



Emergency Department Utilization for Mental Health in American Indian Children

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Objectives To examine emergency department (ED) visits for mental health concerns by American Indian children in a multicenter cohort. To analyze demographic and clinical factors, the types of mental health concerns, and repeat mental health visits.

Study design Cross-sectional study of children 5-18 years old who visited 1 of 6 EDs in the Upper Midwest from June 2011 to May 2012 and self-identified as white or American Indian. Mental health visits were identified by primary diagnosis and reasons for visit and were categorized into diagnostic groups. We explored racial differences in ED visits for mental health, diagnostic groups, and repeat mental health visits. Analysis involved χ^2 tests, Cochran-Mantel-Haenszel tests, and regression models including age, triage, timing, and insurance, and their interactions with race.

Results We identified 26 004 visits of which 1545 (5.4%) were for a mental health concern. The proportion of visits for mental health differed by race and age. American Indian children had lower odds of a mental health visit for 5-10 year olds (OR, 0.40; 95% CI, 0.26-0.60), but higher odds for 11-17 year olds (OR, 1.62; 95% CI, 1.34-1.95). In the older age group, American Indian children were seen primarily for depression and trauma- and stressor-related disorders, whereas white children were seen primarily for depression and disruptive, impulse control, and conduct disorders. Repeat visits were not different by race.

Conclusions Differences were noted in mental health visits between American Indian and white children and were influenced by age. These findings warrant further investigation into care-seeking patterns and treatment for mental health in American Indian children. (*J Pediatr* 2016;174:226-31).

The lack of permanent and reliable mental health resources and financial sustainability has eroded community-based care options for many patients with mental health concerns.¹⁻³ As a result, patients with active and chronic mental health concerns often use emergency departments (ED), given their role as safety-net providers.¹⁻³ Overall prevalence rates for pediatric mental health issues have been increasing for the last 2 decades and have been identified as an important public health topic.^{4,5} A recent report from the Centers for Disease Control and Prevention has identified that $\leq 20\%$ of US children experience a mental health issue in 1 year.⁴ Nationally, ED visits for mental health concerns have increased dramatically, with rates of pediatric mental health visits now accounting for $\leq 7.2\%$ of all ED visits.⁶⁻¹⁰ Although mental health complaints are a serious concern, they create a unique situation in the ED, because most EDs are designed to address acute health issues and often lack the capacity and resources to adequately provide mental health care services.^{2,3} This gap in capacity and resources may exacerbate a mental health patient's condition and adversely affect their outcome.³ To address this situation it is necessary to understand who is presenting to the ED for mental health, the types of specific mental health issues, and mental health patients' care use patterns.

Race is an important factor to consider because American Indian populations face significant health disparities in comparison with white populations.¹¹ Information on mental health regarding race suggests that American Indian populations are at higher risk for and suffer from a disproportionate burden of mental health issues.¹²⁻¹⁵ Much less is known about pediatric mental health visits to the ED, especially in American Indian populations. One study examined mental health specifically in a American Indian pediatric population, which identified slightly lower rates for American Indian children compared with their white counterparts.¹⁶ Another study found 29% of American Indian children in a Northern Plains community to have ≥ 1 mental health disorder.¹⁷ Whitbeck et al¹⁸ conducted a longitudinal study and found similar results. However, none of these studies were specific to mental health in the ED. Other authors have noted disparities in mental health care by insurance status, age, socioeconomic status, and race.^{3,7,19} Unfortunately, these studies did not comment on American Indian pediatric populations. Therefore, if American Indian populations are at

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ED Emergency department

greater risk for mental health issues, it is important to examine their care-seeking patterns in comparison with the majority white population.

Understanding the characteristics of mental health visits to the ED can assist with primary and secondary prevention efforts. The inadequate information on mental health conditions within American Indian populations provides a gap in knowledge in identifying and addressing problem areas relating to mental health care-seeking patterns, diagnosis rates in mental health categories, as well as possible implications for any disparities. To help address these critical issues, we sought to examine visits to the ED for mental health reasons by American Indian children in the Upper Midwest. Furthermore, we wanted to analyze the impact of demographic and clinical factors for mental health visits, as well as the types of mental health concerns that patients presented with and repeat mental health visits.

Methods

We conducted a cross-sectional, observational study at 6 EDs from June 2011 to May 2012. Enrolling sites were selected based upon geographic distribution, as well as proportion of American Indian patients within their catchment,²⁰ and included EDs located in various settings. Two were located in large cities (population $\geq 250\,000$), 2 in mid-sized cities (population between 70 000 and 170 000), and 2 in rural towns (population $< 20\,000$). White and American Indian children comprise the majority of the study population for all ED visits at midsize (white, 66%; American Indian, 23%; other races, 11%) and rural (white, 50%; American Indian, 47%; other races, 3%) sites, and 37% at the 2 large urban centers (white, 35%; American Indian, 2%; other races, 63%). The urban sites primarily served the American Indian populations in those cities, and rural sites primarily served American Indian populations on nearby reservations (≤ 30 miles). Two sites had an Indian Health Service ED within 20 miles. All of our other sites did not have a nearby Indian Health Service ED. We enrolled children aged 5-18 years who self-identified race during ED registration as American Indian or white. Children < 5 years old were excluded owing to the difficulty of accurately diagnosing mental health concerns in that age range.⁹ Patients who had missing race or *International Classification of Diseases, Ninth Revision, Clinical Modification* codes were also excluded.

Data were extracted electronically from medical records and sent to a central data warehouse location where the data was cleaned and analyzed. We analyzed patient age in 2 categories: 5-10 years old and 11-17 years old. Insurance was categorized as medical assistance/other or private. Triage levels were based on the 5-level Emergency Severity Index, version 4,²¹ and categorized as emergent/critical (levels 1 and 2), acute (level 3), and urgent/nonurgent (levels 4 and 5). A timing variable was used to identify peak ED usage hours. Timing was defined as follows: business hours, Monday-Friday from 8:00 a.m.-4:59 p.m.; after hours,

Monday-Friday from 5:00 p.m.-7:59 a.m.; and weekends, all day Saturday and Sunday. The study was approved by the institutional review board at each enrolling site, with a waiver of informed consent.

Outcome Measures

The primary outcome was type of ED visit (mental health or nonmental health). The determination of a mental health visit(s) was based on *International Classification of Diseases, Ninth Revision, Clinical Modification* codes ([Appendix](#); available at www.jpeds.com). and reasons for visit. Secondary outcomes included category of mental health visit and repeat visits. Mental health visits were categorized into 1 of 11 mental health subgroups based on the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* categories.²² The categories included anxiety disorders; disruptive, impulse control, and conduct disorders; bipolar disorders; depressive disorders; mood disorders; neurodevelopmental disorders; schizophrenia disorders; substance use/abuse disorders; suicide ideation/attempt; trauma- and stressor-related disorders; and other (miscellaneous). Mood disorders were subdivided into bipolar disorders, depressive disorders, and mood disorders (other) because there were a sufficient number in each subgroup to be assessed separately. Repeat visits were identified as a patient having ≥ 2 visits to the ED for mental health complaints during the study period. We also identified patients who returned to the ED 30 days after their initial mental health ED visit.

Statistical Analyses

We compared our patient population using descriptive statistics and data are presented as counts and proportions for categorical variables and either mean values and SDs or median values and IQRs for continuous variables as appropriate. Univariate comparisons were assessed using χ^2 tests. Multivariable analysis used the Cochran-Mantel-Haenszel test and regression models. Mixed effect logistic regression was used to identify differences in mental health visits vs nonmental health visits based on race. Bivariate models explored interactions with age, sex, triage, timing, and insurance. These models included a random effect for study site. A multivariable model was created including race, age, triage, timing, and insurance, along with possible 2-level interactions with race. Only those interactions significant at the .05 level were retained in the final model. One site did not use the 5-level Emergency Severity Index system and was excluded from the logistic regression analysis ($n = 514$; 57 with a mental health visit). A sensitivity analysis was conducted to assess the effect of this removal on other estimates within the model.

Our secondary analysis involved only data from mental health visits. The Cochran-Mantel-Haenszel test was used to identify differences in mental health categories by race controlling for age. Repeat visits were analyzed on a patient level using mixed effect logistic regression. We compared differences in race for patients with single vs repeat mental health visits, adjusting for sex, urban/rural status, insurance,

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