

# YOUNG PEOPLE PRESENTING TO ED IN MENTAL HEALTH CRISIS

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## QUESTION

What do we know about under 18's presenting to ED in mental health crisis?

## SEARCH LIMITS

E.g. English-language, last 7 years, under 18s.

## SEARCH METHODOLOGY

A systematic search was conducted for literature. The results were screened using [Covidence](#). See the Appendix for the PRISMA chart and Medline search strategy.

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## DATABASES SEARCHED

- Medline – index of peer reviewed articles across health sciences and medicine.
- Embase – index of biomed and pharmacological peer reviewed journal articles.
- Emcare – index of nursing, allied health, critical-care medicine and more.
- Grey literature – Google, Google Scholar, Trip database, Government documents.

## LITERATURE RESULTS

All articles can be provided in full text - email [library@monashhealth.org](mailto:library@monashhealth.org) a list of articles you require.

## GENERAL RESOURCES

### ONLINE RESOURCES (GREY LITERATURE)

Royal Australian College of General Practitioners (RACGP), (2023). **'Sobering' statistics reveal childhood mental health trauma.** [Web link](#)

- During the restriction period, the trend included an 82% increase in inpatient admissions for deliberate self-harm (DSH) behaviours and a 76% increase in emergency department (ED) visits related for eating disorders.

Massy-Westropp, M, University of NSW, (2023). **More children and adolescents in mental health crisis since beginning of COVID-19 pandemic: study.** [Web link](#)

- The COVID-19 pandemic has had serious and lasting negative impacts on children's and adolescents' mental health.

Australian Institute of Health and Welfare (AIHW), (2022). **Mental health services provided in emergency departments.** [Web link](#)

- The rate of mental health-related ED presentations from young women had the fastest growth; with the highest average annual change (9.5%) being from women aged 12–17 between 2016–17 to 2020–21. Women aged 12–17 had the highest rate of mental health-related ED presentations in 2020–21 (251.8 per 10,000 population).
- See Figure ED.2: Mental health-related emergency departments presentations, by patient demographic characteristics, 2020–21

Commonwealth Scientific and Industrial Research Organisation (CSIRO), (2021). **Association between COVID-19 restrictions and emergency department presentations for paediatric mental health in Victoria, Australia.** [Web link](#)

- Pandemic restrictions were associated with increased emergency department presentations for eating disorders and, to a lesser extent, anxiety and self-harm. Given the ongoing pandemic, clinicians and policy makers must work together to find timely, accessible solutions to better manage these conditions.

Australian Institute of Health and Welfare (AIHW), (2019). **Mental health services in Australia: in brief 2019.** [Web link](#)

- One in 7 young people aged 4–17 (13.9% or around 591,000 people based on the estimated 2017 population) met the clinical criteria for 1 or more mental disorders in the previous 12 months (Lawrence et al. 2015).
- Attention deficit hyperactivity disorder (ADHD) was the most common mental disorder (7.4% or 315,000 children and adolescents based on the estimated 2017 population), followed by Anxiety disorders (6.9% or about 293,000), Major depressive disorder (2.8% or about 119,000) and Conduct disorder (2.1% or about 89,000).
- See page 11, presentations to public hospital emergency departments by age group.

## PEER-REVIEWED LITERATURE - IN REVERSE CHRONOLOGICAL ORDER

Articles are grouped by theme:

- Population based studies - Australia
- Population based studies – International
- COVID-19 impact (limited to Australia)
- Family characteristics
- Paediatric age groups
- Presentations associated with:
  - ASD, ADHD or Behavioural disorders
  - Bullying & Peers
  - Child maltreatment
  - Deliberate poisoning
  - Self harm
  - Suicide

### POPULATION BASED STUDIES - AUSTRALIA

Goldfinch, C. and A. Kochar (2022). **Trends in mental health presentations in a south Australian tertiary emergency department.** *Journal of paediatrics and child health*, 58(5), 836-841. [Click for full-text.](#)

Limited recent interstate evidence suggests an increase in paediatric mental health presentations to emergency departments in Australia. We set out to confirm this and whether any specific diagnosis was responsible for this increase. Comparing the first and last time periods, there was a 156% increase in mental health presentations over 9 years. This was out of proportion to the increase in combined general and mental health presentations of 11.9%. There was an increase in the proportion of patients who were diagnosed with an adjustment disorder (14-26.6%) or a childhood emotional disorder (8.5-20.8%). Additionally, there was an increase in median wait time and a reduction in the proportion of patients seen within their recommended triage time. There is a large increase in the number of paediatric mental health presentations to our emergency department. Further resources may need to be allocated to mental health services in the community and in the emergency department.

Tolentino, A., et al. (2021). **Mental health presentations to a paediatric emergency department.** *Emergency medicine Australasia: EMA*, 33(1), 125-130. [Click for full-text.](#)

To explore trends in presentation and key performance indicators with respect to children seeking mental health services at The Prince Charles Hospital Children's Emergency Department (TPCH-CED), Brisbane. Mental health presentations almost doubled over the 5 years (185 attendances in 2013; 342 in 2017); however, as a proportion of overall presentations, there was no significant increase. The percentage of mental health presentations meeting the National Emergency Access Target criteria dropped from 63% in 2013 to 39% in 2017 ( $P < 0.0001$ ). Those requiring a mental health inpatient stay were more likely to have very extended length of stay within the CED. Suicidal ideation was the most common presenting complaint (72% of mental health presentations). Violence and aggression were noted in a consistent proportion of mental health presentations (4.4-12%)., CONCLUSIONS: Despite failing to demonstrate an interval increase in the proportion of children presenting to TPCH-CED requiring mental health services, it is clear that children with mental health needs, like their adult counterparts, disproportionately experience delays to appropriate care when compared with children presenting with other emergency conditions. Ongoing research is warranted to assess standards of care and the impact of mental health presentations on CEDs.

Say, D. F., et al. (2021). **Mental health presentations to the paediatric emergency department: A retrospective study.** *Journal of paediatrics and child health*, 57(5), 684-695. [Click for full-text.](#)

To describe a cohort of patients aged 7-17 years presenting with mental health (MH) problems to an Australian tertiary paediatric emergency department (ED), in order to identify: (i) predictors of admission; and (ii) prolonged length of stay (LOS); (iii) reasons for ED presentation based on diagnosis and (iv) differences between major diagnostic groups. In this 12-month period, 1071 children had 1690 emergency MH presentations constituting 6.7% of all ED presentations for children aged 7-17 years. Collectively, the leading cause for presentations was suicidal ideation, self-harm or drug overdose (55%). Compared to discharged patients, admitted patients were more likely to be female, aged over 14-years, triaged with high acuity and arrive by ambulance or police. The highest risk diagnosis associated with admission was eating disorders. Mental health presentations constitute a large proportion of ED presentations. Suicidal behaviour and self-harm account for half of them. We have identified patients at increased risk of admission and prolonged ED LOS.

Tran, Q. N., et al. (2019). **Trends of emergency department presentations with a mental health diagnosis by age, Australia, 2004-05 to 2016-17: A secondary data analysis.** *Emergency medicine Australasia: EMA*, 31(6), 1064-1072. [Click for full-text.](#)

The present study aims to explore for Australia: (i) the trends of ED presentations with a mental health (MH) diagnosis by age group; and (ii) whether those trends differ from all ED presentations. Between 2004-05 and 2016-17, children (0-14 years), followed by older persons ( $\geq 65$  years) had the highest ED utilisation; while youth (15-24 years) and younger adults (25-34 years) predominated for MHdx presentations. As a proportion of all presentations, MHdx presentations were lowest in children, and highest in people 35-44 years (13.2-times higher than for children). The rate of increase in MHdx presentations was higher than for all presentations in all age groups, reaching almost four times higher for children., CONCLUSION: The Australian Institute of Health and Welfare should consider expanding the breadth of MH diagnoses they report to better identify the impact of MH on ED presentations. Between 2004-05 and 2016-17, high ED utilisation by children and older persons, and the increasing burden of MHdx presentations for youth, younger adults and children suggest that healthcare planning strategies for urgent and emergency care cannot afford to overlook the growing impact of these sub-groups.

Hiscock, H., et al. (2018). **Paediatric mental and physical health presentations to emergency departments, Victoria, 2008-15.** *The Medical journal of Australia*, 208(8), 343-348. [Click for full-text.](#)

To identify trends in presentations to Victorian emergency departments (EDs) by children and adolescents for mental and physical health problems; to determine patient characteristics associated with these presentations; to assess the relative clinical burdens of mental and physical health presentations. Between 2008-09 and 2014-15, the number of mental health presentations increased by 6.5% per year, that of physical health presentations by 2.1% per year; the proportion of mental health presentations rose from 1.7% to 2.2%. Self-harm accounted for 22.5% of mental health presentations (11 770 presentations) and psychoactive substance use for 22.3% (11 694 presentations); stress-related, mood, and behavioural and emotional disorders together accounted for 40.3% (21 127 presentations). The rates of presentations for self-harm, stress-related, mood, and behavioural and emotional disorders each increased markedly over the study period. The number of children who presented to Victorian public hospital EDs for mental health problems increased during 2008-2015, particularly for self-harm, depression, and behavioural disorders.

Williamson, A., et al. (2018). **Mental health-related emergency department presentations and hospital admissions in a cohort of urban Aboriginal children and adolescents in New South Wales, Australia: findings from SEARCH.** *BMJ open*, 8(11): e023544. [Click for full-text.](#)

The aim of the current study is to quantify mental health-related emergency department (ED) presentations and hospitalisations, and associated child and family characteristics, in children

recruited through four Aboriginal Community Controlled Health Organisations located in urban or large regional centres in New South Wales, Australia. Tertiary care for mental health issues was relatively common among participating Aboriginal children, with risk elevated for those living in foster care, with prior mental health and behavioural problems and with carers with chronic illness and/or unemployment. While this study suggests high rates of serious mental health events among children from participating communities, the optimum means for reducing these rates, and the need for tertiary care, has not yet been determined. Such information is urgently required to inform policy and programmes to support Aboriginal child and adolescent mental health.

Markham, D. and A. Graudins (2013). **Characteristics of paediatric frequent presenters to an Australian emergency medicine network.** *Journal of paediatrics and child health*, 49(11), 950-954. [Click for full-text.](#)

The study aims to describe the characteristics of paediatric emergency department (ED) patients defined as frequent presenters (FP) presenting to an Australian ED health service and compare these with a cohort of non-frequent presenters (NFP). **METHOD:** A retrospective chart review utilising an electronic emergency medicine patient medical record database was performed on paediatric patients (18 years or younger) presenting to Monash Health EDs from March 2009 to March 2010. FPs to the ED were more likely to be female, utilise the ambulance service to arrive at the hospital and more likely to be admitted to hospital. In particular, FPs were more likely to require admission for a mental health-related problem. **CONCLUSIONS:** Paediatric FPs are a vulnerable population with complex multidisciplinary care needs. A holistic approach towards their needs is essential to understanding the reasons for their higher frequency of attendance. By considering all the elements of the child's well-being, the child and family need support to assist in integration with other non-ED service providers. By focusing on wellness and self-management, there is a potential to reduce the reliance on acute emergency care for ongoing chronic health problems.

## POPULATION BASED STUDIES - INTERNATIONAL

Lo, C. B., et al. (2020). **Children's mental health emergency department visits: 2007-2016.** *Pediatrics* 145(6). [Click for full-text.](#)

Emergency department (ED) visits for children seeking mental health care have increased. Few studies have examined national patterns and characteristics of EDs that these children present to. Our objective is to describe the trends in pediatric mental health visits to US EDs, with a focus on low-volume, nonmetropolitan EDs, which have been shown to be less prepared to provide pediatric emergency care. Pediatric ED visits have been stable; however, visits for deliberate self-harm increased 329%, and visits for all mental health disorders rose 60%. Visits for children with a substance use disorder rose 159%, whereas alcohol-related disorders fell 39%. These increased visits occurred among EDs of all pediatric volumes, regardless of children's ED classification. Visits to low-pediatric-volume and nonmetropolitan areas rose 53% and 41%, respectively. Although the total number of pediatric ED visits has remained stable, visits among children with mental health disorders have risen, particularly among youth presenting for deliberate self-harm and substance abuse. The majority of these visits occur at nonchildren's EDs in both metropolitan and nonurban settings.

Kalb, L. G., et al. (2019). **Trends in psychiatric emergency department visits among youth and young adults in the US.** *Pediatrics*, 143(4). [Click for full-text.](#)

We examined if psychiatric ED visits among individuals 6 to 24 years of age are increasing nationwide. Between 2011 and 2015, there was a 28% overall increase (from 31.3 to 40.2) in psychiatric ED visits per 1000 youth in the United States. The largest increases in psychiatric ED visits per 1000 US youth were observed among adolescents (54%) and African American (53%) and Hispanic patients (91%). A large increase in suicide-related visits (by 2.5-fold) was observed among

adolescents (4.6-11.7 visits per 1000 US youth). Although psychiatric ED visits were long (51% were \$3 hours in length), few (16%) patients were seen by a mental health professional during their visit. Visits to the ED for psychiatric purposes among youth are rising across the United States. Psychiatric expertise and effective mental health treatment options, particular those used to address the rising suicide epidemic among adolescents, are needed in the ED.

Gill, P. J., et al. (2017). **Emergency department as a first contact for mental health problems in children and youth.** *Journal of the American Academy of Child & Adolescent Psychiatry*, 56(6), 475-482. [Click for full-text.](#)

This was a population-based cross-sectional cohort study using linked health and demographic administrative datasets of youth 10 to 24 years of age with an incident MH ED visit from April 1, 2010, to March 31, 2014, in Ontario, Canada. We modeled the association of demographic, clinical, and health service use characteristics with having no prior outpatient MH care in the preceding 2-year period ("first contact") using modified Poisson models. Among 118,851 youth with an incident mental health ED visit, 14.0% were admitted. More than half (53.5%) had no prior outpatient MH care, and this was associated with younger age, rural residence, lowest versus highest income quintile, and refugee immigrants and other immigrants versus nonimmigrants. More than half of youth requiring ED care had not previously sought outpatient MH care. Associations with multiple markers of primary care access characteristics suggest that timely primary care could prevent some of these visits.

Holder, S. M., et al. (2017). **Mental health visits: Examining socio-demographic and diagnosis trends in the emergency department by the pediatric population.** *Child Psychiatry and Human Development*, 48(6), 993-1000. [Click for full-text.](#)

The emergency department (ED) is increasingly being used for mental health visits by children and adolescents. It is estimated that 21-23% of youth have a diagnosable psychiatric or substance use disorder. Using data from the ED of a tertiary medical center, we examined trends in mental health diagnoses over a 5-year period. In school age children the most prevalent diagnoses were anxiety disorders (28.4%); disorders first usually diagnosed in infancy, childhood, or adolescence (26.5%), and mood disorders (18.6%). High school students were more likely to visit the ED for anxiety disorders (30%). Females (34.5%) presented more for anxiety disorders compared to males (22.7%). Mental health visits and diagnoses were higher during school months (September-May) and lower in the summer months (June-August). The diagnosis trends identified in this study have clinical implications that can contribute to evidence-based restructuring of mental health resources and screenings.

Mapelli, E., et al. (2015). **Trends in pediatric emergency department utilization for mental health-related visits.** *The Journal of Pediatrics*, 167(4), 905-910. [Click for full-text.](#)

To describe trends in utilization of pediatric emergency department (PED) resources by patients with mental health concerns over the past 10 years at a tertiary care hospital. We conducted a retrospective cohort study of tertiary PED visits from 2003 to 2012. All visits with chief complaint or discharge diagnosis related to mental health were included. We observed a 47% increase in the number of mental health presentations compared with a 9% increase in the number of total visits to the PED over the study period. Return visits represented a significant proportion of all mental health-related visits (31%-37% yearly). We also observed a 23% increase in the number of mental health-related visits resulting in admission. Conclusion: Mental health-related visits represent a significant and growing burden for the emergency department at a tertiary care PED. These results highlight the need to reassess the allocation of health resources to optimize acute management, risk assessment, and linkage to mental health services upon disposition from the PED.

## COVID-19 IMPACT (LIMITED TO AUSTRALIA)

Khan, J. R., et al. (2023). **COVID-19 and Pediatric Mental Health Hospitalizations.** *Pediatrics*, 151(5). [Click for full-text.](#)

To analyze Australian national data to examine the impact of the coronavirus disease 2019 (COVID-19) pandemic on mental health-related hospital presentations among children and adolescents during the pandemic period with restrictions, and the period after the restrictions eased. During the COVID-19 restriction period, there was a significant increase in inpatient admissions related to deliberate self-harm behaviors (82%, 95% credible interval [CrI], 7%-160%) and ED attendances related to overall mental health disorders (15%, 95% CrI, 1.1%-30%) and eating disorders (76%, 95% CrI, 36%-115%). The increase was higher among females and those living in the least socioeconomically disadvantaged areas, suggesting a widening gap between mental health-related presentations by sex and socioeconomic status. After the restrictions eased, there were slight declines in mental health-related hospital presentations; however, the numbers remained higher than the pre-COVID-19 levels., CONCLUSIONS: The increase in mental health-related hospital presentations during the COVID-19 period calls for additional support for pediatric mental health care, particularly for eating disorders and deliberate self-harm among female adolescents. It is important to monitor pediatric mental health service use as we enter "COVID-19 normal" period.

Hu, N., et al. (2022). **The impact of the COVID-19 pandemic on paediatric health service use within one year after the first pandemic outbreak in New South Wales Australia - a time series analysis.** *The Lancet regional health. Western Pacific*, 19(101774968), 100311. [Click for full-text.](#)

The first wave of the COVID-19 pandemic hit New South Wales (NSW) Australia in early 2020, followed by a sharp state-wide lockdown from mid-March to mid-May. After the lockdown, health service use for most health conditions returned to pre-COVID-19 predicted levels. However, for mental health disorders, increased health service use persisted from June 2020 up to February 2021 by 30-55%, with higher increase among girls aged 12-17 years and those from socioeconomically advantaged areas. The immediate return to pre-COVID-19 levels for most chronic conditions after the first lockdown in NSW highlights the healthcare needs for children affected by chronic conditions. Persistently lower health service use for acute infections is likely attributable to the decreased social contact. Sustained and targeted mental health support is essential to address the potentially increased demand for services among children during and beyond the pandemic.

Hiscock, H., et al. (2022). **Association between COVID-19 restrictions and emergency department presentations for paediatric mental health in Victoria, Australia.** *Australian health review: a publication of the Australian Hospital Association*, 46(5), 529-536. [Click for full-text.](#)

We compared pre-COVID-19 to the COVID-19 period to examine the number of mental health presentations by patient age, socioeconomic status, location, and emergency department triage category. Compared with predicted presentations, there was an increase in observed presentations for eating disorders throughout lockdown (on average, an increase of 36 presentations/month) and for anxiety (11/month) and self-harm (18/month). There were no meaningful changes for mood disorders or developmental and behavioural problems, and presentations for substance abuse mostly fell. Pandemic restrictions were associated with increased emergency department presentations for eating disorders and, to a lesser extent, anxiety and self-harm. Given the ongoing pandemic, clinicians and policy makers must work together to find timely, accessible solutions to better manage these conditions.

Carison, A., et al. (2022). **Increased paediatric emergency mental health and suicidality presentations during COVID-19 stay at home restrictions.** *Emergency medicine Australasia: EMA*, 34(1), 85-91. [Click for full-text.](#)

Anecdotal reports indicate an increase in mental health presentations and acuity to EDs during the COVID-19 pandemic and associated stay at home restrictions. Paediatric and adolescent data to confirm this are unavailable in the Australian setting. We undertook a retrospective electronic medical record review of all ED patients with mental health discharge codes at a large tertiary children's hospital in Australia during the period of stay at home restrictions from 1 April to 30 September 2020 compared with the same dates in 2019. We found a 40% decrease in ED presentations (18 935-11 235) with a concurrent 47% increase in mental health presentations (809-1190) to ED during the study periods between 2019 and 2020. Diagnoses with greatest percentage increases were eating disorders, social issues and suicidality. We found suicidality presentation numbers were highest in June to September 2020 compared with 2019. Despite an overall decrease in ED presentations, the absolute increase in mental health presentations for children and adolescents during the stay at home restriction period was pronounced. It is unclear how sustained this change and the impact on mental health resource use will be post-pandemic.

Cheek, J. A., et al. (2020). **Emergency department utilisation by vulnerable paediatric populations during the COVID-19 pandemic.** *Emergency medicine Australasia: EMA*, 32(5), 870-871. [Click for full-text.](#)

To determine if changes to community-based services have effected paediatric ED attendances for mental health issues and neonates during the COVID-19 pandemic. Analysis of total presentations, presentations with a mental health diagnoses, and presentation of neonates during the early stages of the pandemic compared with the previous year for 4 Victorian hospitals. There was a 47.2% decrease in total presentations compared with 2019, with a 35% increase in mental health diagnoses and a 2% increase in neonatal presentations. Vulnerable paediatric patients are seeking care elsewhere during the pandemic due to the closure of community services.

## FAMILY CHARACTERISTICS

MacDonald, K., et al. (2022). **Emergency department use for mental health problems by youth in child welfare services.** *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 31(4), 202-213. [Click for full-text.](#)

In Canada, little research has focused on emergency department (ED) use by youth involved with child welfare services, a vulnerable population. Our aims were therefore (1) to examine the characteristics of ED users among child welfare-involved youth, 2) to identify predictors of ED use and 3) to identify youth trajectories to EDs. ED users were more likely to be youth with a history of 1) sexual abuse, 2) parental mental illness, and 3) placements outside of the home, compared to youth with no ED visits. Mental health treatment was initiated in the 30 days following an ED presentation in 24% of cases. Three trajectories were found: 1) ED contact initiated by child welfare workers for suicidal ideation/attempts, 2) ED contact initiated by police for substance use and externalized behaviours and 3) ED contact initiated by parents for suicidal ideation/attempts. Discussion: Despite all youth being followed by child welfare and many already receiving mental health services, youth had high, often recurrent ED use. This highlights the need for stronger coordination between child welfare, youth mental health services and EDs.



Leon, S. L., et al. (2019). **Family factors and repeat pediatric emergency department visits for mental health: A retrospective cohort study.** *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 28(1), 9-20. [Click for full-text.](#)

Approximately 45% of youth presenting to the emergency department (ED) for mental health (MH) concerns will have a repeat ED visit. Since youth greatly depend on their caregivers to access MH services, the objective of this study was to determine if family characteristics were associated with repeat ED visits. Of 266 participants, 70 (26%) had a repeat visit. While caregiver history of MH treatment decreased the odds of having a repeat ED visit, family functioning and perceived family burden were not associated with repeat visits. Post-visit MH services, prior psychiatric hospitalization, higher severity of symptoms, and living closer to the hospital increased the odds of repeat visits. This study examined the contribution of multiple family factors in predicting repeat MH visits to the ED. Results suggest caregiver characteristics may impact the decision to return. Healthcare providers should therefore consider caregiver and youth service utilization factors to inform patient management and discharge planning.

Whitten, T., et al. (2019). **Parental offending and children's emergency department presentations in New South Wales, Australia.** *Journal of epidemiology and community health*, 73(9), 832-838. [Click for full-text.](#)

Children whose parents have a history of criminal offending may be at risk of higher rates of emergency department (ED) presentation, along with other adverse health outcomes. We used data from a large, population-based record linkage project to examine the association between maternal and paternal criminal offending and the incidence of ED presentations among child offspring. Child rates of ED presentation, particularly for physical injury, were higher among those with parental history of criminal offending, after adjusting for covariates. The magnitude of the association was higher for paternal criminal offending (ED presentation for any reason: HR=1.44 (95% CI 1.41 to 1.48); physical injury: HR=1.70 (95% CI 1.65 to 1.75)) than maternal criminal offending (any reason: HR=0.99 (95% CI 0.95 to 1.03); physical injury: HR=1.05 (95% CI 1.00 to 1.10)). **CONCLUSION:** Children of parents, particularly of fathers, with a history of criminal offending have an increased incidence of ED presentation, including for potentially avoidable physical injury. These findings require replication and further research to understand the mechanisms underlying these associations.

## PAEDIATRIC AGE GROUPS

Rosychuk, R. J., et al. (2019). **Age affects the impact of important predictors on mental health emergency department visits.** *The Journal of Behavioral Health Services & Research*, 46(4), 625-635. [Click for full-text.](#)

Visits to emergency departments (EDs) for pediatric mental health care have increased over the years. The likelihood of ED re-visit is greatest for older children; however, little is known about age-varying effects on ED visits/re-visits. This study used population-based administrative databases from Alberta, Canada, to investigate the association of predictors on mental health ED visit frequency by age for 27,947 children who presented at least once for mental health care from April 2002 to March 2011. A marginal regression model with age-varying effects for sex, geographic area, and socio-demographic group was fit. The impact of predictors depended on a child's age. Notably, older males had lower ED visit frequencies compared to females (age 15 adjusted hazard ratio [aHR] = 0.70, 95% confidence interval [CI] [0.65, 0.76]) than younger males (age 10 aHR = 1.83, 95% CI [1.50, 2.24]). Children with particular ages for some socio-demographic groups also showed higher ED frequencies than children from the non-subsidized group. The analysis revealed important age-varying effects on predictors of mental health ED visit frequency.

Batra, S., et al. (2016). **Older adolescent presentations to a children's hospital emergency department.** *Emergency medicine Australasia : EMA*, 28(4), 419-424. [Click for full-text.](#)

A retrospective review of total ED presentations by older adolescents to a tertiary paediatric hospital between 2010 and 2012, inclusive, was undertaken to determine if behavioural or mental health problems were common. A total of 1184 ED presentations by 730 older adolescents were identified. Injury and abdominal pain were the most common complaints for presentations by older adolescents to the ED. More than 60% of the older adolescent ED presentations were triaged urgent or semi-urgent, and 39% of all these presentations resulted in hospital admission. Two-thirds of these older adolescents had a chronic illness, which accounted for 77% of all ED presentations by older adolescents. A high prevalence of chronic illness was found in older adolescents attending the paediatric ED. There was no evidence that behavioural and mental health issues dominated. These findings reflect admission policy.

### ASSOCIATED WITH ASD, ADHD OR BEHAVIOURAL DISORDERS

Bourke, E. M., et al. (2021). **Emergency mental health presentations in children with autism spectrum disorder and attention deficit hyperactivity disorder.** *Journal of paediatrics and child health*, 57(10), 1572-1579. [Click for full-text.](#)

To characterise the key features and management of young people presenting to the emergency department (ED) with a mental health (MH) complaint and a known diagnosis of autism spectrum disorder (ASD) or attention deficit hyperactivity disorder (ADHD) through a retrospective review of all ED MH presentations in children aged 7-17 years, presenting over a 12-month period from the 1st of January 2018 to the 31st of December 2018, to the Royal Children's Hospital in Melbourne, Australia. There were 374 presentations in this cohort, representing 28% of the total MH presentations in 2018. The most common reason for presentation was acute severe behavioural disturbance. Young people with ASD and ADHD were at increased risk of having an acute crisis team response. Compared to those without either diagnosis, young people with ASD were more likely to be physically restrained, managed in seclusion and to receive medication to assist with behavioural de-escalation. Children with ASD and/or ADHD represent one-quarter of all children presenting to the ED with MH complaints.

Kalb, L. G., et al. (2019). **Characteristics of psychiatric emergency department use among privately insured adolescents with autism spectrum disorder.** *Autism*, 23(3), 566-573. [Request full-text.](#)

This study examined differences in the rates of psychiatric-related emergency department visits among adolescents with autism spectrum disorder, adolescents with attention deficit hyperactivity disorder, and adolescents without autism spectrum disorder or attention deficit hyperactivity disorder. Additional outcomes included emergency department recidivism, probability of psychiatric hospitalization after the emergency department visit, and receipt of outpatient mental health services before and after the emergency department visit. Adolescents with autism spectrum disorder had an increased rate of psychiatric emergency department visits compared to adolescents with attention deficit hyperactivity disorder and adolescents with neither diagnosis. Compared to the other groups, adolescents with autism spectrum disorder also had an increased probability of emergency department recidivism, psychiatric hospitalization after the emergency department visit, and receipt of outpatient care before and after the visit.

Schlenz, A. M., et al. (2015). **Age differences in emergency department visits and inpatient hospitalizations in preadolescent and adolescent youth with autism spectrum disorders.** *Journal of Autism and Developmental Disorders*, 45(8): 2382-2391. [Click for full-text.](#)

This paper evaluated age differences in emergency department care and inpatient hospitalizations in 252 preadolescent and adolescent youth with autism spectrum disorders (ASDs; ages 9-18).

Records from youth with ASDs were linked to acute care utilization records and were compared to a demographically similar comparison group of youth without ASDs (N = 1260). A particular focus was placed on utilization for psychiatric concerns and injuries or accidents. Results suggested that psychiatric care was more likely for youth with ASDs in both the preadolescent and adolescent cohorts versus comparison youth, with no significant differences between age cohorts. In contrast, results for the accident and injury categories suggested age-specific findings. Results suggest opportunities for prevention efforts for youth with ASDs.

Liu, S., et al. (2014). **Characteristics of children and youth who visit the emergency department for a behavioural disorder.** *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 23(2), 111-117. [Click for full-text.](#)

Relatively little is known about children who present to emergency departments (EDs) to stabilize acute emergencies related to behavioural disorders. This study describes patient and treatment characteristics of such children/youth. We conducted a retrospective medical record review of consecutive ED presentations made by children/youth (10 to 17 years) between January 2009 and December 2011 for visits with a main discharge diagnosis of hyperkinetic disorder, mixed disorder of conduct and emotions, or conduct disorder. During the study period, 365 consecutive presentations made by 325 children/youth. The most common presenting complaints were related to depression/self-harm (45.8%) and violent behaviours (28.8%). Many children/youth had a previously diagnosed psychiatric disorder (59.4%) and identified being under the care of a child psychiatrist (42.2%). The majority of ED visits were triaged as urgent or emergent (51.5% and 41.1%, respectively) and included mood and suicidality assessments (84.7% and 80.8%, respectively). Follow-up with various services was made for all visits. Conclusion: Children and youth presented to the ED for a behavioural disorder had urgent needs related to self-harm, depression and violent behaviours. These findings draw attention to the important role of the ED in managing physical safety and well-being concerns for families and recommending follow-up in the post-crisis period.

## ASSOCIATED WITH BULLYING & PEERS

Roberts, N., et al. (2016). **Pediatric emergency department visits for mental health crisis: Prevalence of cyber-bullying in suicidal youth.** *Child & Adolescent Social Work Journal*, 33(5), 469-472. [Click for full-text.](#)

The objective of this work is to (1) study the prevalence of cyber-bullying amongst adolescents referred by Pediatric Emergency Department (PED) for urgent psychiatric assessment and (2) to examine the association between cyber-bullying and suicidal behavior to assist emergency department professionals in screening for risk and triage. This is a retrospective study of patients referred by PED to an urgent psychiatric clinic. Data was extracted for those with bullying victimization. Clinical variables included demographics, reason for referral, type of bullying, substance use, abuse, past psychiatric history, diagnosis and outcome. The cyber-bullying group was compared to those with traditional bullying and a group with no-bullying. Data analysis was conducted using Chi squares, multinomial and bimodal logistic regression. The urgent psychiatric clinic assessed 805 patients in 24 months, the prevalence of bullying was 26.9 % (n = 217). The prevalence of Cyber-bullying was 13.5 % (n = 109) and traditional bullying was 13.4 % (n = 108). Cyber-bullying victims have more suicidal ideation (chi2 = 7.82, p = .005; 85.3 vs. 69.4 %), more sexual abuse (chi2 = 5.75, p = .02; 29.4 vs. 15.7 %), more emotional abuse (chi2 = 10.8, p = .01; 30.3 vs. 12.0 %) and physical abuse (chi2 = 6.13, p = .01; 27.5 vs. 13.9 %) and a higher inpatient admission rate. Suicidal ideation is the presenting problem in more than two-thirds of patients, especially females, with history of cyber-bullying who present to the PED. Screening questions about cyber-bullying could assist emergency room professionals in establishing risk and making triage decisions.

Ranney, M. L., et al. (2016). **PTSD, cyberbullying and peer violence: prevalence and correlates among adolescent emergency department patients.** *General Hospital Psychiatry*, 39, 32-28. [Click for full-text.](#)

A cross-sectional survey of adolescents aged 13-17years presenting to the ED for any reason was conducted between August 2013 and March 2014. Validated self-report measures were used to measure mental health symptoms, violence exposure and risky behaviors. Multivariate logistic regression analysis was performed to determine adjusted differences in associations between symptoms consistent with PTSD and predicted correlates. Results: Of 353 adolescents, 23.2% reported current symptoms consistent with PTSD, 13.9% had moderate or higher depressive symptoms and 11.3% reported past-year suicidal ideation. Adolescents commonly reported physical peer violence (46.5%), cyberbullying (46.7%) and exposure to community violence (58.9%). On multivariate logistic regression, physical peer violence, cyberbullying victimization, exposure to community violence, female gender and alcohol or other drug use positively correlated with symptoms consistent with PTSD. Conclusions: Among adolescents presenting to the ED for any reason, symptoms consistent with PTSD, depressive symptoms, physical peer violence, cyberbullying and community violence exposure are common and interrelated. Greater attention to PTSD, both disorder and symptom levels, and its cooccurring risk factors is needed.

Ranney, M. L., et al. (2013). **Correlates of depressive symptoms among at-risk youth presenting to the emergency department.** *General Hospital Psychiatry*, 35(5), 537-544. [Click for full-text.](#)

The study's objective was to identify correlates of depressive symptoms among at-risk youth in an urban emergency department (ED). A systematic sample of adolescents (ages 14-18) in the ED were recruited as part of a larger study. Participants reporting past-year alcohol use and peer aggression self-administered a survey assessing: demographics, depressive symptoms and risk/protective factors. Logistic regression identified factors associated with depressive symptoms. Results: Among 624 adolescents (88% response rate) meeting eligibility criteria, 22.8% (n = 142) screened positive for depressive symptoms. In logistic regression, depressive symptoms were positively associated with female gender [odds ratio (OR): 2.84, 95% confidence interval (CI): 1.78-4.51], poor academic performance (OR: 1.57, 95% CI: 1.01-2.44), binge drinking (OR: 1.88, 95% CI: 1.21-2.91), community violence exposure (OR: 2.25, 95% CI: 1.59-3.18) and dating violence (OR: 2.14, 95% CI: 1.36-3.38) and were negatively associated with same sex mentorship (OR: 0.52, 95% CI: 0.29-0.91) and older age (OR: 0.55, 95% CI 0.34-0.89). Including gender interaction terms did not significantly change findings. Conclusions: Screening and intervention approaches for youth in the urban ED should address the co-occurrence of depressive symptoms with peer and dating violence, alcohol and non marijuana illicit drug use.

## ASSOCIATED WITH CHILD MALTREATMENT

Gnanamanickam, E. S., et al. (2022). **Child maltreatment and emergency department visits: a longitudinal birth cohort study from infancy to early adulthood.** *Child Abuse & Neglect*, 123, 105397. [Click for full-text.](#)

**OBJECTIVE:** To examine the association between different levels of CM concern, and Emergency Department (ED) visits from infancy to early adulthood for individuals born in Adelaide, South Australia from January 1986 to June 2017 (N = 443,754). ED visits coded as self-harm or poisoning, injuries, substance use or mental illness were particularly high, with incidence rate ratios mostly 3 to 15 times for mental health/substance related visits and 1.5 to 3.2 for other accidents or injury for individuals with any CM concern versus none. The high rate ratios for ED visits in children with CM concern, especially for self-harm, substance use and mental health during adolescence and adulthood highlights the enduring mental health needs of victims of child maltreatment, providing further impetus for prevention.

Rhodes, A. E., et al. (2013). **Child maltreatment and repeat presentations to the emergency department for suicide-related behaviors.** *Child Abuse & Neglect*, 37(2-3), 139-149. [Click for full-text.](#)

To identify factors associated with repeat emergency department (ED) presentations for suicide-related behaviors (SRB)-hereafter referred to as repetition-among children/youth to aid secondary prevention initiatives. To compare rates of repetition in children/youth with substantiated maltreatment requiring removal from their parental home with their peers in the general population. Children/youth with substantiated maltreatment (as noted) were two times more likely to have repetition than their peers after adjustments for social, demographic, and clinical factors (conditional on prior ED SRB presentations). A number of these factors were independently associated with repetition. No one factor distinguished between having a first and second repetition nor was more strongly associated with repetition than another. Conclusions: The risk of repetition is higher in children with substantiated maltreatment (as noted) than their peers. No one factor stood out as predictive of repetition. Implications for secondary prevention initiatives include a non-selective approach, sensitive to family difficulties and the need to better contextualize repetition and harness data linkages.

### ASSOCIATED WITH DELIBERATE POISONING

Downes, M. A., et al. (2021). **Paediatric poisoning presentations reported to a regional toxicology service in Australia.** *Journal of paediatrics and child health*, 57(7), 1049-1053. [Click for full-text.](#)

The aim of this study is to describe the epidemiology and health-care utilisation of paediatric emergency department (ED) presentations due to poisoning. A retrospective review of all ED presentations of paediatric poisoning cases (<18 years) reported to a tertiary toxicology service from 2015 to 2016 was conducted. From 764 consultations over a 2-year period, 87 were excluded as non-ED presentations. From these, there were 194 (29%; 47% female) pre-school aged, 34 (5%; 41% female) primary school aged and 449 (66%; 77% female) adolescent presentations. Deliberate self-poisoning was most common in 394 of 449 (88%) adolescents. Accidental exposures accounted for 159 (82%) of pre-school presentations and natural toxins occurred in all three age groups. Paracetamol, selective serotonin reuptake inhibitors, antipsychotics and ibuprofen were the most common toxins. CONCLUSIONS: Adolescent deliberate self-poisoning has a significant impact on hospital resources, with mental health problems requiring extended length of stay. There were fewer pre-school accidental poisoning consultations, which were mainly discharged from ED.

Rodd, N. and A. Graudins (2021). **Did the COVID-19 'lockdown' in Melbourne, Australia influence adolescent deliberate self-poisoning (DSP) and mental-health presentations to a metropolitan hospital network?** *Journal of Medical Toxicology*, 17, 93-153. [Click for full-text.](#)

Retrospective comparison of adolescents (age 10-18 years) presenting to a metropolitan health network with deliberate self-poisoning (DSP) or mental health problems during matched periods of March to September 2019 and 2020. Data extracted: demographics, triage reason (DSP or mental health), substances ingested, ED disposition, hospital length of stay (LOS). Result(s): Total adolescent ED presentations in the seven-month periods were 10,055 in 2020 and 14,023 in 2019. There were 199 DSP presentations in each period. This constituted a greater proportion of ED presentations in 2020. Median age was 16 years (IQR 15-17) for both time periods. Mental health presentations were also greater in 2020 (16% vs. 10%). There was a significant increase in DSP requiring ICU and medical-ward admission in 2020: medical-ward, ICU, and an increase in DSP with sedative drugs (benzodiazepines and other sedatives) and concomitant decrease in DSP with antidepressants. Acetaminophen was the most commonly reported toxicant for DSP (30%) in both time periods. An increase in adolescent-DSP and mental health presentations compared to total ED presentations was observed in 2020, as well as more ICU and medical-ward admissions, suggesting an increased rate of more significant intoxications in 2020.

## ASSOCIATED WITH SELF HARM

Poyraz Findik, O. T., et al. (2022). **Emergency Department Visits for Non-suicidal Self-harm, Suicidal Ideation, and Suicide Attempts in Children and Adolescents.** *Child Psychiatry and Human Development*, 53(2), 289-299. [Click for full-text.](#)

Self-harm presentations to emergency departments (ED) have become a growing concern, yet little is known about self-harm visits in pediatric EDs. This study aimed to investigate the clinical and demographic characteristics of patients who presented to the pediatric ED between 2012 and 2017 with non-suicidal self-harm (NSSH, n = 63, 60.3% female, M = 14.25 years), suicidal ideation (SI, n = 75, 57.3% female, M = 14.83 years), and suicide attempts (SA, n = 461, 82.9% female, M = 15.41 years). Also, predictors of SA were investigated. Of the patients, 79.4% had at least a psychiatric disorder. Depression was the most common diagnosis in the SI and SA groups, and autism spectrum disorder and intellectual disability were the leading diagnoses in the NSSH group. Self-poisoning was the most common method, and older age, female sex, having relational problems, and prior or current psychiatric admissions were the most important predictive factors of SA. NSSH, SI, and SA exhibit different features in early life. EDs provide an important opportunity for initiating developmentally appropriate interventions to reduce future risks.

Franzen, M., et al. (2020). **Emergency presentations to child and adolescent psychiatry: Nonsuicidal self-injury and suicidality.** *Frontiers in Psychiatry*, 10, 979. [Click for full-text.](#)

Nonsuicidal Self-Injury (NSSI) and suicidality are common reasons for emergency presentations in child and adolescent psychiatry. Therefore, we focused on reasons for emergency presentations as well as specific characteristics of those presenting with NSSI or suicidality to an emergency psychiatric service. We analyzed data from a German university hospital regarding emergency presentations during a 78 months' period. NSSI and suicidality were rated according to the Columbia Classification Algorithm of Suicide Assessment (C-CASA). Data from 546 emergency presentations was recorded, of which 347 (63.5%) presented for NSSI or suicidality. Given the high percentage, thorough assessment of suicidality as well as providing adequate treatment in emergency settings to establish further care, is of utmost importance.

Lidon-Moyano, C., et al. (2019). **Associations between self-harm and chronic disease among adolescents: Cohort study using statewide emergency department data.** *Journal of Adolescence*, 72. [Click for full-text.](#)

We sought to understand the association between youthful self-harm and subsequent chronic disease-related healthcare utilization and whether self-harm reflects unique vulnerability in comparison with severe psychiatric disorders. Risk of future ED visits for common chronic conditions in adolescence (headaches, asthma, epilepsy, diabetes, and gastrointestinal disorders, assessed using ICD-9 diagnoses) were compared between three adolescent study groups presenting to an ED in 2010: self-harm patients, patients with psychiatric complaints but no self-harm, and patients with other complaints. Risk of subsequent ED visits was higher among psychiatric patients compared to non-psychiatric control patients for subsequent headache- (aRR = 1.31, 95% CI [1.21, 1.42]), and epilepsy-related problems (aRR = 1.85, 95% CI [1.55, 2.21]). Self-harm patients were at higher risk than psychiatric patients for subsequent gastrointestinal disorder (aRR = 1.76, 95% CI [1.03, 3.01]). Conclusions: Findings suggest that self-harm behavior and psychiatric disorders are associated with increased ED utilization for subsequent chronic disease-related ED utilization. Chronic disease among adolescent psychiatric patients should be attended to, potentially involving new models of clinical follow-up care.

Bethell, J. M. (2017). **Child and adolescent emergency department presentations for self-harm: Population-based data from Ontario, Canada.** *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 78(1-B). [Request full-text.](#)

Describe emergency department (ED) presentations for self-harm by youth (12-17 year-olds), including the mental health follow-up they receive after their first-ever presentation, and analyze the association between this mental health follow-up and repeat presentation(s). Population-based health services data from Ontario, Canada, covering April 2002 to March 2009, were used to ascertain ED presentations for self-harm by youth (n=16,835). These data were used to create a retrospective cohort (n=3,497) of those making their first-ever presentation, and individually-linked to inpatient admission and ambulatory physician contact data. Mental health follow-up within 30-days of discharge, either from a psychiatrist or from any physician specialty, was assessed. The associations between follow-up and repeat self-harm presentation(s) within the following year were then analyzed. We found that ED presentations for self-harm by youth in Ontario are remarkably consistent with those reported from other Western countries. Self-harm is an important public health issue in Canada and requires a comprehensive prevention strategy. These data suggested follow-up youth received after their first-ever ED presentation for self-harm may be inadequate and strategies to improve follow-up may be needed. Still, more research is needed to establish the effect of follow-up on relevant outcomes.

## ASSOCIATED WITH SUICIDE

Sara, G., et al. (2023). **Growth in emergency department self-harm or suicidal ideation presentations in young people: Comparing trends before and since the COVID-19 first wave in New South Wales, Australia.** *The Australian and New Zealand journal of psychiatry*, 57(1), 58-68. [Click for full-text.](#)

Self-harm presentations in children and young people have increased internationally over the last decade. The COVID-19 pandemic has the potential to worsen these trends. We studied presentations for self-harm or suicidal ideation by 10- to 24-year-olds to New South Wales emergency departments, using interrupted time series analysis to compare annualised growth before COVID (2015 to February 2020) and since COVID (March 2020 to June 2021). Emergency department self-harm or suicidal ideation presentations by New South Wales young people grew steadily before COVID. Understanding the sustained increase remains a priority. Growth has increased since COVID particularly for adolescent females, but not among adolescent males. Surprisingly, the largest post-COVID increases in annual growth occurred in socio-economically advantaged and urban regions. The COVID-19 pandemic appears to have added new challenges, particularly in females in the developmentally critical early adolescent and teenage years.

Ridout, K. K., et al. (2021). **Emergency department encounters among youth with suicidal thoughts or behaviors during the COVID-19 pandemic.** *JAMA Psychiatry* 78(12), 1319-1328. [Click for full-text.](#) To characterize population-level and relative change in suicide-related ED encounters among youth during the COVID-19 pandemic compared with 2019. In this cross-sectional study of youth experiencing suicidal thoughts and behaviors, suicide-related presentations to the ED initially decreased during the COVID-19 pandemic, likely owing to shelter-in-place orders, then were similar to 2019 levels. However, a greater number of female youth, youth with no psychiatric history, and youth with psychiatric diagnoses at the time of the ED encounter presented for suicide-related concerns during the pandemic, suggesting these may be vulnerable groups in need of further interventions. Adjustments in care may be warranted to accommodate these groups during periods of crisis.

Kim, H., et al. (2020). **Characteristics and Trends of Suicide Attempt or Non-suicidal Self-injury in Children and Adolescents Visiting Emergency Department.** *Journal of Korean medical science*, 35(33), e276. [Click for full-text.](#)

Non-suicidal self-injury (NSSI) and suicidality are common reasons for child and adolescent psychiatric emergencies. We aimed to investigate the incidence of pediatric emergency department (PED) utilization for psychiatric problems in children and adolescents and to identify demographic and clinical characteristics of youths who visited the PED for suicide attempt (SA) and/or NSSI. The medical records of children and adolescents who visited the PED for psychiatric problems from January 2015 to November 2019 were reviewed retrospectively. Demographic and clinical variables including psychiatric disorders were collected. We compared the characteristics of youths who presented to the PED for SA and/or NSSI with those of youths without SA or NSSI. After adjusting for age, sex, and parental marital status, bipolar and related disorders (odds ratio [OR], 6.72), depressive disorders (OR, 9.59), and somatic symptom and related disorders (OR, 0.12) were significantly associated with SA and/or NSSI. Youths with SA and/or NSSI also stayed longer in the PED ( $P = 0.007$ ). SA and NSSI are one of the main reasons for child and adolescent admittance to psychiatric services in the PED and are associated with psychiatric comorbidities. An appropriate risk assessment for suicidality and self-injury and proper management and referral to mental health services at the PED are of the utmost importance.

Plemmons, G., et al. (2018). **Hospitalization for Suicide Ideation or Attempt: 2008-2015.** *Pediatrics*, 141(6). [Click for full-text.](#)

Suicide ideation (SI) and suicide attempts (SAs) have been reported as increasing among US children over the last decade. We examined trends in emergency and inpatient encounters for SI and SA at US children's hospitals from 2008 to 2015. There were 115 856 SI and SA encounters during the study period. Annual percentage of all visits for SI and SA almost doubled, increasing from 0.66% in 2008 to 1.82% in 2015. Significant increases were noted in all age groups but were higher in adolescents 15 to 17 years old and adolescents 12 to 14 years old. Increases were noted in girls and boys, but were higher for girls. Seasonal variation was also observed, with the lowest percentage of cases occurring during the summer and the highest during spring and fall. Encounters for SI and SA at US children's hospitals increased steadily from 2008 to 2015 and accounted for an increasing percentage of all hospital encounters. Increases were noted across all age groups, with consistent seasonal patterns that persisted over the study period. The growing impact of pediatric mental health disorders has important implications for children's hospitals and health care delivery systems.



## MEDLINE SEARCH STRATEGY

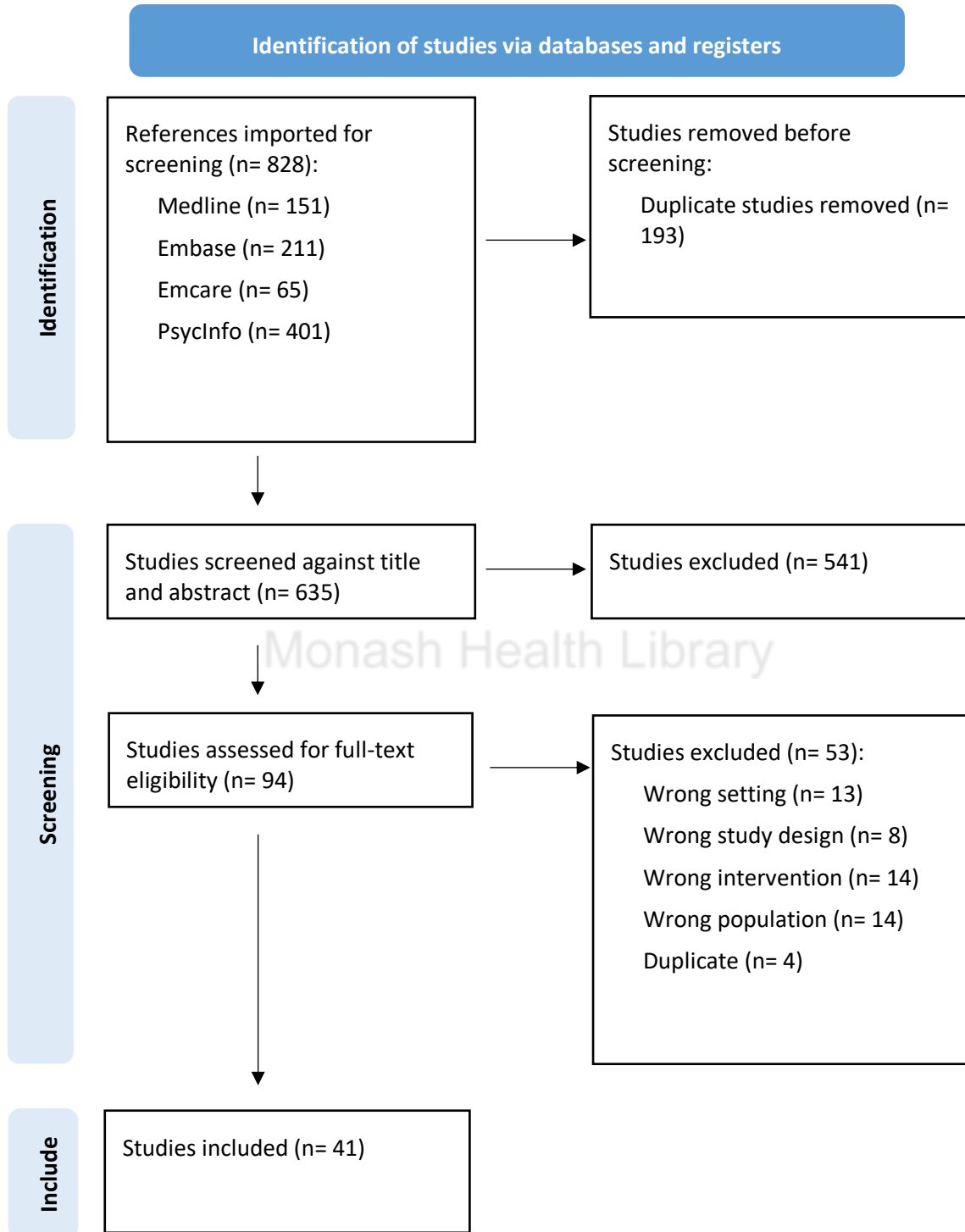
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**Search Strategy:**

- 1 Emergency Service, Hospital/ or Hospitalization/ (213672)
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APPENDIX

PRISMA CHART



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