Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Pediatric Mental Health Emergency Department Visits and Access to Inpatient Care: A Crisis Worsened by the COVID-19 Pandemic

Gretchen J. Cutler, PhD, MPH; Kelly R. Bergmann, DO; Stephanie K. Doupnik, MD, MSHP; Jennifer A. Hoffmann, MD; Mark I. Neuman, MD, MPH; Jonathan Rodean, MPP, MPH; Alicia L. Zagel, PhD, MPH; Bonnie T. Zima, MD, MPH

From the Children's Minnesota Research Institute, Children's Minnesota (GJ Cutler), Minneapolis, Minn; Department of Pediatric Emergency Medicine, Children's Minnesota (KR Bergmann), Minneapolis, Minn; Division of General Pediatrics, PolicyLab, and Center for Pediatric Clinical Effectiveness, Children's Hospital of Philadelphia (SK Doupnik), Philadelphia, Pa; Division of Emergency Medicine, Ann & Robert H. Lurie Children's Hospital of Chicago (JA Hoffmann), Chicago, Ill; Division of Emergency Medicine, Department of Medicine, Boston Children's Hospital, Harvard Medical School (MI Neuman), Boston, Mass; Children's Hospital Association (J Rodean), Lenexa, Kans; Fairview Pharmacy Services (AL Zagel), Minneapolis, Minn; and UCLA Semel Institute for Neuroscience and Human Behavior, University of California at Los Angeles (BT Zima), Los Angeles, Calif
The authors have no conflicts of interest to disclose.
Address correspondence to Gretchen J. Cutler, PhD, MPH, Children's Minnesota Research Institute, Children's Minnesota, 2525 Chicago Avenue South, Minneapolis, MN 55404 (e-mail: cutle007@umn.edu).
Received for publication February 3, 2022; accepted March 23, 2022.

KEYWORDS: adolescent; child; COVID-19; emergency service; hospital; suicide; mental disorders; mental health services; psychiatric; self-injurious behavior

ACADEMIC PEDIATRICS 2022;22:889−891

WHAT'S NEW

During the pandemic, emergency department visits by female adolescents for suicide attempts rose dramatically. Efforts to improve care should focus on rising mental health visits for selfharm and non-alcohol substance abuse, as well as visits at low-resource hospitals.

DURING THE LAST decade, pediatric emergency department (ED) visits for mental health (MH) conditions have risen dramatically.[1] We recently described trends in pediatric ED visits for primary MH vs non-MH conditions in 35 tertiary care children's hospitals in the United States (US), and examined the effects of an inpatient psychiatric unit on patient disposition. From 2012 to 2016, increases in ED MH visits were 4 times greater than non-MH visits, and the rise was primarily driven by visits for depression, suicide, or self-injury.[1] Fewer than half of children's hospitals had an inpatient psychiatric unit, and patients with a MH ED visit at hospitals with an inpatient psychiatric unit were more likely to be hospitalized and less likely to require transfer than those cared for at hospitals without.[1] Since the publication of our study, the COVID-19 pandemic has had a significant impact on the mental and emotional well-being of children and adolescents worldwide.[2] In this report, we consider our findings in light of more recent data, discuss the impact of the pandemic on pediatric MH, and identify critical areas for future research.

TRENDS IN PEDIATRIC ED VISITS FOR MH CONDITIONS

While our study sample was limited to tertiary care children's hospitals, our findings were similar to a recent study that examined trends in pediatric MH visits in a large, national sample of EDs, a majority of which were in non-children's hospitals.[3] Lo et al. examined trends in pediatric MH visits from 2007 to 2016 and found that visits increased 60% over the study period, including an over 300% increase in visits for suicide or self-inflicted injury, and an almost twofold increase in visits for non-alcohol substance use disorders.[3] This underscores our assertion that youth with depressive disorders and self-harm behavior should be prioritized for the development of ED- and hospital-based identification and intervention strategies,[1] while also identifying non-alcohol substance use disorders as additional high priority conditions.[3] Lo et al. also found large increases in MH ED visits at non-children's hospitals,

where most children in the US receive emergency care,[4] and in low-volume, rural EDs.[3] Concerningly, Cree et al. report that non-children's and low-volume EDs often have fewer structural supports and resources to care for children with MH concerns, including access to MH specialty consultation, dedicated MH policies, and written transfer agreements for children with MH needs.[5] Future efforts to enhance MH care delivery should target these low-resource settings, where MH is now accounting for a greater share of emergency medicine practice.

Impact of an Inpatient Psychiatric Unit

Hasken et al. studied the impact of opening a new inpatient psychiatric unit at a single urban tertiary care children's hospital. After the opening of an inpatient psychiatric unit, fewer children with MH ED visits were admitted to a medical unit (22.2% vs 8.5%, P= .01).[6] Since admission to a medical unit is associated with low rates of psychiatric medication initiation and psychotherapy,[7] the opening of an inpatient psychiatric unit likely improved timely delivery of needed psychiatric services. Likewise, our study noted the availability of an inpatient psychiatric unit leads to a significant decrease in transfers, thus improving continuity of care.[1] More research is needed to fully understand whether the presence of an inpatient psychiatric unit improves patient outcomes or reduces costs by reducing repeat ED visits or psychiatric hospitalizations and increasing long-term engagement in MH care.[1] Even in hospitals with an inpatient psychiatric unit, some patients still require admission to an onsite medical unit or transfer, as demand often exceeds the supply of beds.[1,6] Thus, opening an inpatient psychiatric unit may not solve system-level needs, and increased capacity must also be built for step-down levels of care such as partial hospital programs, intensive outpatient programs, psychiatric urgent care, and community MH services.

Impact of the COVID-19 Pandemic

A meta-analysis by Racine et al. found that the pandemic has worsened the MH crisis in youth worldwide.[2] In October 2021, growing evidence of the impact of the pandemic led to the declaration of a national emergency in child and adolescent MH by the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry, and the Children's Hospital Association.[8] Centers for Disease Control and Prevention National Syndromic Surveillance Program data indicate concerning trends in pediatric MH ED visits.[9,10] Leeb et al. reported that after an initial decline in March 2020 corresponding with widespread mitigation measures, the proportion of pediatric MH ED visits increased 24% for 5 to 11-year olds, and 31% for 12 to 17-year-olds, compared to the same time period in 2019.[9] Moreover, Yard et al. reported that ED visits for suspected suicide attempts increased by a staggering 50.6% among girls aged 12 to 17 years during the winter of 2021 compared to 2019.[10] Suicide attempt ED visits among boys demonstrated a more modest 3.7% increase.[10] Increased MH utilization during the COVID-19 pandemic extends to medical wards of hospitals, where boarding of children with MH conditions has become ubiquitous.[7] Leyenaar et al. surveyed 88 US hospitals, finding that 98.9% reported that their hospitals boarded children awaiting inpatient psychiatric care, and 84.4% reported increased boarding during the pandemic.[7] Increased psychiatric boarding on medical wards is costly but low-value with few hospitals reporting that they provide routine MH care during boarding.[7]

Future Work

Recent research supports the dramatic increase we found in pediatric MH ED visits, and has provided further evidence that the rise has been driven by specific MH diagnoses.[3] Depressive disorders, self-harm behavior, and non-alcohol substance use disorders should be prioritized for the development of ED- and hospital-based identification and intervention strategies. There is further evidence that presence of an inpatient psychiatric unit impacts ED disposition in patients with a MH visit,[6] but research is needed to determine the impact on long-term outcomes. Moreover, effective approaches are needed to enhance MH care delivery for children in low-resource hospitals without inpatient psychiatric units. Strains on EDs and hospitals, including increases in boarding, have led to the declaration of a national mental health emergency for children.[8] Urgent efforts are needed by EDs, hospitals, health systems, and the government to increase capacity for MH services and identify innovative solutions to increase access to high quality MH care for children. Potential solutions include integration of MH care into the medical home, building the MH workforce, using technology such as telehealth to increase access, and addressing social determinants of health that contribute to adverse MH outcomes.

Acknowledgments

No funding was secured for this study.

Dr. Doupnik was supported by grant K23MH115162 from the National Institute of Mental Health. Dr. Hoffmann was supported by grant 5K12HS026385-03 from the U.S. Agency for Healthcare Research and Quality. Sponsors had no role in study design, data collection, analysis or interpretation, writing of the report, or decision to submit the report for publication.

References

1. Cutler GJ, Rodean J, Zima BT, et al. Trends in Pediatric Emergency Department visits for mental health conditions and disposition by presence of a psychiatric unit. *Acad Pediatr*. 2019; 19:948–955.
2. Racine N, McArthur BA, Cooke JE, et al. Global prevalence of depressive and anxiety symptoms in children and adolescents during COVID-19: a meta-analysis. *JAMA Pediatr*. 2021;175:1142–1150.
3. Lo CB, Bridge JA, Shi J. Children's mental health emergency department visits. *Pediatrics*. 2020;145:2007–2016.

4. Whitfill T, Auerbach M, Scherzer DJ, et al. Emergency care for children in the United States: epidemiology and trends over time. *J Emerg Med*. 2018;55:423–434.
5. Cree RA, So M, Franks J, et al. Characteristics associated with presence of pediatric mental health care policies in emergency departments. *Pediatr Emerg Care*. 2021;37:e1116–e1121.
6. Hasken C, Wagers B, Sondhi J, et al. The impact of a new on-site inpatient psychiatric unit in an Urban Pediatric Emergency Department. *Pediatr Emerg Care*. 2020.
7. Leyenaar JK, Freyleue SD, Bordogna A, et al. Frequency and duration of boarding for pediatric mental health conditions at acute care hospitals in the US. *JAMA*. 2021;326:2326–2328.
8. AAP-AACAP-CHA. *AAP-AACAP-CHA Declaration of a National Emergency in Child and Adolescent Mental Health*. Published 2021. Accessed March 8, 2022; https://www.aap.org/en/advocacy/child-and-adolescent-healthy-mental-development/aap-aacap-cha-declaration-of-a-national-emergency-in-child-and-adolescent-mental-health/.
9. Leeb RT, Bitsko RH, Radhakrishnan L, et al. Mental health-related emergency department visits among children aged <18 years during the COVID-19 pandemic - United States, January 1-October 17, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69:1675–1680.
10. Yard E, Radhakrishnan L, Ballesteros MF, et al. Emergency Department Visits for Suspected Suicide Attempts Among Persons Aged 12-25 Years Before and During the COVID-19 Pandemic - United States, January 2019-May 2021. *MMWR Morb Mortal Wkly Rep*. 2021;70:888–894.