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The impact of COVID-19 on suicidal ideation and alcohol presentations to emergency departments in a large healthcare system



Keywords:

Suicidal ideation
Emergency departments
COVID-19
Coronavirus
Behavioral health

Dear Editor:

Behavioral health (BH) complaints, including suicidal ideation (SI) and alcohol, are common in US Emergency Departments (EDs), [1–3]. The CDC published data in 2018 demonstrating a 25% overall increase in ED visits for SI and/or self-directed violence [4]. Additionally, the CDC reported that 24.5% of the population > 12 years old engaged in binge alcohol use in 2017 [5]. A public health crisis occurred with the onset of novel coronavirus 2019 (COVID-19). Current “stay at home” orders have reduced human contact through social distancing [6]. The effects on behavioral health visits to EDs as a secondary consequence of these measures has yet to be reported.

We conducted a retrospective multicenter study in 20 diverse EDs across a large Midwest integrated healthcare system with >750,000 ED visits annually to investigate the effects of current “stay at home” orders on psychiatric visits to our EDs. The study was performed as a quality improvement project. All patient encounters and BH visits during the study period were included. All EDs used the same electronic medical record (EMR) (EPIC Systems, Verona WI) allowing for data acquisition.

“Stay at home” orders were initiated on March 24th, 2020 due to COVID-19. Data on all BH visits were collected for 1-month (March 25th to April 24, 2020) following “stay at home” orders. Visits were identified if a BH ICD-10 code was used as a primary diagnosis or if behavioral complaints were listed. Secondary analysis examined complaints and ICD-10 codes for suicidal ideation and alcohol. The same parameters were used to collect data for the same time period for 2019 to compare effects of COVID-19 on ED visits. Statistical analysis was conducted using SAS® software (SAS Institute, Inc., Cary, NC).

During the one-month study period, the hospital system had 31,387 ED encounters with 2477 (7.9% of visits) BH visits, compared to 56,453 visits with 3438 (6.1% of visits) BH visits during the same period in 2019. Overall, between 2019 and 2020, there was 44.4% decrease in overall ED visits and 28.0% decrease in BH visits, (Table 1).

When comparing 2019 to 2020, SI encounters decreased by 60.6%. As a percentage of all ED encounters, SI encounters decreased from 2.03% to 1.44% from 2019 to 2020, (Table 2).

SI encounters fell from 33.28% in 2019 to 18.21% in 2020 ($p < .001$) when examining percentage of overall BH encounters within the system. The total number of alcohol related complaints decreased during

the time period but overall increased from 28.2% to 33.5% as a percentage of total BH ED visits, (Table 2).

Our study demonstrates the impact of “stay at home” orders for COVID-19 on BH patients that present to EDs. Our data found that SI complaints fell significantly during the “stay at home” orders when compared to the previous year. It is unclear whether these patients

Table 1

Overall ED encounters, behavioral health complaints, suicide, and alcohol chief complaints in the healthcare system.

Category	EMS ^a	ED Encounters		
		2019	2020	% Change
Overall	EMS	10,958	7889	−28.01%
	Not EMS	45,495	23,498	−48.35%
Overall Total		56,453	31,387	−44.40%
Comprehensive BH	EMS	1781	1438	−19.26%
	Not EMS	1657	1039	−37.30%
Comprehensive BH Total		3438	2477	−27.95%
Suicidal Chief	EMS	567	245	−56.79%
Complaints and Orders	Not EMS	577	206	−64.30%
Suicidal Total		1144	451	−60.58%
Alcohol Chief	EMS	599	512	−14.52%
Complaints and Dx	Not EMS	372	317	−14.78%
Alcohol Total		971	829	−14.62%

Study Time Period: 3/25–4/24.

^a EMS: Emergency Medical Service – As a method of ED arrival (municipal or private).

Table 2

Suicidal ideation and alcohol encounters as a percentage of total ED encounters and as a percentage of behavioral health ED encounters.

Category	EMS ^a	ED Encounters	
		2019	2020
Behavioral health encounters: percentage of overall ED encounters			
Comprehensive BH	EMS	16.25%	18.23%
	Not EMS	3.64%	4.42%
Comprehensive BH Total		6.09%	7.89%
Suicidal Chief	EMS	5.17%	3.11%
Complaints and Orders	Not EMS	1.27%	0.88%
Suicidal Total		2.03%	1.44%
Alcohol Chief	EMS	5.47%	6.49%
Complaints and Dx	Not EMS	0.82%	1.35%
Alcohol Total		1.72%	2.64%
Suicidal and alcohol encounters: percentage of comprehensive behavioral health ED encounters			
Suicidal Chief	EMS	31.84%	17.04%
Complaints and Orders	Not EMS	34.82%	19.83%
Suicidal Total		33.28%	18.21%
Alcohol Chief	EMS	33.63%	35.61%
Complaints and Dx	Not EMS	22.45%	30.51%
Alcohol Total		28.24%	33.47%

Study Time Period: 3/25–4/24.

^a EMS: Emergency Medical Service – As a method of ED arrival (municipal or private).

were simply not seeking mental health care, using alternative methods of obtaining mental health care through tele-visits, or whether social distancing had some effect on stressors that may decrease suicidal thoughts. We were unable to ascertain the suicide rate of the population during the study period. It will be important to correlate the decline in ED visits with the actual suicide rate once it becomes available. This could inform future interventions during times of crisis. Additionally, our study found that the percentage of alcohol presentations increased. Psychological stressors of social distancing may also have significant effects on alcohol abuse.

Further studies are needed to examine factors that may have led to decreased SI and increased alcohol complaints in EDs and whether this short-term phenomenon will be sustained or lead to an uptick in the aftermath. Strategies are needed to proactively manage risk in vulnerable populations and assure adequate access.

Grants/financial support

No outside funding provided support for this project.

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18 May 2020
Available online xxx

<https://doi.org/10.1016/j.ajem.2020.05.093>

References

- [1] Drapeau CW, JL McIntosh. U.S.A. suicide: 2018 official final data. Published. https://suicidology.org/wp-content/uploads/2020/02/2018datapgsv2_Final.pdf; 2020. [Accessed 30 April 2020].
- [2] Plemmons G, Hall M, Doupnik S, et al. Hospitalization for suicide ideation or attempt: 2008-2015. *Pediatrics*. 2018;141(6):e20172426. <https://doi.org/10.1542/peds.2017-2426>.
- [3] Ting SA, Sullivan AF, Boudreaux ED, Miller I, Camargo Jr CA. Trends in US emergency department visits for attempted suicide and self-inflicted injury, 1993-2008. *Gen Hosp Psychiatry*. 2012;34(5):557-65.
- [4] Zwald ML, Holland KM, Annor FB, et al. Syndromic surveillance of suicidal ideation and self-directed violence — United States, January 2017–December 2018. *MMWR Morb Mortal Wkly Rep*. 2020;69:103-8. <https://doi.org/10.15585/mmwr.mm6904a3>.
- [5] National Center for Health Statistics. Health, United States, 2018. Hyattsville, Maryland. https://www.cdc.gov/nchs/healthUS/content/2018.htm#Table_020; 2019. [Accessed 30 April 2020].
- [6] Reger MA, Stanley IH, Joiner TE. Suicide mortality and coronavirus disease 2019—a perfect storm? *JAMA Psychiatry*. 2020. <https://doi.org/10.1001/jamapsychiatry.2020.1060> Published online April 10.