#) further illustrates greater variation in year-specific prevalences across age groups in girls/women than in boys/men. This pattern is largely driven by pronounced differences in prevalence between females aged up to 15 years and those older than 15.

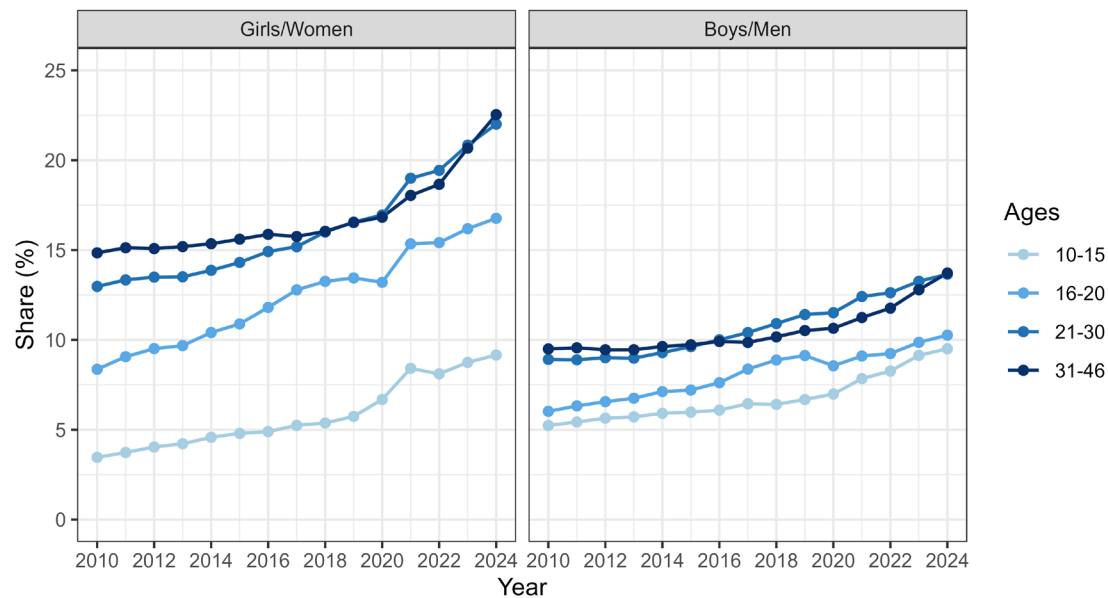


Figure 1 Prevalence of mental health diagnoses across sex and age groups. The share of the population with an in-person consultation with a general practitioner for any mental health diagnosis (ICPC-2 chapter P; codes P01–P99). ICPC, International Classification of Primary Care.

Divergent trends: symptoms versus disorders

When consultations were disaggregated by diagnostic category, symptom codes showed notably steeper increases than disorder codes across all age groups and both sexes (figure 2).

In general the share with a consultation for anxiety symptoms increased from 0.44% to 1.7%, whereas anxiety disorder-coded consultation prevalence increased from 0.95% to 1.4%. Girls aged 16–20 experienced the steepest increase in anxiety symptoms across the study period, from 0.4% to 2.3%—a 475% increase—while the share with an anxiety disorder consultation in this group increased by 64% (from 1.4% to 2.3%).

For depression, the divergence was even starker. Shares with symptom coded consultations increased from 0.73% to 1.8%, compared with a decline from 2.8% to 2.7% for disorder-coded consultations. Among girls/women, the increase in depressive symptoms was from 1% to 2.3%, whereas for boys/men the increase was from 0.47% to 1.2%. The steepest increases in depressive symptoms occurred among women aged 21–30 and 31–46, particularly after 2020. Depressive disorder shares showed no comparable increase in any age-sex group.

Estimated annual PRs confirmed this pattern quantitatively (figure 3; online supplemental eTable 1). Symptom codes consistently had higher annual PRs than disorder codes, across all demographic subgroups. For example, women aged 21–30 showed an average yearly increase in anxiety symptom diagnoses of 9% (PR 1.09, 95%CI 1.07 to 1.11), compared with 4% for anxiety disorders (PR 1.04, 95%CI 1.03 to 1.05).

Changes in time trends following COVID-19

In the analysis of pre- versus post-2020 trends, we found heterogeneous patterns by diagnosis type and age group (figure 4; online supplemental eTable 2). In these analyses, the pre-2020 period includes years 2010–2019 while the post-2020 period includes years 2020–2024. For depressive symptoms among adults aged 21–46, annual PRs accelerated after 2020. Among women aged 31–46, the post-2020 shift PR was 1.24 (95%CI 1.19 to 1.29), indicating a 24% accelerated increase in the annual growth rate compared with the pre-2020 baseline PR of

0.99 (95%CI 0.98 to 1.01). Men in the same age group showed a similar pattern (post-2020 shift PR 1.24, 95%CI 1.19 to 1.29).

In contrast, several diagnostic categories showed decelerating trends after 2020. For anxiety symptoms, all age groups and both sexes demonstrated reduced annual PRs post-2020 (shift PRs ranging from 0.87 to 0.98). Girls aged 10–15 and 16–20 showed deceleration in anxiety disorder diagnoses (shift PRs 0.97 and 0.95, respectively). For depressive disorders, both sexes in the 10–15, 16–20 and 21–30 age groups experienced reduced annual PRs after 2020, with shift PRs ranging from 0.83 to 0.96. The accelerated increase in the share with a consultation for depressive symptoms after 2020 does not appear to reflect a general increase in GP consultations. We found no sign of an accelerated increase in the PRs for having any non-psychological GP consultation between 2020–2024 for either boys/men or girls/women and across all age groups (see online supplemental eFigure 1).

DISCUSSION

In this nationwide study of ~3.7 million individuals, we found pronounced increases in the share of children, adolescents and young adults seeking help for mental health problems in the period 2010 to 2024. The steepest increase was among women and men aged 21–30, with relative increases of 69% and 52%, respectively. When comparing the development in shares with consultations for symptoms versus disorders of anxiety and depression, we found that there was a much stronger growth in symptoms than disorders. For example, among girls aged 16–20, shares with anxiety symptom consultations increased by 475% during the study period (from 0.4% in 2010 to 2.3% in 2024) compared with a 64% relative increase in anxiety disorder consultations. Also, the share with depressive symptom consultations increased by 147% (from 0.73% to 1.8%), while depressive disorder diagnoses remained essentially unchanged (from 2.8% to 2.7%).

Comparison to previous studies

This study complements recent evidence from Norway and other high-income countries finding increasing mental health-related

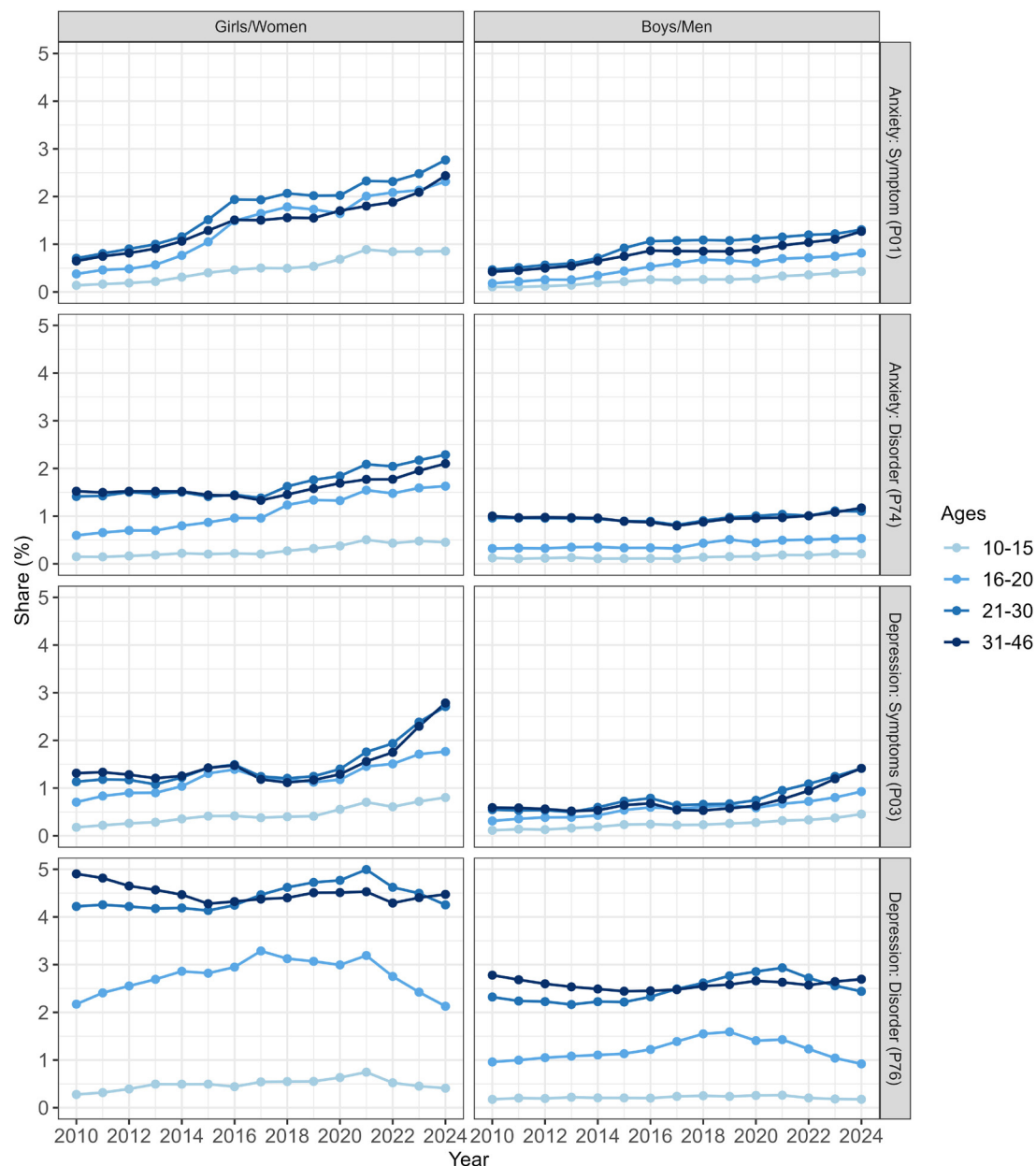


Figure 2 Estimated prevalence of depression or anxiety symptoms, across sex and age groups. The share of the population with an in-person general practitioner consultation for symptoms related to anxiety symptoms and disorder (P01 – feeling anxious/nervous/tense; P74 – anxiety disorder) and depression symptoms and disorders (P03 – feeling depressed; P76 – depressive disorder).

service use and reported symptom scores, particularly among young women.^{2-4 6} These trends have raised important policy questions regarding the future functioning of the current younger generations. At the same time, the interpretation of these trends remains contested, as observed increases could reflect changes in underlying distress, but also changes in recognition, willingness to disclose symptoms, help-seeking and clinical recording practices.

Our study contributes to this debate by exploiting the fact that ICPC-2 coding distinguishes symptoms from disorder diagnoses, allowing us to compare trends in consultations recorded as anxiety/depressive symptoms versus consultations recorded as anxiety/depressive disorders. While the observed over-proportional increase in symptoms is consistent with changes in norms for help-seeking, it cannot exclude alternative explanations, such as an actual increase in lighter mental health problems

among young people, for example, due to increased social media use, the pandemic experience or other factors.

Our findings have implications for primary care. The growing volume of symptom-level presentations poses an organisational challenge for GPs, who face increasing demand that may be more appropriately managed through psychoeducation or brief digital interventions rather than traditional clinical pathways. Redesigning triage and referral protocols to account for this development could help direct resources toward those with the greatest clinical need. Additionally, the divergent trends between symptom and disorder codes suggest that coding practices may have evolved over time, warranting efforts to improve coding consistency. A study in the UK among primary care physicians found an increase in anxiety symptom codes from 2003 to 2018 with a corresponding decline in anxiety disorder codes between 2003 and 2008 before increasing again between 2008–2018.¹¹

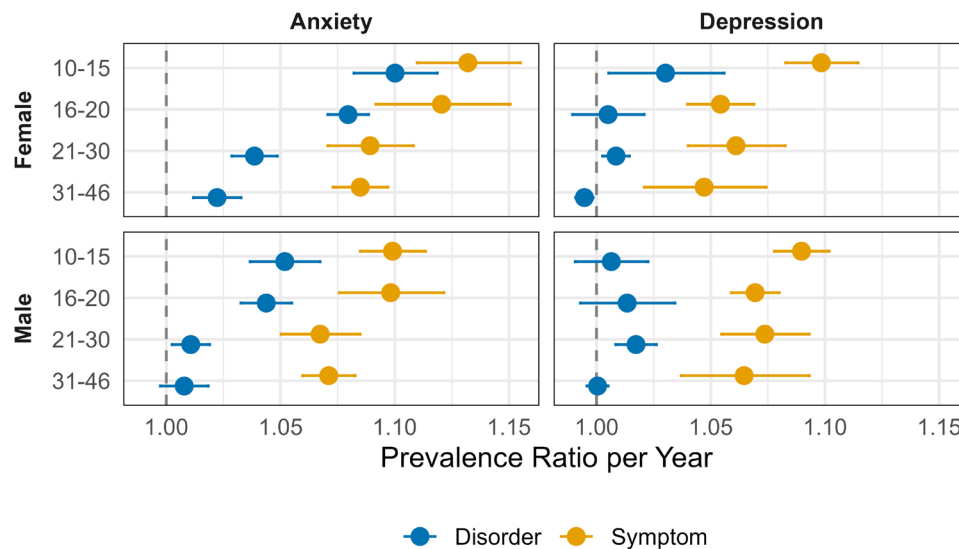


Figure 3 Annual prevalence ratios of depression or anxiety symptoms and disorders, across sex and age groups, 2010–2024. A prevalence ratio >1 indicates increasing prevalence over time. In person consultations with a general practitioner for anxiety (P01 – feeling anxious/nervous/tense, P74 – anxiety disorder) and depression (P03 – feeling depressed, P76 – depressive disorder).

In qualitative interviews, the GPs noted a preference for utilising anxiety symptom codes rather than disorder codes. One reason for this preference was to avoid labelling patients with an anxiety disorder which may be stigmatising. Another stated reason was that GPs preferred to wait until the patient had a

significant enough symptom burden to require medication, or until the patient had a longer history of presenting with anxiety before switching from anxiety symptom codes to disorder codes.¹¹ While we are unable to separate the potential effects of changes in help-seeking behaviour or diagnostic coding practices

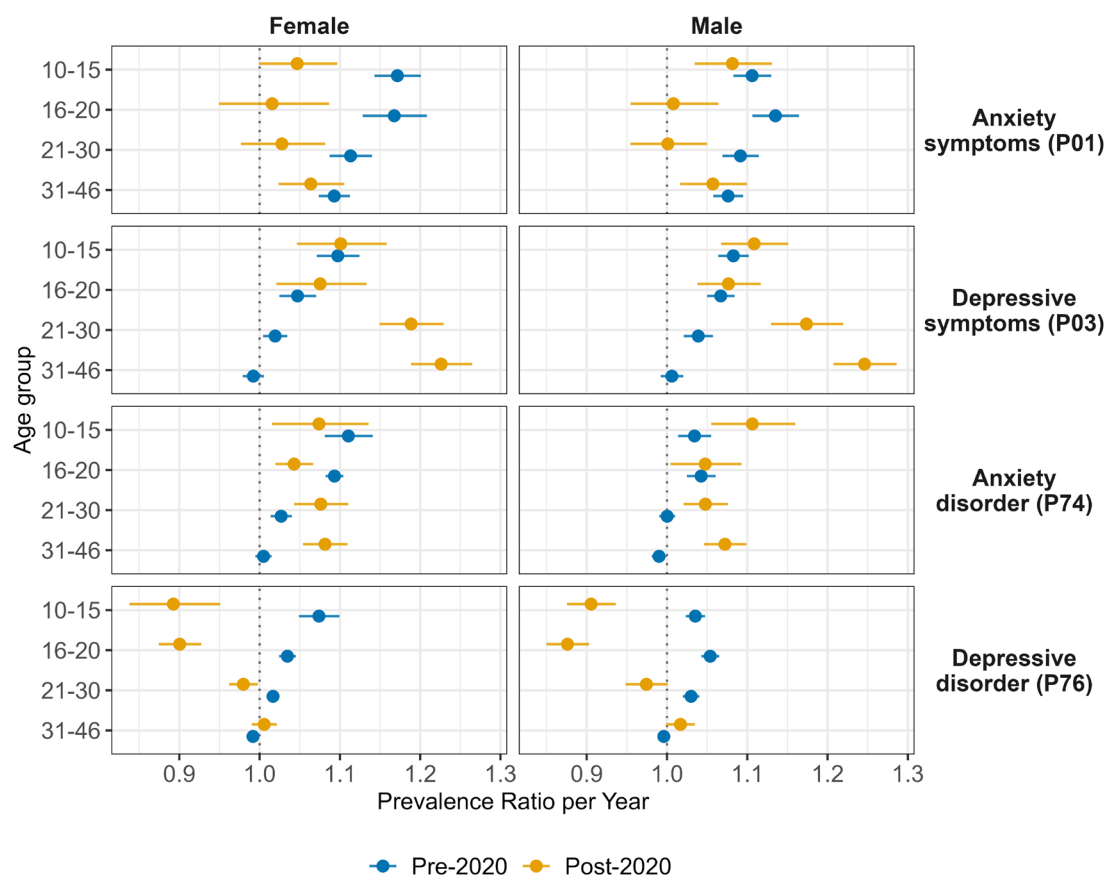


Figure 4 Annual prevalence ratios pre- and post-2020 of depression or anxiety symptoms and disorders, across sex and age groups, 2010–2024. A prevalence ratio >1 indicates increasing prevalence over time. In person consultations with a general practitioner for anxiety (P01 – feeling anxious/nervous/tense, P74 – anxiety disorder) and depression (P03 – feeling depressed, P76 – depressive disorder). Pre-period includes years 2010–2019 and post-period includes years 2020–2024.

as reasons underlying our observed increase in shares with symptom-coded consultations more than disorder-coded consultations, our findings contribute to the understanding of the rise in mental health problems among youth and young adults in recent years.

Looking beyond the inherently difficult medicalisation debate, our study adds to the important debate on the implications for future functioning of younger birth cohorts. Previous studies have aimed to assess the correlation between mental health problems and functional measures over time. Thus far, the empirical evidence seems mixed. Some studies report increasing correlations between mental disorders and functioning over time, which may suggest worsening population mental health,^{12–14} while others indicate the opposite.^{5 15} This study adds to this important debate by taking a different approach—comparing symptoms versus disorders over time. We observed a steeper increase in symptom codes, while disorder codes showed a weak or stable trend. Under the assumption that more severe disorders are more debilitating, this finding suggests that the relationship between treatment for mental health and functional measures would weaken over time, and that mental health treatment to a lesser extent signals reduced function, compared with previous decades.

Another area of particular concern among researchers and policymakers is the potential impact of the COVID-19 pandemic on population mental health. Previous research has shown an increase in the prevalence and reporting of mental health problems during the pandemic, compared with pre-pandemic trends.^{16–18} Much of this evidence has focused on self-reported mental health symptoms using validated questionnaires, finding initial deterioration in mental health during the early stages of the pandemic, particularly among young adults and women.^{16–18} In our study, we find an increasing trend for anxiety symptoms and disorders, but no acceleration. For depressive symptoms however, we find a clear acceleration in the aftermath of the COVID-19 pandemic, among men and women aged 21–46. However, we find relatively stable or even declining trends in consultations for anxiety or depressive disorders during the pandemic, which is in line with previous evidence finding stable levels of mental health disorders and suicidality during the pandemic when using diagnostic criteria and registration of cause of death codes.¹⁹ These findings, along with the sustained increase in symptom consultations well after the pandemic period, may signal a change in help-seeking behaviour or diagnostic coding practices which may have gained momentum during the COVID-19 pandemic and continued thereafter.

Our results further show wider differences in prevalence across age groups among girls and women compared with boys and men. While gender differences in the group aged 10–15 years were small, they increased at higher ages. This pattern likely reflects a higher prevalence of help-seeking behaviour (and possibly actual mental health problems) among women than men in combination with the fact that the onset of anxiety or depression in many cases occurs after mid-teenage years.¹

Strengths and weaknesses

A major strength of this study is its use of administrative records covering the full population of individuals aged 10–46. This minimises selection bias and recall bias, a common problem in survey-based studies. Additionally, the nature of the Norwegian healthcare system as a low-cost universal welfare service eliminates selection bias due to difficulty in affording private health insurance or healthcare services.

Our study has limitations. We use data on primary care utilisation. While this enables comprehensive population-level analysis, it does not measure symptom severity, therefore we cannot provide conclusive evidence on the mechanisms underlying the changes in primary healthcare service usage for mental health problems. Another limitation is that as our analysis does not include secondary or tertiary healthcare, trends identified in the primary healthcare setting might differ from those in specialist healthcare services.

CONCLUSION

Our study contributes to the understanding of what is driving increases in the share with consultations for mental health problems among young people in Norway. The strongest increase was observed for symptoms, not disorders. This pattern suggests that changes in help-seeking behaviour and diagnostic coding practices, rather than worsening mental health at the population level, may be a key driver of the observed trend. These findings raise questions about the consistency of mental health coding in primary care, warranting caution when using routine administrative data to monitor population mental health trends. At the same time, our findings can be used to understand better the recent development of mental health problems among youth and young adults and may help to stimulate future research on the drivers of the increasing mental health concerns in this population.

Contributors The research design was created by KCB, B-AR and JW. KCB was responsible for data cleaning, data analysis and reporting. All authors had final responsibility for the decision to submit for publication, accept full responsibility as guarantor for the finished article, and had access to any data. The corresponding author confirms that all authors have seen and approved the final text.

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Competing interests None declared.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data may be obtained from a third party and are not publicly available. The data for this paper encompass demographic information and information on health care service usage for entire cohorts of the Norwegian population. Researchers can access the data by application to the Regional Committees for Medical and Health Research Ethics and the data owners (Statistics Norway and the Norwegian Directorate of Health). The authors cannot share these data with other researchers due to the sensitive nature and potential for identification. However, other researchers should feel free to contact any of the authors if they have questions concerning the data or overlapping research projects.

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