

LAWRENCE-DOUGLAS COUNTY PUBLIC HEALTH DATA BRIEF

Pediatric Suicidal Ideation Emergency Department Visits Before & During the COVID-19 Pandemic in Douglas County

Summary:

What is already known about this topic?

Children's mental health was exacerbated by the COVID-19 pandemic nationwide.

What is added by this report?

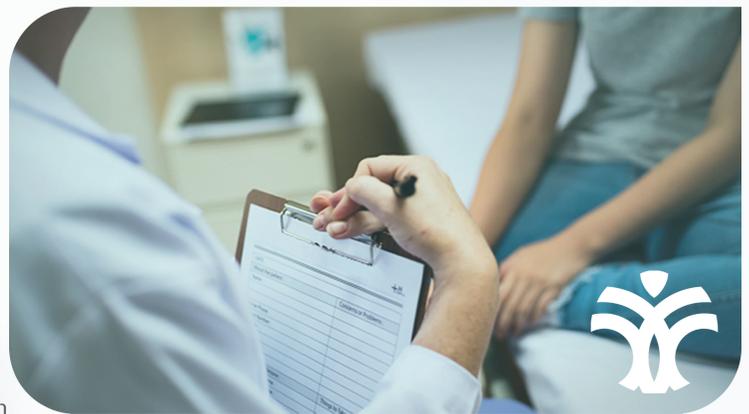
Emergency department (ED) data before and during the COVID-19 pandemic was analyzed by Lawrence-Douglas County Public Health to understand the impact of the COVID-19 pandemic on Douglas County youth's mental health. Fewer youth aged 10-17 years sought ED care in 2020 than in 2019, however Suicidal Ideation (SI)-related visits declined to a lesser extent than total visits, with a reduction of 27% for total ED visits and 9% for SI-related visits, respectively. As a result of this disproportionate reduction, the proportion of SI-related visits among all ED visits for youth 10-17 years old, increased from 8.1% in 2019 to 10.1% in 2020. Youth aged 11-13 years were identified as the highest risk group during the COVID-19 pandemic, with a 42% increase of the number of SI-related visits in 2020, despite the reduction of SI visits for youth in other age groups, and the SI proportion for aged 11-13 years increased from 5.1% in 2019 to 11.2% in 2020. Female youth aged 10-17 years are treated more often than male youth for SI before and during COVID in Douglas County.

What are the implications for public health practice?

Natural disasters like the COVID pandemic had adversely affected pediatric mental health. Expanded strategies are needed for suicide prevention and intervention, especially for those adolescents who might have experienced stronger negative impacts during the pandemic.

Introduction:

Suicidal ideation (SI), also known as suicidal thoughts or suicidal ideas, is a known risk factor for suicide attempts and completions. It's often related to serious depression, alcohol or substance abuse, or a major stressful life event. Previous studies (Leeb et al., 2020; Yard et al., 2021) showed that the COVID-19 pandemic had profound impacts on children and adolescent's mental health. The Kansas Communities That Care (KCTC) Student Survey results indicated that the percentage of Douglas County youth that reported experiencing depression increased in all 4 grade levels (6th, 8th, 10th and 12th) in 2020-2021. Various adverse factors caused by the COVID-19 pandemic, including but not limited



to uncertainty of the disease, disruptions to school routines, or loss of family members might exacerbate the already high rates of mental health concerns among youth.

Emergency Departments (ED) are an important point of care for individuals at risk as over 50% of SI-related visits occur during afterhours (5 pm – 8 am). The increases in ED use for mental health problems has drawn attention to this public health problem. Information on the ED utilization related to SI helps to inform resource needs for suicide prevention. The first Douglas County Suicide Report (2019) showed that SI-related ED visits are rare in childhood and become more frequent in early adulthood.

more frequent in early adulthood. We decided to study youth aged 10-17 years old, because even though ages 18-29 years have the highest number of SI-related ED visits, youth aged 10-17 years have the highest proportion of SI-related ED visits of all ED visits. Analysis of both the number and the proportion of SI-related ED data before and during the COVID-19 pandemic illustrates the effect that COVID-19 had on youth's mental health.

Methods:

Douglas County resident ED visits were identified using the BioSense platform of the Kansas Syndromic Surveillance Program (KSSP), which captures ED visits from most Kansas hospitals within 24-48 hours. Therefore, this dataset includes Douglas County youth with a suicide ideation diagnosis in any Kansas emergency department that submits data to KSSP. Because the KSSP does not identify primary or secondary diagnosis codes, suicidal ideation was defined as any record with an ICD-10 diagnosis code of R45.851. SI visits were divided by total ED visits to estimate the SI proportion for different years, age, and sex groups. Racial group differences are not presented because SI-related ED visits for groups other than White were too small to make meaningful comparisons. Analysis and data visualizations were conducted with Python (Version 3.7) software distributed on the Anaconda (4.11.0) platform.



Results:

The health-seeking behaviors of youth changed during the COVID-19 pandemic. As shown in **Figure 1 (below)**, the monthly number of overall ED visits for youth aged 10-17 years plummeted substantially in the early spring of 2020 when Douglas County Health Officer issued a "Stay at Home Order" on March 22, 2020, which required Douglas County residents to stay at home except for "essential activities". Monthly ED visits reached the lowest number of 75 in April 2020 and remained lower throughout the year of 2020, and gradually climbed up in 2021. The statistical difference in mean number of ED visits for aged 10-17 years old between 2019 (Mean = 175.67; SD = 21.42) and 2020 (Mean = 128.75; SD = 34.56) was significant ($t(22) = 3.83; p < 9.2e-4$). While the annual volume of overall ED visits for youth aged 10-17 years reduced about 27% in 2020 compared to 2019, the SI visits only decreased 9% in 2020. The disproportionate reduction of SI-related visits and total ED visits resulted in the increase of SI proportion from 8.1% in 2019 to 10.1% in 2020.

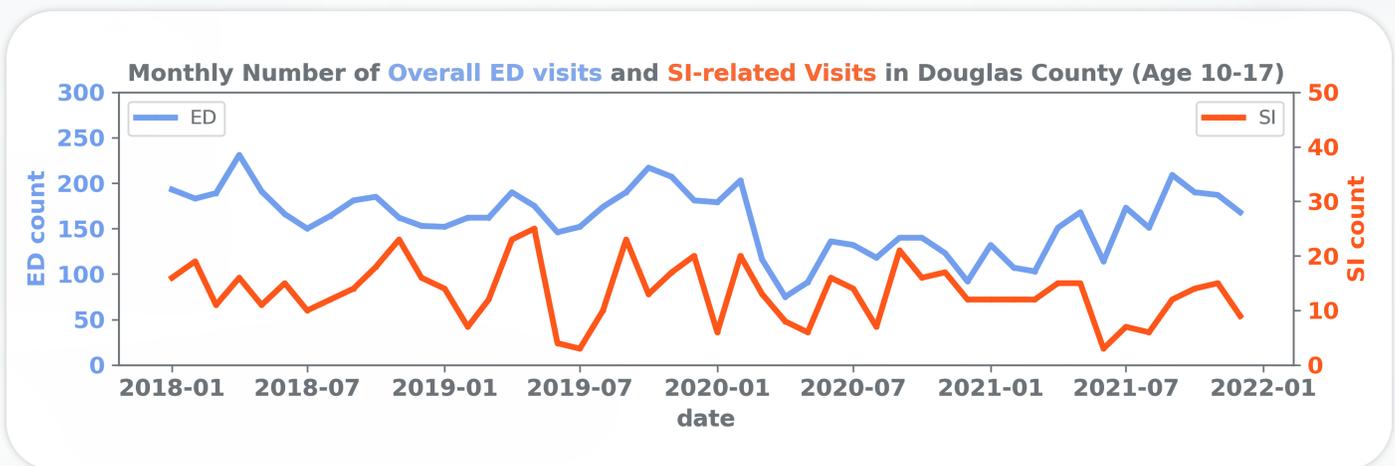
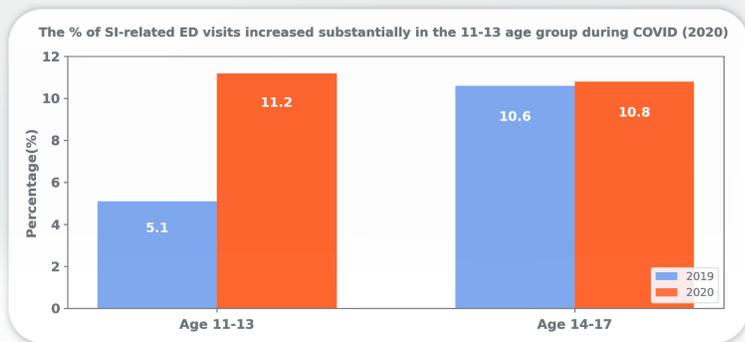


Figure 1: Monthly number of Emergency Department visits (blue line for left x-axis) and Suicidal Ideation related visits (red line for right y-axis) for youth aged 10-17 years in Douglas County.

Demographic Differences:

The adverse effects of the COVID-19 pandemic on youth's mental health were found for both females and males, and the SI proportion increased from 9.2% to 10.7% for females, and from 7.0% to 9.4% for males from 2019 to 2020. Compared to male youth, more female youth were treated in the ED for SI before and during COVID (386 for female and 254 for male, respectively in DG from 2018 to 2021).

Age-stratified analysis of 4-year ED data indicated that both the number and the proportion of SI-related ED visits peaked at age 15. However, when we compare 2019 with 2020, the negative impacts of COVID pandemic are especially noticeable in early adolescence. Youths age 11-13 years had a 42% increase in the number of SI visits in 2020 compared to those in 2019, despite the reduction of overall SI-related ED visits of other age groups. As can be seen in **Figure 2 (shown here)** SI proportion for those age 11-13 years jumped from 5.1% in 2019 to 11.2% in 2020, and that change is tested to be statistically significant at $p < 0.05$.



Discussion & Conclusions:

This study used syndromic surveillance data before and during the COVID-19 pandemic to explore the impact of COVID on youth's mental health in Douglas County. The result shows that even though pediatric ED utilization for all conditions decreased dramatically (27%) in 2020, COVID appeared to have less of an effect on reducing SI-related ED visits for youth aged 10-17 years (9%). Consequently, the percent of youth ED visits for SI increased from 8.1% in 2019 to 10.1% in 2020. Findings of this study suggest that youth in the early adolescence (age 11-13 years old) may have been more adversely affected by the COVID-19 pandemic than other groups. Female youth were more likely to be treated in ED for SI before and during COVID. More work needs to be done to further explore potential effects of public health emergencies on the mental well-being of youth.

This study has several limitations. First, the proportion of SI-related visits for youth might be affected by other factors (a decrease in visit counts for other conditions, like infection). Normally proportions for different types of things remain relatively constant from year to year so the impact is deemed negligible. Second, ED visits represent unique visits not individuals and might reflect multiple visits for one person. Third, the volume of pediatric ED visits for suicidal ideation on a county level is not large enough to conduct subgroup statistical analysis (including by race and ethnicity) with enough power to find statistical significance. Finally, the coding system allows for analysis by sex of the child, but not gender identification.

Mental health challenges confronting youth are real and treatable, most importantly, suicide is preventable and requires intervention. Several noteworthy system changes aiming to build protective factors against suicide among youth have been implemented in Douglas County such as 1) implementations of programs in schools such as Source of Strength, Handle with Care, and Good Behavior Game; and 2) making the MyStrength app available to all County residents. Ensure that youth can receive appropriate behavioral health care in ED and provide more service access outside the ED setting for youth in crisis will be the critical mitigation strategies for the community to advance public health.

Call to Action:

Key actions to stop suicide among youth:

- 1) Parents & family members:** learn the risk factors and warning signs of suicide, engage youth in direct and compassionate conversation about stress and mental well-being, offer support consistently and persistently when you notice a change.
- 2) School & teachers:** maintain a safe and healthy school environment especially through emphasizing prevention approaches which address both mental health and substance use, invest in upstream prevention programs such as Good Behavior Game and Sources of Strength, prepare all staff to recognize students experiencing suicide risk, create clear pathways for students and parents to access crisis support and treatment.
- 3) Community members:** get involved with Engage Douglas County to advance prevention efforts in our community, participate in learning opportunities to build suicide prevention skills, reduce mental health stigma by modeling help-seeking and supporting individuals who seek help, take advantage of opportunities to provide mentorship.
- 4) Healthcare agencies:** participate in Zero Suicide to incorporate prevention into all aspects of healthcare, promote the 988 Suicide & Crisis Lifeline, share and increase access to suicide-related data, ensure that youth can receive appropriate behavioral health care in ED, and provide more service access outside the ED setting for youth in crisis.



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References:

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- 3 - *Kansas Communities That Care (KCTC) Student Survey:* <https://kctcdata.org>
- 4 - *Douglas County Suicide Report, 2019, Data Brief.* <https://ldhealth.org/DocumentCenter/View/2698/2019-Douglas-County-Suicide-Brief>



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