



Emergency Department Visits for Suspected Suicide Attempts Among Persons Aged 12–25 Years Before and During the COVID-19 Pandemic — Kansas, January 2019 – May 2021.

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Our Vision: Healthy Kansans Living in Safe and Sustainable Environments.

Our Mission: To protect and improve the health and environment of all Kansans.

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BACKGROUND

Data Request: Emergency Department Visits for Suspected Suicide Attempts Among Persons Aged 12–25 Years Before and During the COVID-19 Pandemic — Kansas, January 2019–May 2021

This analysis is replicating the national analysis completed in the [Morbidity and Mortality Weekly Report \(MMWR\)](#) using Kansas data. The spring surveillance period consisted of calendar weeks 14 through 17, the summer period was weeks 31 through 34, and the winter surveillance period was weeks 8 through 11.

Data Source: Kansas Syndromic Surveillance Program, Bureau of Epidemiology and Public Health Information, Kansas Department of Health and Environment (KDHE).

TECHNICAL NOTES

Syndromic Surveillance Data

The Kansas Syndromic Surveillance Program (KSSP) quickly collects information from hospital emergency department (ED) and urgent care clinic visits. This provides KDHE, hospitals and local health departments insight into rapidly changing health conditions in the state. This data is used to describe emerging public health threats and enable the healthcare community to quickly identify health issues and take action to prevent injury and illness.

Currently 116 of 138 Kansas emergency departments share data. This is about 95% of all Kansas ED patient visits a year. Another 22 hospitals are working to submit their data.

Suicide

CDC defines a suicide as a death resulting from the intentional use of force against oneself. A preponderance of evidence should indicate that the use of force was intentional.

In the Syndromic Surveillance System, the definition for the syndrome that identifies suicide attempt is “CDC Suspected Suicide Attempt version 1”. A detailed description can be found in the supplementary table located [here](#).

Limitations

While syndromic surveillance is a useful tool for monitoring near real-time trends, epidemiologists should be aware that there are some limitations with using syndromic surveillance for injury events. Weaknesses include primary reliance on chief complaints, possible difficulty in distinguishing specific injuries, potential for surveillance queries to underestimate or overestimate an injury burden, and geographic coverage within a surveillance system. Suicide attempts that did not result in ED visits are not captured in this dataset. Counts are not shown if less than 6.

FINDINGS

Figure 1. Percent of weekly emergency department visits for suspected suicide attempts among adolescents aged 12-17 years, Females: 2019-2021

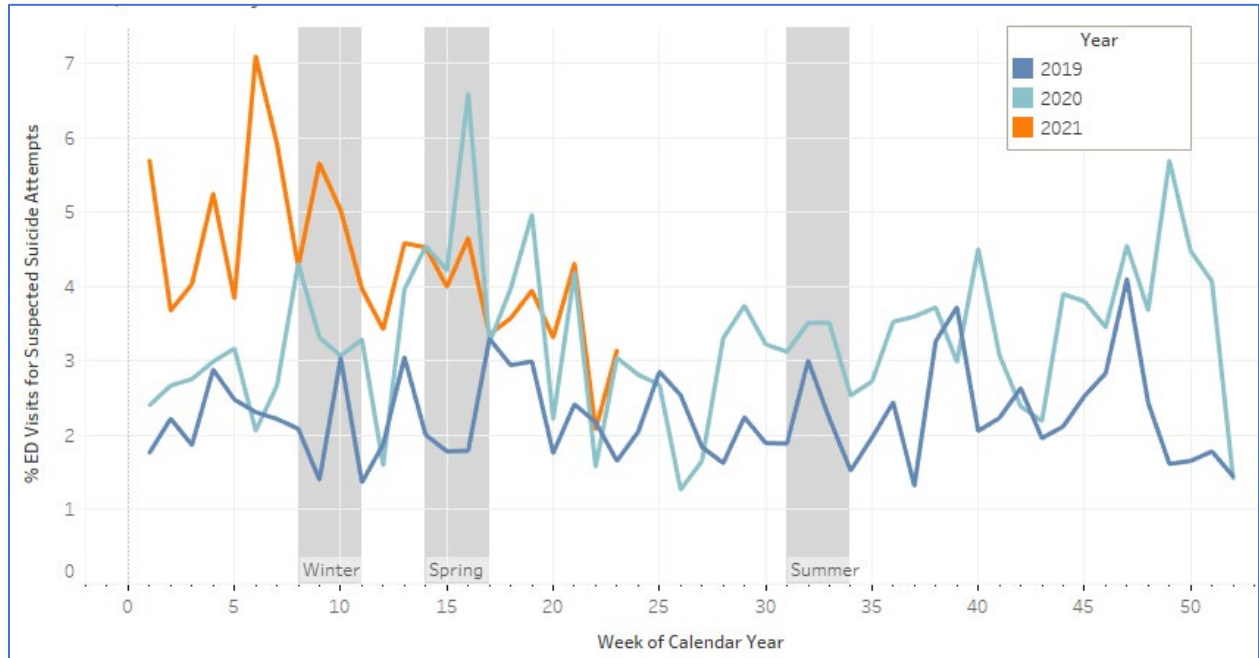


Figure 1 shows the percent of weekly emergency department visits for suspected suicide attempts among females aged 12-17 years. During the spring assessment period, the highest percent for 2019 (baseline) was 3.3% while the highest percent for 2020 was 6.6%; while the lowest percent for spring 2019 was 1.8% and the lowest for 2020 was 3.2%. During the summer assessment period, the highest rate for 2019 was 3.0% compared to 3.5% in 2020; the lowest rate for the summer period in 2019 was 1.5%, and the lowest rate for the same period in 2020 was 2.5%. During the winter assessment period, the highest percent of weekly ED visits for 2019 was 3.0% while the highest for 2021 was 5.7%; and the lowest rate at baseline was 1.4% compared to 4.0% in 2021.

Figure 2. Percent of weekly emergency department visits for suspected suicide attempts among adolescents aged 12-17 years, Males: 2019-2021

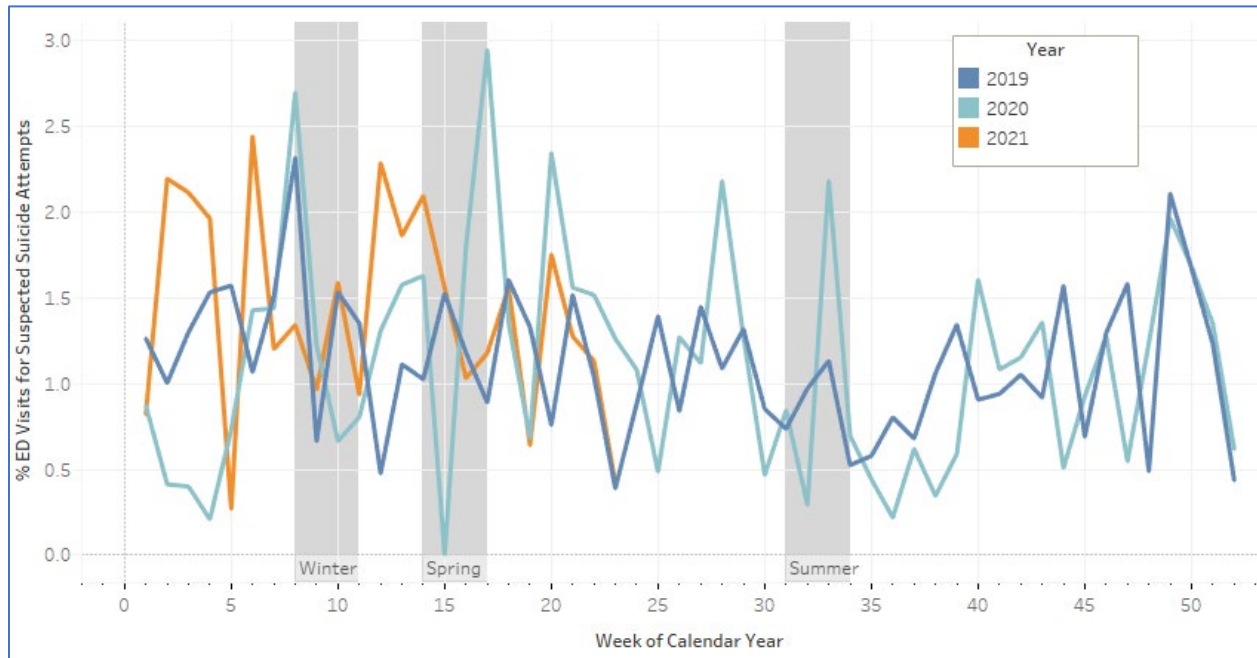


Figure 2 shows the percent of weekly emergency department visits for suspected suicide attempts among males 12-17 years of age. In the spring assessment period for 2019, the highest percent of weekly ED visits was 1.5% but during the same period in 2020, the highest rate was 2.9%; the lowest rate for this period in 2019 was 0.9% however for the same period in 2020, the lowest week saw 0 counts (0%). During the summer assessment period, the highest rate for 2019 was 1.1% compared to 2.2% in 2020; the lowest rate for 2019 was slightly higher than the lowest of the same period in 2020 (0.5% vs 0.3%). During the winter period for 2019, the highest rate was 2.3% but in 2021, the highest rate was 1.6%; the lowest rate for winter 2019 was 0.7% compared to the 2021 lowest rate at 0.9%.

Figure 3. Percent of weekly emergency department visits for suspected suicide attempts among adolescents aged 12-17, All sexes: 2019-2021

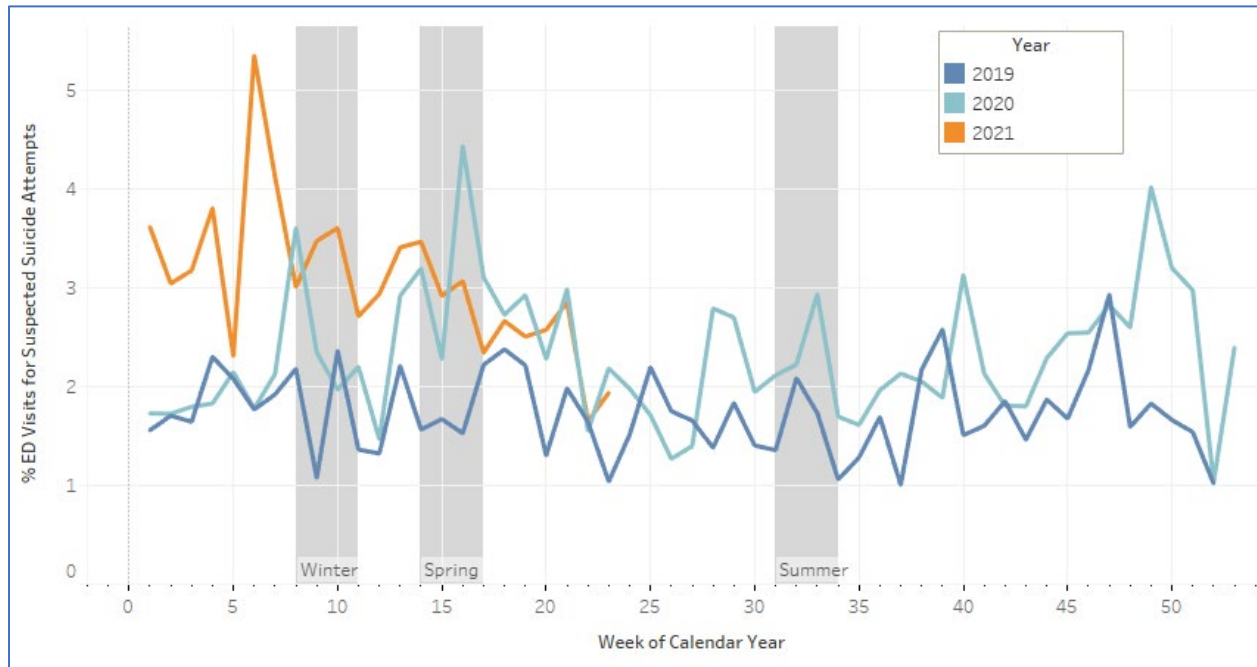


Figure 3 shows the percent of weekly emergency department visits for suspected suicide attempts among both females and males 12-17 years of age. During the spring assessment period, the 2019 highest percent of weekly ED visits was 2.2% compared to the highest in 2020 for this period at 4.4%; the lowest for this period in 2019 was 1.5% and in 2020 the lowest during this period was 2.3%. For the summer period in 2019, the highest percent was 2.1%, but in 2020 the highest rate was 2.9%; The lowest rate in the summer period of 2019 was 1.1% and the lowest in 2020 was 1.7%. During the winter assessment period, the highest percent of ED visits for suicide attempts was 2.4% compared to the same period in 2021 at 3.6%; while the lowest rate in winter 2019 was 1.1% and 2.7% in winter 2021.

Figure 4. Percent of weekly emergency department visits for suspected suicide attempts among adults aged 18-25 years, Females: 2019-2021

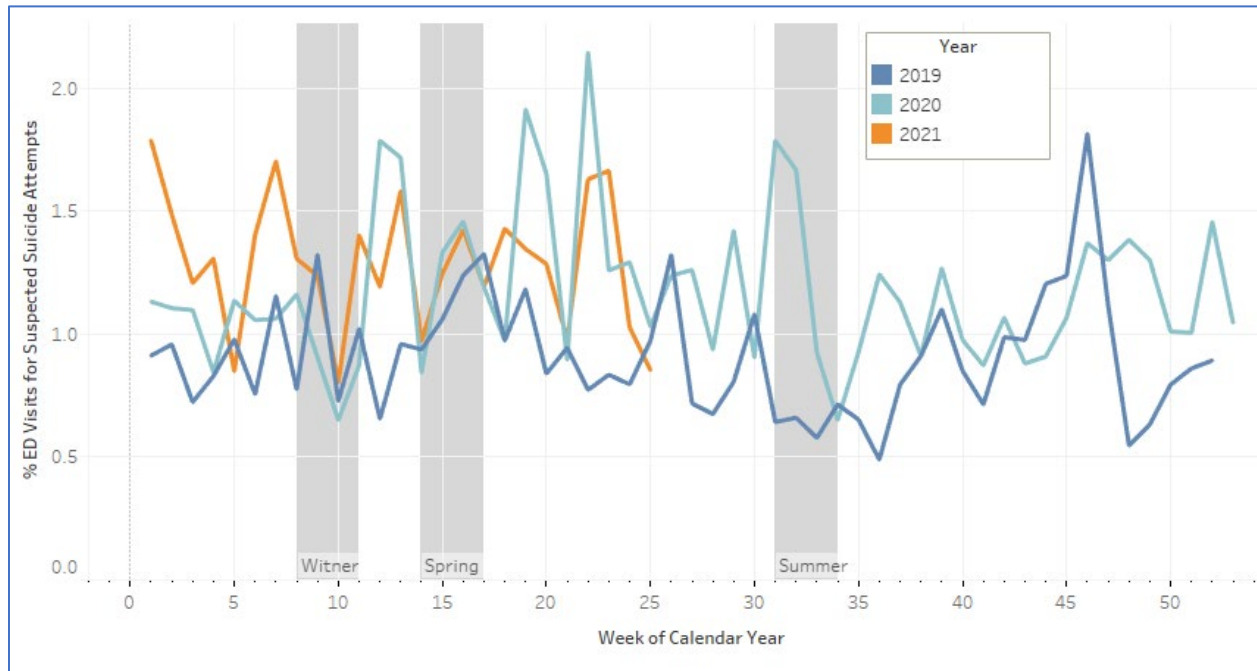


Figure 4 shows the percent of weekly emergency department visits for suspected suicide attempts among females 18-25 years of age. During the spring assessment period for this age group, the highest rate of suicide attempt ED visits for 2019 was 1.3% and the rate for the same period in 2020 was 1.5%; and the lowest percent of ED visits was 0.9% for 2019 and 0.8% for 2020. During the summer period, the highest rate in 2019 was 0.7% while the highest in 2020 for this time period was 1.8%; the lowest rate for 2019 was 0.6% compared to 0.7% in 2020. For the winter assessment period, the highest weekly rate for 2019 was 1.3% and for 2021 was 1.4%; the lowest rate for this period in 2019 was 0.7% versus 0.8% in 2021.

Figure 5. Percent of weekly emergency department visits for suspected suicide attempts among adults aged 18-25 years, Males: 2019-2021

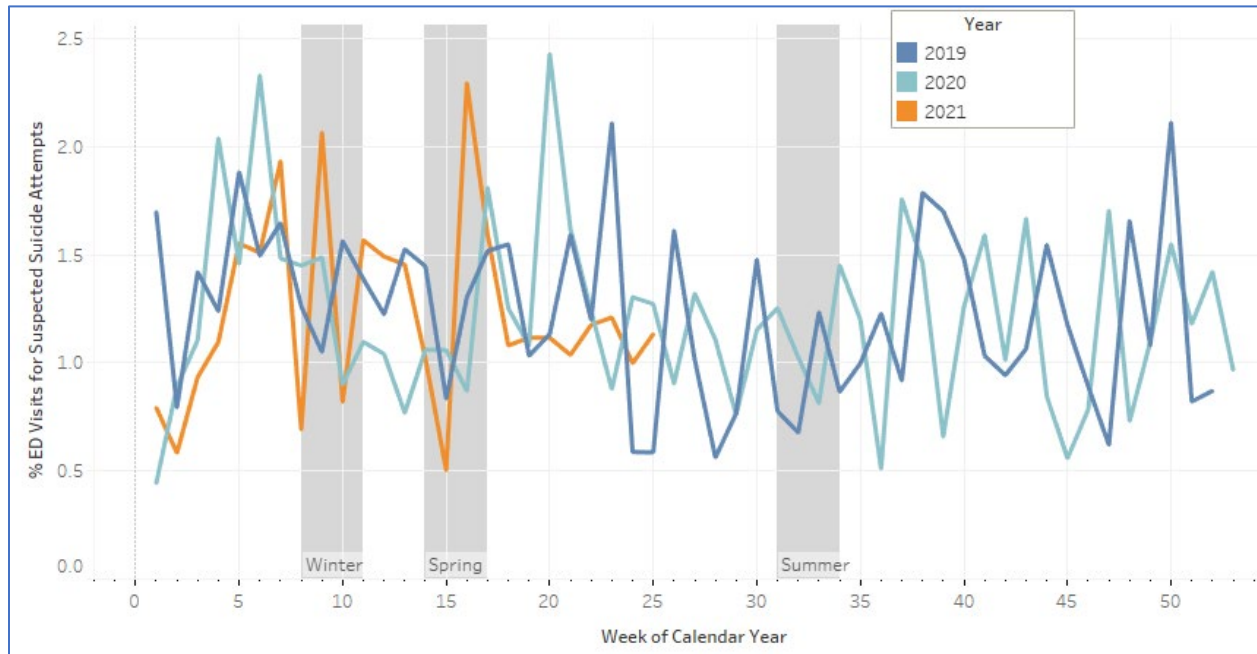


Figure 5 shows the percent of weekly emergency department visits for suspected suicide attempts among males aged 18-25 years. During the spring assessment period for this age group, the highest rate of suicide attempt ED visits for 2019 was 1.5% and the rate for the same period in 2020 was 1.8%; and the lowest percent of ED visits was 0.8% for 2019 and 0.9% for 2020. During the summer assessment period, the highest percent in 2019 was 1.2% while the highest in 2020 for this period was 1.3%; the lowest rate for 2019 was 0.8% compared to 0.9% in 2020. For the winter assessment period, the highest weekly rate for 2019 was 1.6% and for 2021 was 2.1%; the lowest rate for this period in 2019 was 1.1% versus 0.7% in 2021.

Figure 6. Percent of weekly emergency department visits for suspected suicide attempts among Adults aged 18-25, All sexes: 2019-2021

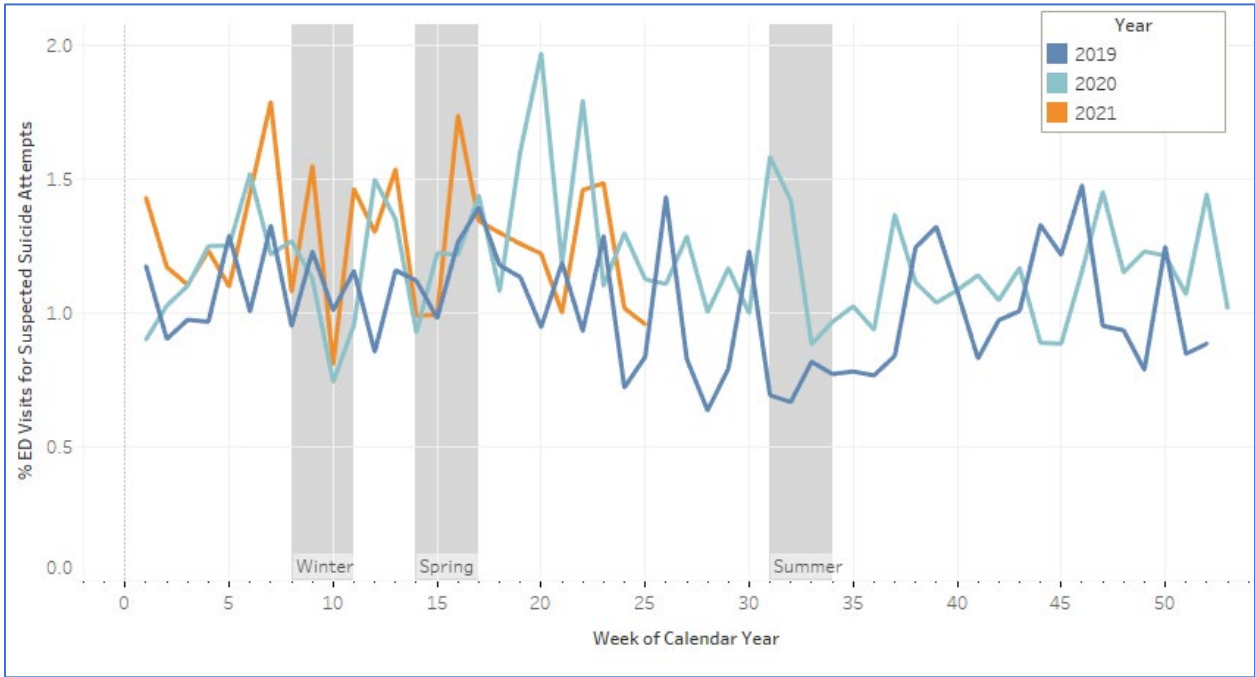


Figure 6 shows the percent of weekly emergency department visits for suspected suicide attempts among both males and females aged 18-25 years. During the spring assessment period, the highest rate for 2019 was 1.3% while the highest rate for this period in 2020 was 1.4%; the lowest rate for spring in both 2019 and 2021 was 1.0%. For the summer assessment period in 2019, the highest rate was 1.2% while the highest for this period in 2020 was 1.6%; and the lowest for summer was 0.7% while the highest in 2020 for this time period is 0.9%. During the winter assessment period, the highest percent of weekly ED visits in 2019 was 1.2% while the same period in 2021 saw a highest rate of 1.6%; the lowest rate for this period in 2019 was 1.0% and the lowest rate for this same period was 0.8% in 2021.

Table 1. Mean weekly counts, percentage change, visit rates, and visit ratios of emergency department visits for suspected suicide attempts among persons aged 12-25, Spring 2020 (March 29-April 25), Kansas Syndromic Surveillance Program

Surveillance period and indicators	Adolescents aged 12–17 years				Adults aged 18–25 years			
	All	Girls	Boys	Ratio for girls to boys	All	Women	Men	Ratio for women to men
Mean no. of weekly ED visits for suspected suicide attempts	16.8	13.0	3.8	n/a	18.8	11.3	7.5	n/a
% Change in mean no. of weekly ED visits for suspected suicide attempts	-19.3	-37.5	-11.9	n/a	-31.2	-32.8	-28.6	n/a
ED visit rates [†] for suspected suicide attempts (per 100,000 EDV)	3238.3	4642.9	1580.6	n/a	1192.0	1188.0	1198.1	n/a
Visit ratio (95% CI)	1.8 (1.0, 3.5)	2.1 (1.0, 4.3)	1.4 (0.4, 4.9)	2.9 (0.9, 9.1)	1.0 (0.6, 1.8)	1.0 (0.5, 2.2)	0.9 (0.4, 2.4)	1.0 (0.4, 2.5)

Abbreviations: CI = confidence interval; ED = emergency department; N/A = not applicable.

Table 2. Mean weekly counts, percentage change, visit rates, and visit ratios of emergency department visits for suspected suicide attempts among persons aged 12-25, Summer 2020 (July 26–August 22), Kansas Syndromic Surveillance Program

Surveillance period and indicators	Adolescents aged 12–17 years				Adults aged 18–25 years			
	All	Girls	Boys	Ratio for girls to boys	All	Women	Men	Ratio for women to men
Mean no. of weekly ED visits for suspected suicide attempts	19.3	15.5	3.6	n/a	27.5	17.5	10.0	n/a
% Change in mean no. of weekly ED visits for suspected suicide attempts	26.2	34.8	0	n/a	52.8	75.0	25.0	n/a
ED visit rates [†] for suspected suicide attempts	2230.0	3169.7	1002.7	n/a	1211.7	1257.9	1138.6	n/a
Visit ratio (95% CI)	1.5 (1.1, 2.4)	1.5 (1.0, 2.2)	1.2 (0.6, 2.5)	3.2 (1.0, 9.7)	1.6 (0.9, 3.0)	1.9 (0.9, 4.2)	1.3 (0.5, 3.2)	1.1 (0.5, 2.4)

Abbreviations: CI = confidence interval; ED = emergency department; N/A = not applicable.

Table 3. Mean weekly counts, percentage change, visit rates, and visit ratios of emergency department visits for suspected suicide attempts among persons aged 12-25, Winter 2021 (February 21-March20), Kansas Syndromic Surveillance Program

Surveillance period and indicators	Adolescents aged 12–17 years				Adults aged 18–25 years			
	All	Girls	Boys	Ratio for girls to boys	All	Women	Men	Ratio for women to men
Mean no. of weekly ED visits for suspected suicide attempts	27.8	23.3	4.5	n/a	25.3	15.5	9.8	n/a
% Change in mean no. of weekly ED visits for suspected suicide attempts	68.2	116.3	-21.7	n/a	5.2	12.7	-4.9	n/a
ED visit rates† for suspected suicide attempts	3222.1	4749.8	1210.5	n/a	1226.0	1183.2	1300.9	n/a
Visit ratio (95% CI)	1.8 (1.3, 2.5)	2.6 (1.3, 5.2)	0.8 (0.2, 2.9)	3.9 (1.4, 10.7)	1.1 (0.7, 2.0)	1.2 (0.6, 2.5)	1.0 (0.4, 2.4)	0.9 (0.6, 1.3)

Abbreviations: CI = confidence interval; ED = emergency department; N/A = not applicable.

DISCUSSION

In June 2021, the National Syndromic Surveillance Program published an article in Morbidity and Mortality Weekly Report (MMWR) from the CDC that analyzed emergency department (ED) data for suspected suicide attempts.¹ The authors chose three distinct 4-week periods for analysis: spring (March 29-April 25, 2020 [weeks 14 to 17]), summer (July 26-Aug22, 2020 [weeks 31 to 34]), and winter (February 21-March 20, 2021 [weeks 8 to 11]) and compared these periods to the corresponding dates in 2019. This analysis has been replicated using Kansas Syndromic Surveillance data.

Figures 1 thru 6 are time-series charts showing the percent of emergency department visits for suspected suicide attempts by age group and sex. Across each graph, the time periods of interest are referenced by the gray bars and labeled “Spring,” “Summer,” or ‘Winter,’ respectively. Table 1 shows the findings from the analysis of mean weekly counts, percentage change, visit rates, and visit ratios of emergency department visits for suspected suicide attempts among persons aged 12-17 years.

In comparison to the national-level data, Kansas had some similar trends in suspected suicide attempt emergency departments. Both the national analysis and Kansas data showed that males had fewer mean visits and rates than did females for both age groups and across all time periods. Additionally, both showed that the spring 2020 time period had fewer suicide attempt visits in proportion to all ED visits (note the negative percentage changes). In both analyses, females aged 12 to 17 in the winter time had the largest visit ratio at 2.6 (1.3, 5.2) comparing age groups and sex.

The Kansas data had some differences when compared to the national-level data. Due to the Kansas sample size being significantly smaller than that of the national-level data, the means were prone to fluctuation. In the spring period for the 12-17 years age group for Kansas, there were no significant ratios. For both the summer and winter periods among the 12-17 age group, females [summer visit ratio: 1.5 (1.0, 2.2); winter visit ratio: 2.6 (1.3, 5.2)] and combined [summer visit ratio: 1.5 (1.1, 2.0); winter visit ratio: 1.8 (1.3, 2.5)] sexes saw significant visit ratios while the males did not. Finally, none of the ratios for the 18-25 age group in Kansas were significant.

REFERENCES

1. 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. DOI: <http://dx.doi.org/10.15585/mmwr.mm7024e1>