Admission to acute medical wards for mental health concerns among children and young people in England from 2012 to 2022: a cohort study

Joseph L Ward, Adriana Vázquez-Vázquez, Kirsty Phillips, Kate Settle, Hanifa Pilvar, Francesca Cornaglia, Faith Gibson, Dasha Nicholls, Damian Roland, Gabrielle Mathews, Helen Roberts, Russell M Viner, Lee D Hudson

Lancet Child Adolesc Health 2025; 9: 112–20

See **Comment** page 79

University College London Great Ormond Street Institute of Child Health, London, UK (J L Ward PhD, A Vázquez-Vázquez PhD, K Phillips MSc, K Settle BSc, G Mathews MBBS, Prof H Roberts DPhil, Prof R M Viner PhD, L D Hudson PhD)**; University of Oxford, Oxford, UK** (H Pilvar PhD)**; Queen Mary University of London, London, UK** (Prof F Cornaglia PhD)**; University of Surrey, Guildford, UK** (Prof F Gibson PhD)**; Great Ormond Street Hospital for Children NHS Foundation Trust, London, UK** (Prof F Gibson)**; Imperial College, London, UK** (Prof D Nicholls MD Res)**; Paediatric Emergency Medicine Leicester Academic Group, Children's Emergency Department, Leicester Royal Infirmary, Leicester, UK** (Prof D Roland PhD)**; SAPPHIRE Group, Population Health Sciences, Leicester University, Leicester, UK** (Prof D Roland)

Correspondence to: Dr Joseph L Ward, University College London Great Ormond Street Institute of Child Health, London WC1N 1EH, UK **joseph.ward@ucl.ac.uk**

Summary

Background There are challenges in providing high quality care for children and young people who are admitted to acute medical wards for mental health concerns. Although there is concern that these admissions are increasing, national data describing these patterns are scarce. We aimed to describe trends in these admissions in England over a 10-year period, and to identify factors associated with repeat admission and length of stay.

Methods In this cohort study we used data on all admissions to medical wards in England among children and young people aged 5–18 years from April 1, 2012, to March 31, 2022. We classified admissions for mental health concerns using the Global Burden of Disease Study cause hierarchy. We described national trends in admissions for mental health concerns over time by sex, age, ethnicity, and index of multiple deprivation quintile. We examined associations between sociodemographic and clinical factors and odds of the admission lasting more than 1 week, as well as hazard ratios of repeat admissions, using mixed-effects models.

Findings We identified 342 511 admissions for any cause in children and young people aged 5–18 years in 2021–22 in England, of which 39 925 (11·7%) were for mental health concerns. 21 337 (53·4%) admissions for mental health concerns were due to self-harm. Between 2012–13 and 2021–22, annual admissions for mental health concerns increased from 24 198 to 39 925 (65·0% increase), whereas all-cause admissions increased from 311 067 to 342 511 (10·1% increase). Increases were particularly steep in females aged 11–15 years, rising from 9091 to 19 349 (112·8% increase), and for eating disorders, rising from 478 to 2938 (514·6% increase). In 2021–22, 3130 (7·8%) admissions for mental health concerns lasted longer than 1 week, compared with 12 044 (3·5%) all-cause admissions. Of 239 541 children and young people who were admitted for mental health concerns between 2012–13 and 2021–22, 32 107 (13·4%) had a repeat admission within 6 months. The odds of long-stay admission and hazard ratios for being readmitted were significantly higher for children and young people aged 11–15 years, those who were female, those from less deprived areas, and those with eating disorders than among other groups.

Interpretation We found large increases in the number of children and young people admitted to acute medical wards for mental health concerns over a 10-year period. Further work is needed to understand factors driving these trends and how to improve care for children and young people with mental health concerns admitted to medical wards.

Funding National Institute for Health and Care Research

Introduction

Medical inpatient wards for children and young people have historically focused on providing urgent medical and surgical care, with mental health care managed in other specialised settings. Yet children and young people might also require admission to inpatient medical wards for mental health concerns, for example for treatment following self-harm or food restriction.[1–4] Furthermore, children and young people with mental health crises often present to emergency departments, or are brought there as a place of safety, and are then admitted to acute inpatient wards for assessment of both mental health and social needs. Systematic reviews have shown there is little evidence for interventions to reduce these acute admissions.[5,6] The complexity of mental health presentations, and limits on capacity within community and inpatient mental health services, can lead to children and young people remaining on acute medical wards for long periods.[7,8]

There are real challenges in providing safe, high-quality care to children and young people with mental health concerns on acute medical wards, which often lack specialist mental health facilities and staff expertise in this area.[9–11] In the UK, a report published in 2024 by the Health Services Safety Investigations Body (HSSIB),[8] an independent patient safety organisation, highlighted multiple concerns associated with these admissions. 13 of 18 paediatric units surveyed by the HSSIB described their ward environment as not safe for caring for children and young people with high-risk behaviours related to

Research in context

Evidence before this study

We did a systematic review to identify studies exploring patterns of admissions to medical wards for mental health concerns among children and young people. We included all papers published between April 1, 1990, and Nov 12, 2024. We searched PubMed, Embase, PsycINFO, Web of Science, and Google Scholar using the following search terms: admission OR admitted OR admittance OR hospitalized OR hospitalised OR treated OR inpatient OR boarding OR boarders OR psychiatric boarders AND paediatric ward OR children ward OR pediatric ward AND mental health OR psychiatric OR psychological. We identified 19 studies of variable quality, which showed admissions for mental health concerns contribute a substantial proportion of acute medical ward admissions, and some evidence that these types of admissions are increasing. However, we identified no population-level studies nor detailed analyses by sociodemographic characteristics or by type of mental health concern.

Added value of this study

To our knowledge, this study is the first to describe national patterns in admissions to medical wards for mental health concerns among children and young people in England in detail and over a 10-year period. We show large increases in admissions for mental health concerns, both since the COVID-19 pandemic and in the years before the pandemic. These changes are largely driven by increases in admissions among females aged 11–15 years, and due to eating disorders. Admissions lasting longer than 1 week and readmission within 6 months, were associated with children and young people being female, older, and presenting with eating disorders.

Implications of all the available evidence

Increasing numbers of children and young people with mental health concerns are being admitted to medical wards where there are real challenges in providing safe, high quality care. Innovative models of care are needed to provide care that is integrated across paediatric and mental health services. Further work is needed to understand the causes of worsening mental health in children and young people, develop models of care to reduce mental health crisis admissions in acute settings, and improve the care provided for children and young people who are admitted.

mental health concerns. Issues raised included a lack of resources to provide therapeutic engagement for children and young people, challenges related to the physical ward space, difficulties managing individuals who require sedation, and concerns regarding the impact of these admissions on other patients and staff morale.[8]

High-level snapshots of admission data suggest that mental health concerns contribute a substantial and growing proportion of acute hospital stays in children and young people.[12] Although increases in admissions for mental health concerns among this population were noted to be a particular feature of COVID-19, data from a range of countries including the UK, the USA, and Australia suggest that this trend predates the pandemic.[2,4,10,13–15] However, detailed analyses of these patterns using robust national data have not been undertaken. We published a systematic review,[7] updated in November, 2024, to identify studies examining trends in children and young people being admitted to paediatric or adult wards because of a mental health concern. We identified 19 studies, but none reported national data with long-term trends, nor any detailed analysis by sociodemographic characteristics or nature of the mental health presentation. These data are urgently needed to understand and explain reported increases in admissions to medical wards for mental health concerns, inform interventions to prevent admissions, support inpatient wards to safely care for these children and young people, and plan for probable future increases in burden. Providing these national data was also a key recommendation in the UK HSSIB investigation.[8]

We aimed to understand current burden and trends in admissions to acute medical wards among children and young people for mental health concerns in England from 2012 to 2022, and examine factors associated with increased length of stay and readmission.

Methods

Study design and participants

This cohort analysis was part of the Mental Health Admissions to Paediatric Wards Study (MAPS), a mixed methods National Institute for Health and Care Research funded study in England that aims to improve the quality of care for children and young people presenting in mental health crisis to acute medical wards.[7,16] We used Hospital Episode Statistics (HES) data,[17] which include 97% of hospital activity data in England. Data were available on all emergency admissions to hospital among children and young people aged 5–18 years in England over a 10-year period from April 1, 2012, to March 31, 2022. These data were linked to Office for National Statistics death registration data.

Ethics approval was provided after review by London Brent NHS Research Ethics Committee on Nov 14, 2022 (reference 18/LO/1267). Use of these data for research purposes was reviewed by NHS Digital (now NHS England). As part of MAPS, we undertook multiple engagement activities with children and young people and families with lived experience of being admitted to general wards for mental health concerns. These individuals have been involved in informing the grant application, study design, and interpretation of results, and have been included in our stakeholder and advisory

	Admissions for mental health concerns		All-cause admissions		Proportion of total admissions for mental health concerns
	Total admissions	Admissions lasting more than 1 week	Total admissions	Admissions lasting more than 1 week	
Total	39 925 (100%)	3130 (7·8%)	342 511 (100%)	12 044 (3·5%)	11·7%
Sex					
Female	31 559 (79·0%)	2559 (8·1%)	180 233 (52·6%)	6940 (3·9%)	17·5%
Male	8366 (21·0%)	571 (6·8%)	162 278 (47·4%)	5104 (3·1%)	5·2%
Age, years					
5–10	1903 (4·8%)	62 (3·3%)	127 319 (37·2%)	2857 (2·2%)	1·5%
11–15	23 257 (58·3%)	1679 (7·2%)	124 960 (36·5%)	4882 (3·9%)	18·6%
16–18	14 765 (37·0%)	1389 (9·4%)	90 232 (26·3%)	4305 (4·8%)	16·4%
Ethnicity					
White	30 650 (76·8%)	2379 (7·8%)	237 150 (69·2%)	7563 (3·2%)	12·9%
South Asian	1321 (3·3%)	114 (8·6%)	26 345 (7·7%)	1173 (4·5%)	5·0%
Black	1144 (2·9%)	116 (10·1%)	14 994 (4·4%)	811 (5·4%)	7·6%
Mixed	1327 (3·3%)	100 (7·5%)	11 965 (3·5%)	459 (3·8%)	11·1%
Other	1692 (4·2%)	143 (8·5%)	19 419 (5·7%)	862 (4·4%)	8·7%
Unknown or not specified	3791 (9·5%)	278 (7·3%)	32 638 (9·5%)	1176 (3·6%)	11·6%
IMD quintile					
1 (most deprived)	8474 (21·2%)	474 (5·6%)	80 927 (23·6%)	2913 (3·6%)	10·5%
2	8070 (20·2%)	527 (6·5%)	71 561 (20·9%)	2473 (3·5%)	11·3%
3	7929 (19·9%)	699 (8·8%)	67 247 (19·6%)	2363 (3·5%)	11·8%
4	7821 (19·6%)	691 (8·8%)	63 977 (18·7%)	2250 (3·5%)	12·2%
5 (least deprived)	7631 (19·1%)	739 (9·7%)	58 799 (17·2%)	2045 (3·5%)	13·0%
Medical condition					
Any chronic medical condition	12 214 (30·6%)	1261 (10·3%)	161 219 (47·1%)	8745 (5·4%)	7·6%
No chronic medical condition	27 711 (69·4%)	1869 (6·7%)	181 292 (52·9%)	3299 (1·8%)	15·3%

Data are n (%) or %. IMD=index of multiple deprivation.

Table 1: **Emergency admissions for mental health concerns and all causes among children and young people in 2021–22**

group. We also separately conducted focus groups with children and young people to discuss the suitability of using hospital administrative data to examine hospital admissions for mental health concerns, as described in this study.

Procedures

We identified hospital admissions due to mental health concerns using the primary reason for admission in HES coded to the ICD-10. We categorised these hospital admissions as due to anxiety, depression, eating disorders, substance misuse, and other mental health disorders, using a modification of the Global Burden of Disease (GBD) 2021 cause hierarchy.[18] Self-harm is not recorded as a primary reason for admission in HES, but is coded as one of up to 20 additional causes, with the primary cause coded as an injury resulting from self-harm. Therefore, we coded hospital admissions as due to self-harm where the primary reason for admission was an injury or external cause (ICD-10 chapters T, S, V, X, Y) and where self-harm was recorded as the first additional reason for admission. We identified all episodes of care where the treating consultant was a mental health specialist, identified all admissions with a primary diagnosis within chapter 5 of the ICD-10 (mental and behavioural disorders), and included these admissions within the other mental health disorders category. We categorised length of stay for all admissions as either up to 1 week (0–7 days) or more than 1 week (8 days or more), and identified repeat admissions for mental health concerns in an individual within 6 months of the first admission during the study period.

We were unable to identify whether children and young people with mental health concerns were admitted to paediatric or adult medical wards, where challenges in providing high quality care are different.[19] In England, almost all children and young people younger than 16 years are admitted to paediatric wards, but criteria for older children and young people are highly variable, with individuals aged 16–18 years often admitted to adult wards.[19] To reflect this, we categorised age as 5–10 years, 11–15 years, and 16–18 years.

We defined ethnicity (with data provided within HES) as White, Black, south Asian, mixed, other, and not specified, and defined deprivation using population weighted index of multiple deprivation (IMD) quintile. We described geographical variation within England within the 42 National Health Service (NHS) integrated care boards (ICBs), which are NHS organisations responsible for planning local health-care services,[20] defined using patient address. We also described previous chronic medical conditions among children and young people admitted for a mental health concern (with data provided within HES) using established codes lists.[21] Sex data are coded within HES as male, female, unknown, or missing.

Statistical analysis

We first described the total numbers of admissions for mental health concerns in England by cause, age, sex, ethnicity, IMD quintile, presence of a chronic medical condition recorded in HES, ICB, and length of stay, over a 10-year period from the financial year April 1, 2012–March 31, 2013, to the financial year April 1, 2021–March 31, 2022 (hereafter reported as 2012–13 and 2021–22). Each year-long period reported in the results denotes the financial year within that period—ie, from April 1 to March 31.

We then examined associations between admissions lasting longer than 1 week and sociodemographic data,

medical comorbidities, and mental health concerns, using mixed-effects logistic regression models. We used the command *melogit* and included random effects to model admissions within individual children and young people nested within ICBs. We were limited in the covariates to include by which variables were available within HES data. We included type of mental health concern, age, sex, ethnicity, IMD quintile, and also presence of a chronic medical condition, as previous work has shown these children and young people are more susceptible to severe mental health concerns.[10] We first ran models for each covariant separately, and then included all covariants in the multivariable model, and report adjusted odds ratios (aORs) with 95% CIs.

We then identified a cohort of children and young people who had been admitted for a mental health concern at least once from 2012–13 to 2021–22. Within this cohort, we examined associations between sociodemographic data, medical comorbidities, and type of mental health concern, and having a repeat admission in the 6 months after the first admission. We used mixed-effects survival models using the *mestreg* command, *weibul* distribution, and included ICB as a random effect. We defined the index date as the first admission for a mental health concern. Children and young people were then followed up either for 182 days (6 months), until the day before they were 19 years old, the day they died, or March 31, 2022 (the last admission data available). We first ran models for mental health concern, age, sex, ethnicity, IMD quintile, and presence of a chronic medical condition separately. We then included all covariants in the multivariable model, also adjusting for year of admission to account for cohort effects, and report adjusted hazard ratios (aHRs) with 95% CIs. We used StataMP 18 to undertake all analyses.

Role of the funding source

The funder of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report.

Results

In 2021–22 (the most recent data year), we identified 342 511 emergency inpatient admissions to medical wards for any cause in children and young people aged 5–18 years in England, of which 39 925 (11·7%) were due to mental health concerns (422·0 admissions per 100 000 children and young people).

The number of admissions in 2021–22 for mental health concerns and also for all causes of admission, by age, sex, ethnicity, and IMD quintile are shown in table 1. Admissions for mental health concerns were predominantly in older age groups: 38 022 (95·2%) of 39 925 of these admissions were among individuals aged 11–18 years, whereas 215 192 (62·8%) of 342 511 all-cause admissions were in this age group. Females, White individuals, and those from the least deprived IMD quintile also made up higher proportions of the admissions for mental health concerns than all-cause admissions (appendix pp 12–15). Almost a third of children and young people admitted for a mental health concern in 2021–22 also had a chronic medical condition, with the most common being asthma (4126 [10·3%]), epilepsy and other neurological conditions (3359 [8·4%]), and musculoskeletal conditions (1555 [3·9%]).

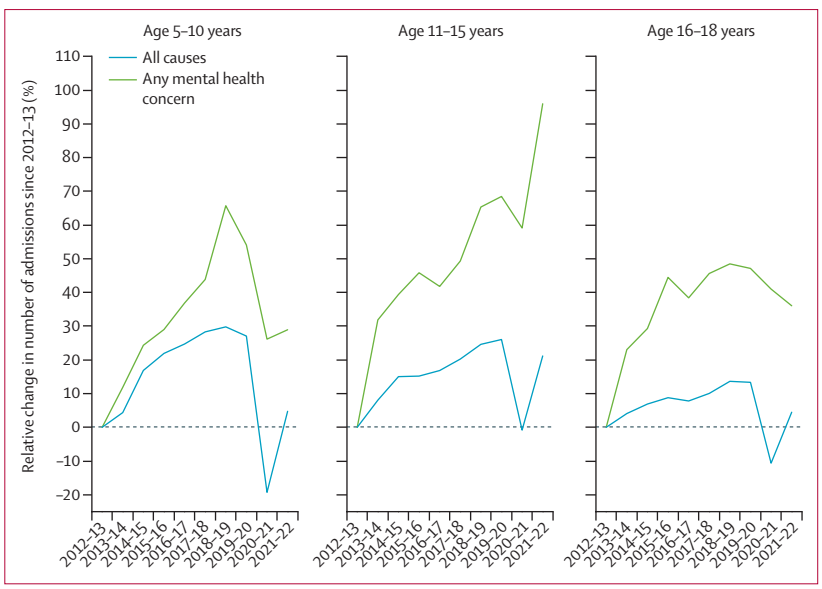

Figure 1: **Relative change in admissions for all causes and any mental health concern in children and young people in England aged 5–18 years**

Data are total admissions for males and females. Each year labelled on the x axis denotes the financial year within that period—ie, from April 1 to March 31.

Over the whole study period from 2012–13 to 2021–22, annual admissions for mental health concerns increased from 24 198 to 39 925 (65·0% increase), whereas all-cause admissions increased from 311 067 to 342 511 (10·1% increase). As a result, the proportion of total admissions for mental health concerns increased from 7·8% (24 198/311 067) in 2012–13 to 11·7% (39 925/342 511) in 2021–22 (a 50% relative increase). There were declines in admissions for all conditions during the COVID-19 pandemic, but these were much less pronounced for admissions due to mental health concerns than admissions for all causes. Although admissions for mental health concerns increased in all age groups over the study period, there were large differences in patterns over time (figure 1; appendix pp 6–11). The greatest increases were among females aged 11–15 years, with admissions for mental health concerns increasing from 9091 to 19 349 from 2012–13 to 2021–22 (112·8% increase), and the proportion of total admissions for mental health concerns increasing from 17·3% (9091/52 504) to 28·3% (19 349/68 387; appendix p 9). By contrast, admissions for mental health concerns in females aged 16–18 years remained fairly stable from 2016–17 to 2021–22, and, among

See Online for appendix

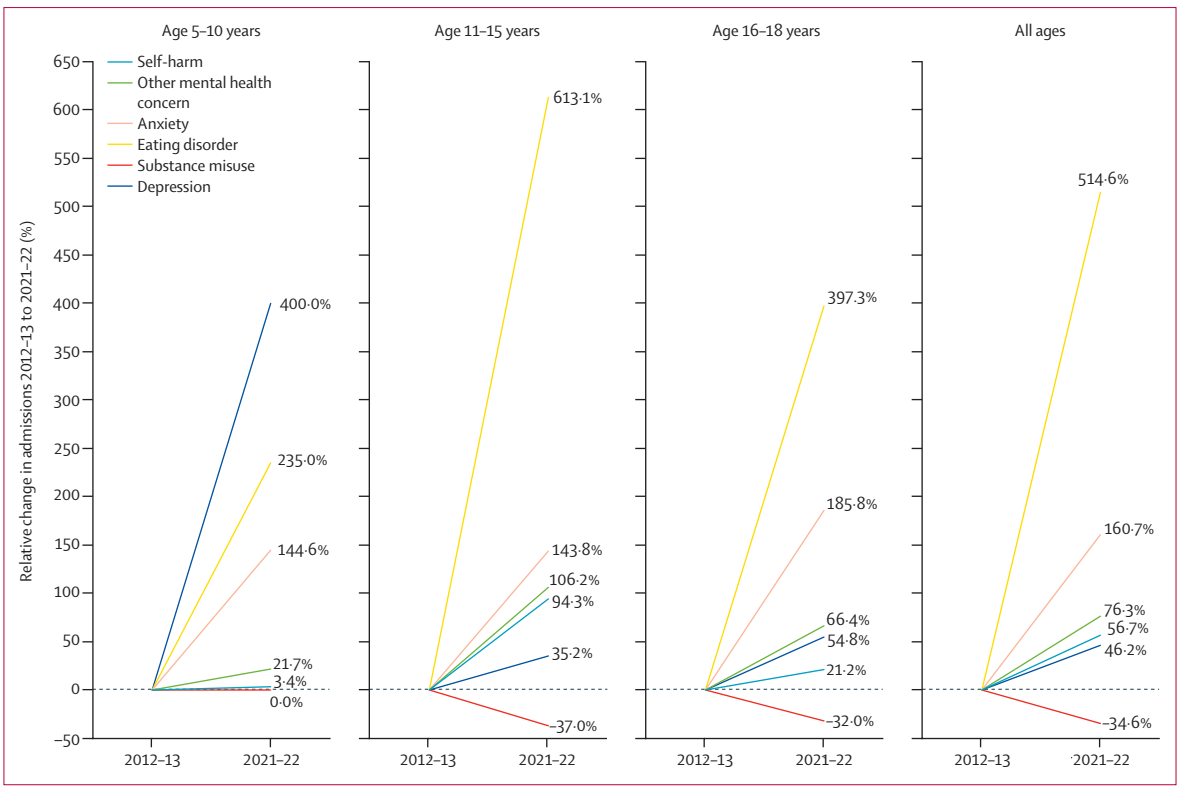

Figure 2: **Relative change in admissions for mental health concerns by type among children and young people in England aged 5–18 years**
Data are totals for males and females. Each year labelled on the x axis denotes the financial year within that period—ie, from April 1 to March 31.

	Admissions for mental health concerns lasting 1–7 days	Admissions for mental health concerns lasting more than 7 days	Total
Anxiety	1460 (91·1%)	143 (8·9%)	1603
Depression	672 (86·7%)	103 (13·3%)	775
Eating disorder	1624 (55·3%)	1314 (44·7%)	2938
Other mental health concern	10 820 (91·8%)	965 (8·2%)	11 785
Self-harm	20 771 (97·3%)	566 (2·7%)	21 337
Substance misuse	1448 (97·4%)	39 (2·6%)	1487
Total	36 795 (92·2%)	3130 (7·8%)	39 925

Table 2: **Number and proportion of admissions for mental health concerns in 2021–22 by duration of admission**

females aged 5–10 years, admissions for mental health concerns decreased after a peak in 2018–19 (although these increased slightly in 2021–22). Among males, admissions for mental health concerns also decreased from 2018–19 in all age groups, with a slight increase in 2021–22 in those aged 11–15 years (appendix p 10).

Within the 42 ICBs in England, admissions for mental health concerns in 2021–22 ranged from 718·7 per 100 000 children and young people in NHS Somerset ICB to 171·3 per 100 000 in NHS Leicester, Leicestershire, and Rutland ICB (a 4-fold variation; appendix p 16). Admission rates increased in all geographical regions covered by ICBs between 2012–13 and 2021–22. NHS Frimley ICB had the greatest relative increase over this period, increasing from 212·7 per 100 000 in 2012–13 to 525·5 per 100 000 in 2021–22 (a 147% increase).

In 2021–22, 21 337 (53·4%) admissions for mental health concerns were due to self-harm, 2938 (7·4%) were due to eating disorders, 1603 (4·0%) were due to anxiety, 1487 (3·7%) were due to substance misuse, and 775 (1·9%) were due to depression (appendix p 17). The remaining 11 785 (29·5%) were due to other mental health concerns (causes of admission in this group are shown in appendix p 18). The largest relative increases in admissions for mental health concerns by type were in eating disorders, increasing from 478 to 2938 (a 514·6% increase) since 2012–13, and increasing from 250 to 1846 (a 638·4% increase) among females aged 11–15 years (figure 2; appendix pp 19–27). Other conditions where there were steep increases include anxiety, for which admissions more than doubled in females and males and in all age groups, except males aged 5–10 years (although analyses within this age group are difficult to interpret due to small numbers). Substance misuse was the only condition for which admissions showed a notable decrease, although only in those aged 11–18 years.

In 2021–22, 3130 (7·8%) admissions for mental health concerns lasted more than 1 week, compared with

12 044 (3·5%) of all-cause admissions (table 2; appendix pp 28–32). The proportion of admissions for mental health concerns lasting longer than 1 week varied by type of mental health concern and was lowest for substance misuse (39 [2·6%]) and self-harm (566 [2·7%]) and highest for eating disorders (1314 [44·7%]; table 2). ORs from univariable mixed-effect models for admissions lasting longer than 1 week by sociodemographic and clinical characteristics are shown in the appendix (pp 33–46). In multivariable models, compared with admissions due to substance misuse, the aORs for an admission lasting longer than 1 week were significantly higher for all other mental health concerns except self-harm, with the greatest difference seen in admissions due to eating disorders (table 3). The aORs for admissions lasting longer than 1 week were also higher for Black individuals than White individuals, for those from less deprived IMD quintiles than those from the most deprived IMD quintile, for those in older age groups than those aged 5–10 years, and for those with a chronic medical condition than those without (table 3). The proportion of admissions for mental health concerns lasting longer than 1 week also increased during the study period, probably driven by increases in admissions due to eating disorders (appendix p 30).

When analysing repeat admissions, from 2012–13 to 2021–22, 239 541 children and young people had an admission for a mental health concern, of whom 32 107 (13·4%) had a repeat admission within 6 months. Characteristics of those who had a repeat admission within 6 months of their first admission for a mental health concern, and HRs from univariable mixed-effects survival models, are shown in the appendix (pp 48–56). In multivariable models, compared with admissions due to substance misuse, aHRs for readmission were significantly higher for children and young people where the index admission was due to all other mental health concerns, and highest for admissions due to eating disorders (table 3). aHRs for readmission were also significantly higher for females than for males, for those in older age groups than for those aged 5–10 years, and for those with any previous chronic medical condition than for those without (table 3). White individuals had a significantly higher aHR of repeat admission compared with those from all other ethnicities except those reported as mixed ethnicity.

	Admission for mental health concerns lasting longer than 1 week, aOR (95% CI)*	Repeat admission for mental health concerns within 6 months, aHR (95% CI)†
Mental health concern		
Substance misuse	1 (ref)	1 (ref)
Anxiety	4·23 (2·84–6·31)	2·56 (2·33–2·80)
Depression	6·37 (4·15–9·76)	3·91 (3·55–4·29)
Eating disorder	65·05 (44·37–95·39)	4·98 (4·59–5·41)
Other mental health concern	4·06 (2·85–5·78)	2·80 (2·61–3·01)
Self-harm	1·02 (0·72–1·46)	2·97 (2·77–3·19)
Sex		
Male	1 (ref)	1 (ref)
Female	0·98 (0·87–1·11)	1·36 (1·32–1·40)
Age, years		
5–10	1 (ref)	1 (ref)
11–15	3·38 (2·49–4·60)	2·64 (2·48–2·82)
16–18	5·92 (4·34–8·09)	2·19 (2·05–2·34)
Ethnicity		
White	1 (ref)	1 (ref)
Mixed	1·18 (0·90–1·54)	0·95 (0·89–1·02)
South Asian	1·02 (0·79–1·33)	0·83 (0·77–0·89)
Black	1·81 (1·40–2·36)	0·93 (0·86–1·00)‡
Other	1·04 (0·82–1·32)	0·85 (0·80–0·91)
Unknown	0·88 (0·74–1·04)	0·80 (0·77–0·83)
IMD quintile		
1 (most deprived)	1 (ref)	1 (ref)
2	1·11 (0·94–1·31)	1·02 (0·98–1·05)
3	1·42 (1·20–1·67)	1·00 (0·97–1·04)
4	1·39 (1·17–1·64)	1·01 (0·97–1·04)
5 (least deprived)	1·47 (1·24–1·74)	1·02 (0·98–1·06)
Presence of chronic medical condition		
No chronic medical condition	1 (ref)	1 (ref)
Any chronic medical condition	1·61 (1·45–1·78)	1·09 (1·06–1·12)

aHR=adjusted hazard ratio. IMD=index of multiple deprivation. aOR=adjusted odds ratio. *Mixed-effects logistic model of odds of admission for mental health concerns lasting more than 1 week in 2021–22, including all variables in the table and with random effect for children and young people and integrated care board. †Mixed-effects survival model of hazard ratio of children and young people having a further admission for mental health concerns within 6 months of the first admission for mental health concerns 2012–13 to 2021–22, including all variables in the table with random effect for integrated care board, and adjusted for baseline year of admission (2012–13 to 2021–22). ‡The upper limit for this 95% CI is rounded up from 0·997, and p=0·040. Full results with p values are reported in appendix pp 47, 57.

Table 3: **Multivariable mixed-effects models for factors associated with prolonged admission for mental health concerns in 2021–22 and repeated admission for mental health concerns from 2012–13 to 2021–22**

Discussion

We found large increases in the number of admissions to medical wards for mental health concerns among children and young people aged 5–18 years in England over a 10-year period (2012–13 to 2021–22), with variation by sex, age, type of mental health concern, and by place. Increases were notably higher than for all acute admissions, and were greatest in females aged 11–15 years. Steep relative increases in admissions for mental health concerns were also seen in younger individuals aged 5–10 years, with striking rates of self-harm in females. Although absolute numbers were still low, this finding highlights the burden of mental health concerns in children in this prepubertal age group.[22]

Our findings suggest that admissions for mental health concerns in females aged 11–15 years now make up nearly a third of all admissions in this age group, driven largely by increases in admissions for eating disorders. As well as increases in the prevalence of eating disorders,[23] this finding might also reflect changes in care models in England towards brief paediatric admissions in preference to longer psychiatric admissions.[24] Although admissions for mental health concerns in females have steeply increased since the start of the COVID-19 pandemic, this is against the background of annual increases across the 10-year study period. Further work is needed to examine how trends have evolved as the pandemic has subsided, although early data suggest there has not been a reduction to pre-pandemic levels.[25] Overall numbers of admissions for mental health concerns are much lower in males than in females, with some declines since 2018, although the number of admissions remains far higher than in 2012–13. There were also declines in admissions related to substance misuse, which might reflect population-level reductions in alcohol consumption among young people, which are not fully understood and warrant further analysis.[26]

Children and young people admitted with mental health concerns are also staying longer in the hospital, with the proportion of admissions lasting more than a week nearly doubling since 2012–13. Across the study period, 13·4% of children and young people had a repeat admission within 6 months of their first admission for mental health concerns, and around a third of all admissions for mental health concerns were recurrent admissions. Repeat admissions for mental health concerns, and those lasting more than 1 week, were more common among children and young people who were female, White, from less deprived areas, and those with eating disorders. This finding reflects work showing that even when admissions only aim to stabilise children and young people with eating disorders rather than restore weight, they last several weeks,[27] although some services achieve shorter lengths of stay if intensive community support is available.

We are not aware of previous studies analysing national trends in admissions to acute medical wards for mental health concerns among children and young people.[7] However, previous work has highlighted concerns regarding the scale of these admissions.[2,12,13] In 2021, the Royal College of Paediatrics and Child Health (RCPCH) highlighted increases in admissions for mental health concerns and the implications for paediatric training and workforce planning.[13] In 2019, the RCPCH estimated that 6% of general paediatric beds were occupied by children and young people who were admitted for mental health concerns,[12] but included paediatric admissions for children younger than 5 years, which might explain why this estimate is lower than our figure of nearly 12%. Hudson and colleagues[2] found increases in admissions for mental health concerns in nearly all hospitals responding to a survey in 2021, compared with the previous year, and that caring for children and young people under the mental health act was common. Fuller and colleagues[28] found further evidence of the acuity of these admissions, showing a third of acute paediatric units in England provided physical restraint for nasogastric feeding in 2022–23.

Strengths of our analysis include using national data of all hospital admissions in children and young people in England over a 10-year period. We identified children and young people with admissions related to mental health concerns using both ICD-10 chapter diagnoses mapped to the GBD cause hierarchy, and through treating clinician. We describe admissions in detail, and analyse factors associated with length of stay and readmission.

Limitations include those inherent to HES data,[17] particularly in variation in diagnostic coding, which might mean we have underestimated the number of admissions for mental health concerns.[29] These data did not allow us to describe the level of care or observation that children and young people needed, nor use of the Mental Health Act. This meant that we were unable to examine when admissions were primarily for medical reasons, such as treatment for paracetamol overdose, or not. We also only identified children and young people for whom the admission was due to a mental health concern and did not examine those with medical problems and comorbid mental health concerns. Ongoing work within the MAPS study seeks to examine this further, through a detailed analysis across 15 acute paediatric units and extensive qualitative work with children and young people with lived experience of these admissions.[16] Finally, we were unable to determine if individuals were admitted to paediatric or adult wards, and the challenges and responses to improving care will differ between these settings. This is particularly relevant for those aged 16–18 years, as around half of children's wards in England only admit children and young people younger than 16 years except in specific circumstances.[19] Of note, many emergency departments changed these criteria during the COVID-19 pandemic and this change might have impacted admission profiles during this period.

Increasing numbers of admissions for mental health concerns might reflect increases in the prevalence of mental health disorders. NHS England estimate that 22·6% of young people aged 11–16 years were likely to have a mental disorder in 2023, an increase from 13·3% in 2017, with sharp increases in eating disorders.[23] Mortality from suicide in young people also increased over the study period, continuing a trend from around 2010.[30] These concerning long-term trends were likely to have been exacerbated by the COVID-19 pandemic[31] and highlight the need to address underlying diverse social, environmental, and commercial determinants of mental health concerns in children and young people. These determinants are not equally distributed: children and young people with long-standing conditions, those from deprived backgrounds, minoritised ethnic groups, those

who are LGBTQ+, and other groups are particularly vulnerable to the determinants of mental illness. These groups also face additional barriers to accessing care, which might explain why children and young people from minoritised ethnic groups and those from deprived backgrounds, are under-represented in admission data.[32,33]

Increases in the prevalence of mental health concerns are driving demand for community child and adolescent mental health services (CAMHS) and primary care activity;[34] referrals to CAMHS in England more than doubled between 2017 and 2022.[35] Despite recent increases in mental health funding for children and young people[35] this has not matched the rise in demand.[10,34,36] This is reflected in increases in mental health referrals being closed before receiving treatment in 2021–22, reversing a downward trend since 2017.[35] Where referrals are accepted, children and young people are waiting longer for treatment[37] and challenges in accessing CAMHS might be driving people to present in crisis to emergency departments, resulting in some of the increase in admissions we report here.[9,11] Accessibility of CAMHS services might also explain some of the geographical variation in admissions we report,[11,35] although population differences and local policies are also likely to contribute.

Our findings provide important messages for health policy internationally on delivering care for children and young people admitted in acute settings due to mental health concerns. Most admissions in our study were brief (85% were 1–3 days), and in such cases general wards are recognised as helpful venues to provide a safe place for young people with emotional distress.[38] However, for more complex presentations, children and young people and their families can find that paediatric teams struggle to ensure adequate social and mental health support is available in the community, or identify a suitable specialist mental health unit with capacity.[39] This calls for better integration and more holistic approaches across acute, mental health, and social care, to allow teams to predict and plan for admissions, especially given that more than 80% of children and young people admitted to specialist mental health beds are known to community mental health teams.[40]

Many acute paediatric staff find caring for children and young people with mental health concerns challenging.[7] As these admissions increase, better training of paediatric staff in mental health care is required, as well as improved provision of staff with expertise, including consultant-liaison psychiatrists.[40] Acute medical wards are commonly not designed to provide safe therapeutic care for children and young people in mental health crisis, and hospitals should prioritise adapting these physical spaces to better meet the needs of these individuals.[8] Innovative models of care that bridge community, acute, and specialist mental health provision are being developed and evaluated for wider dissemination, and these might offer improvements to current care pathways.[41] Investment into CAMHS should also model the likely impacts and cost-effectiveness, both positive and negative, on paediatric services.

Admissions for mental health concerns have increased sharply over the past 10 years in England, changing the profile of children and young people admitted to acute medical wards. Innovative health policy initiatives are required to provide integrated care for these individuals when admission is needed, increase the capacity of mental health services to enable shorter lengths of stay, and improve co-working across acute, mental health, and social care.

Contributors

LDH, JLW, and RMV conceptualised the analyses. LDH, AV-V, and KP led on the systematic review. JLW prepared the data, undertook the analyses, prepared the figures and tables, and wrote the first draft. All authors contributed to finalising the manuscript. JLW and RMV accessed and verified the data. All authors had final responsibility for the decision to submit for publication. The Hospital Episode Statistics data used in this study were restricted to employees of University College London (London, UK) who were authorised to access these data as per the data sharing agreement with NHS Digital.

Declaration of interests

FG has received royalties for the Great Ormond Street Hospital. Manual of Paediatrics, Wiley, and grant funding from the Burdett Trust for Nursing. HR has an editor contract with National Institute for Health and Care Research (NIHR) Journals Library, and is a University College London council member. LDH has received grant funding from NIHR and Ellern Mede School, consultancy fees from the University of Galway, Ireland, an honorarium from NHS England, and funding for conferences from the European Society for Paediatric Gastroenterology and Nutrition, and Excellence in Paediatrics. All other authors declare no competing interests.

Data sharing

Access to Hospital Episode Statistics data used in this study at individual level are restricted, as described in data sharing agreements between University College London and NHS England, and within the application for ethical approval provided for this analysis.

Acknowledgments

This study is funded by the NIHR (135036). JLW is funded by the NIHR as an NIHR Clinical Lecturer. This work is also supported by the NIHR Great Ormond Street Hospital Biomedical Research Centre. The views expressed are those of the authors and not necessarily those of the NHS, the NIHR, or the Department of Health.

References

1 Street K, Costelloe S, Wootton M, Upton S, Brough J. Structured, supported feeding admissions for restrictive eating disorders on paediatric wards. *Arch Dis Child* 2016; **101:** 836–38.

2 Hudson LD, Chapman S, Street KN, et al. Increased admissions to paediatric wards with a primary mental health diagnosis: results of a survey of a network of eating disorder paediatricians in England. *Arch Dis Child* 2022; **107:** 309–10.

3 Shekunov J, Lewis CP, Vande Voort JL, Bostwick JM, Romanowicz M. Clinical characteristics, outcomes, disposition, and acute care of children and adolescents treated for acetaminophen toxicity. *Psychiatr Serv* 2021; **72:** 758–65.

4 Gallagher KAS, Bujoreanu IS, Cheung P, et al. Psychiatric boarding in the pediatric inpatient medical setting: a retrospective analysis. *Hosp Pediatr* 2017; **7:** 444–50.

5 Clisu DA, Layther I, Dover D, et al. Alternatives to mental health admissions for children and adolescents experiencing mental health crises: a systematic review of the literature. *Clin Child Psychol Psychiatry* 2022; **27:** 35–60.

6 Otis M, Barber S, Amet M, Nicholls D. Models of integrated care for young people experiencing medical emergencies related to mental illness: a realist systematic review. *Eur Child Adolesc Psychiatry* 2023; **32:** 2439–52.

7 Vázquez-Vázquez A, Smith A, Gibson F, et al. Admissions to paediatric medical wards with a primary mental health diagnosis: a systematic review of the literature. *Arch Dis Child* 2024; **109:** 707–16.

8 Health Services Safety Investigations Body. Keeping children and young people with mental health needs safe: the design of the paediatric ward. 2024. https://www.hssib.org.uk/patient-safety-investigations/keeping-children-and-young-people-with-mental-health-needs-safe-the-design-of-the-paediatric-ward/investigation-report/pdf/ (accessed June 13, 2024).

9 Care Quality Commission. State of Care 2020/21: children's and young people's mental health. 2021. https://www.cqc.org.uk/publication/state-care-202021 (accessed March 8, 2024).

10 Royal College of Paediatrics and Child Health. The role of paediatricians in children and young people's mental health—position statement 2024. https://www.rcpch.ac.uk/resources/role-of-paediatricians-child-mental-health-position (accessed March 8, 2024).

11 Care Quality Commission. Assessment of mental health services in acute trusts. 2020. https://www.cqc.org.uk/publications/themed-work/assessment-mental-health-services-acute-trusts (accessed Sept 6, 2024).

12 Royal College of Paediatrics Child Health. A snapshot of general paediatric services and workforce in the UK. Royal College of Paediatrics and Child Health London, 2020.

13 Royal College of Paediatrics and Child Health. Paediatrics 2040. https://paediatrics2040.rcpch.ac.uk/ (accessed March 1, 2021).

14 Plemmons G, Hall M, Doupnik S, et al. Hospitalization for suicide ideation or attempt: 2008–2015. *Pediatrics* 2018; **141:** e20172426.

15 Suetani S, Yiu SM, Batterham M. Defragmenting paediatric anorexia nervosa: the flinders medical centre paediatric eating disorder program. *Australas Psychiatry* 2015; **23:** 245–48.

16 Hudson LD, Vázquez-Vázquez A, Gibson F, et al. Mental Health Admissions to Paediatric Wards Study (MAPS): protocol of a prospective study of mental health admissions to paediatric wards in England using surveillance and qualitative methods. *BMJ Paediatr Open* 2024; **8:** e002186.

17 Herbert A, Wijlaars L, Zylbersztejn A, Cromwell D, Hardelid P. Data resource profile: hospital episode statistics admitted patient care (HES APC). *Int J Epidemiol* 2017; **46:** 1093–1093i.

18 Ferrari AJ, Santomauro DF, Aali A, et al. Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. *Lancet* 2024; **403:** 2133–61.

19 Siva N, Ward JL, Goddings A-L. Paediatric inpatient services for adolescents in England. *Arch Dis Child* 2024; **109:** 777–78.

20 NHS England. What are integrated care systems? 2024. https://www.england.nhs.uk/integratedcare/what-is-integrated-care/ (accessed Aug 28, 2024).

21 Hardelid P, Dattani N, Gilbert R. Estimating the prevalence of chronic conditions in children who die in England, Scotland and Wales: a data linkage cohort study. *BMJ Open* 2014; **4:** e005331.

22 Geoffroy M-C, Bouchard S, Per M, et al. Prevalence of suicidal ideation and self-harm behaviours in children aged 12 years and younger: a systematic review and meta-analysis. *Lancet Psychiatry* 2022; **9:** 703–14.

23 Newlove-Delgado T, Marcheselli F, Williams T, et al. Mental health of children and young people in England, 2023. NHS England, 2023.

24 Eisler I, Simic M, Fonagy P, Bryant-Waugh R. Implementing service transformation for children and adolescents with eating disorders across England: the theory, politics, and pragmatics of large-scale service reform. *J Eat Disord* 2022; **10:** 146.

25 Herpertz-Dahlmann B, Eckardt S, Dempfle A. A never-ending story: the COVID-19 pandemic and the increase of hospital admissions for typical and atypical anorexia nervosa in children, adolescents and young adults in the post-pandemic era in Germany. *Eur Psychiatry* 2024; **67:** e77.

26 Mytton OT, Donaldson L, Goddings A-L, et al. Changing patterns of health risk in adolescence: implications for health policy. *Lancet Public Health* 2024; **9:** e629–34.

27 Madden S, Miskovic-Wheatley J, Wallis A, et al. A randomized controlled trial of in-patient treatment for anorexia nervosa in medically unstable adolescents. *Psychol Med* 2015; **45:** 415–27.

28 Fuller S, Sheridan E, Hudson LD, Nicholls D. Nasogastric tube feeding under physical restraint of children and young people with mental disorders: a comprehensive audit and case series across paediatric wards in England. *Arch Dis Child* 2024; **109:** 649–53.

29 D'Souza M, Ross J, Hargreaves D. Evaluating the accuracy and completeness of secondary uses service (SUS) data against clinical records for children and young people admitted to general paediatric wards for primarily mental health reasons. *Arch Dis Child* 2024; **109:** 778–79.

30 Office for National Statistics. Suicides in England and Wales: 2023 registrations. 2024. https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/suicidesintheunitedkingdom/2023 (accessed Sept 11, 2024).

31 Young Minds. The impact of COVID-19 on young people with mental health needs. 2020. https://www.youngminds.org.uk/about-us/reports-and-impact/coronavirus-impact-on-young-people-with-mental-health-needs/ (accessed March 8, 2024).

32 Chui Z, Gazard B, MacCrimmon S, et al. Inequalities in referral pathways for young people accessing secondary mental health services in south east London. *Eur Child Adolesc Psychiatry* 2021; **30:** 1113–28.

33 Coehlo H, Price A, Kiff F, et al. Experiences of children and young people from ethnic minorities in accessing mental health care and support: rapid scoping review. Health and Social Care Delivery Research. National Institute for Health and Care Research, 2022.

34 NHS Confederation. Reaching the tipping point: children and young people's mental health. 2021. https://www.nhsconfed.org/publications/reaching-tipping-point (accessed March 8, 2024).

35 Children's Commissioner. Children's mental health services 2021–2022. https://www.childrenscommissioner.gov.uk/resource/29751/ (accessed March 8, 2024).

36 Providers NHS. Children and young people's mental health services survey. NHS Providers, 2021.

37 NHS England. Access and waiting time standard for children and young people with an eating disorder commissioning guide. 2015. https://www.england.nhs.uk/wp-content/uploads/2015/07/cyp-eating-disorders-access-waiting-time-standard-comm-guid.pdf (accessed July 24, 2024).

38 Conn R. Understanding and managing emotional distress on the paediatric ward. *Arch Dis Child* 2024; **109:** 693–94.

39 Holland J, Roe J, Guo B, et al. 'Far Away from Home': adolescent inpatient admissions far from home, out of area or to adult wards: a national surveillance study. *BMJ Ment Health* 2023; **26:** e300843.

40 Gorny M, Blackstock S, Bhaskaran A, et al. Working together better for mental health in children and young people during a pandemic: experiences from north central London during the first wave of COVID-19. *BMJ Paediatr Open* 2021; **5:** e001116.

41 Otis M, Barber S, Green Hofer S, et al. Evaluating the implementation and impact of a new model of care for integrating children and young people's acute mental healthcare in a paediatric setting: a protocol for a realist, mixed-methods approach. *BMJ Open* 2023; **13:** e067074.