

Commentary

## Suicide in the Time of COVID-19: A Perfect Storm

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In this commentary, we consider a convergence of suicide risk factors amid an international crisis and introduce a new approach in understanding and preventing suicidal behaviors. Our approach is a novel theoretical framework that can guide future research to include this added dimension.

Suicide is a leading cause of death in the United States and Kentucky. In the US, suicide rates have steadily risen over the past 2 decades by an estimated 30%.<sup>1</sup> Between 2005 and 2017 suicide was the second leading cause of death in ages 25-34 and the third in 10- to 24-year-olds. Suicide rates in the US are consistently highest for white males between 25 and 34.<sup>2</sup> In Kentucky, suicide was the second leading cause of death in ages 15-34 and the third in 10- to 14-year-olds.<sup>2</sup> White males age 18-40, who used a firearm and lived in a rural Kentucky county, made up the group with the consistently highest suicide rate; 13% of this group were known to have ever served in the military.<sup>3</sup> Precipitating suicide circumstances between 2005 and 2017 most often included depressed mood; mental health, intimate partner, and physical health problems; and substance misuse.<sup>3</sup>

On January 31, 2020, Health and Human Services Secretary Alex Azar declared the novel coronavirus (COVID-19) a public health emergency.<sup>4</sup> To reduce the viral spread to limit loss of life, the White House's Coronavirus Task Force recommended that persons aged 60 and over and those with serious underlying health conditions engage in social distancing. Social distancing is a traditional public health practice to reduce disease spread by reducing interactions between people in a community.<sup>5</sup> In accordance with Task Force recommendations, on March 7, Kentucky Governor Andy Beshear called for social distancing for high-risk persons; 4 days later, he extended Stay Healthy at Home recommendations to encompass all Kentuckians.<sup>6</sup> In weighing his decision to reopen parts of the country out of concerns for the economic impact versus continued social distancing practices through April, President Donald Trump warned of a potential uptick in suicide.

Given the gravity of the COVID-19 pandemic in terms of its suicidogenic potential, it is critical to explore the Commonwealth of Kentucky's social distancing policy implications in terms of self-directed violence (SDV; fatal and nonfatal suicide-related outcomes).

Encompassing intrapersonal (eg, comorbid physical and psychiatric illnesses), interpersonal (eg, relationship), and extrapersonal (eg, community, cultural, geographical) determinants, Finkel's I-cubed ( $I^3$ ) model, not previously applied to suicide,<sup>7</sup> offers enhanced explanatory potential over prevailing suicide theories for examining the impact of the COVID-19 pandemic on suicide.

### **Suicide: Risk Factors in Rural Communities**

Steelesmith and associates found that from 1999–2016, suicide rates were higher and increased more rapidly in rural than in large metropolitan counties.<sup>8</sup> They attributed these findings to low social capital, high social fragmentation, an increasing percentage of the population without health insurance, and an increasing percentage of veterans. They recommended improving social connectedness, health insurance coverage, and meaningful contributions to community while limiting access to lethal means. Results from other studies show suicide rates for adolescents and young adults were higher in rural than in urban communities regardless of the method used and those disparities were found to increase over time.<sup>9</sup>

### **$I^3$ Model and Perfect Storm Theory**

Including elements of the Interpersonal Theory of Suicide and Durkheim's suicide theory, Finkel's  $I^3$  model<sup>7</sup> is a novel and validated meta-theoretical framework that goes beyond these prevailing suicide theories and introduces modeling of multiple and interacting risk and protective factors. These factors are operationalized as instigators, impellers, and inhibitors, which increase or reduce the proclivity to suicide. *Instigators* are immediate environmental stimuli that produce context affording proclivity to enact SDV. *Impellers* are situational or

dispositional qualities on proclivity to enact SDV. The net strength of instigators and impellers determines the level of SDV proclivity. *Inhibitors* are forces that decrease or inhibit the likelihood of SDV, whereas *disinhibitors* are those forces that increase or strengthen the possibility that SDV would occur. Perfect storm theory (PST), a midrange theory arising out of the I<sup>3</sup> model, offers a way to test these 3-way interaction processes through a mediator (SDV proclivity) and an outcome (SDV), illuminating how at-risk individuals progress from thoughts of suicide to ending their lives. According to PST, pandemic SDV is more likely to result in death to the degree that instigators (eg, pandemic-related environmental factors such as increased social isolation due to social distancing) and impellers (eg, dispositional or situational factors, such as heightened severity in mental health problems from pandemic-related dread and uncertainty) are strong in the face of weak inhibitors (eg, availability of effective treatment and ready access to help) and strong disinhibitors (eg, alcohol intoxication). Alternatively, to the extent that instigation and impellance forces are weak and inhibition forces (eg, the ready availability of telehealth visits from physical and mental health providers) are robust, SDV would be less likely to occur.<sup>10</sup>

### **Pandemic-Related Suicide Factors**

At the Kentucky Injury Prevention and Research Center, we have begun observing the convergence of multiple suicidogenic risk factors in Kentucky and nationally since the onset of the COVID-19 pandemic in the US.

#### **Social Isolation**

Extended social distancing increases social isolation for populations of concern. Evidence has linked social isolation and loneliness to mental health problems,<sup>10</sup> and researchers have detected strong associations between social isolation and suicide.<sup>11</sup>

#### **Mental Health Problems**

Depression and other mental health problems are strongly linked to suicide across all demographics. Around the country, suicide hotlines and prevention services are reporting increased numbers of calls, and hotline calls in Kentucky have increased by at least 20%.<sup>12,13</sup> Increased utilization of suicide hotlines and prevention services suggest mental health problems are growing in the face of amplified dread, fear, and uncertainty related to the pandemic. Increases in mental health problems among Kentuckians could result in higher rates of suicide behavior.

#### Alcohol And Other Substance Misuse

Alcohol and other substance misuse is often a factor in suicide deaths,<sup>14</sup> and use has historically increased during economic downturns and national disasters.<sup>15,16</sup> Since the onset of the pandemic, alcohol sales have spiked.<sup>17</sup> Governor Beshear's March 16 order closing non-essential businesses allowed liquor stores to continue operating.<sup>6</sup> Restaurants are also permitted to deliver beer or wine with takeout orders.<sup>18</sup> The availability of alcohol in the absence of an ability to readily access positive coping outlets (eg, gyms and houses of worship) could contribute to greater misuse during the pandemic.

#### Unemployment and Financial Loss

Suicide rates have historically increased during economic upheavals.<sup>19,20</sup> According to the US Department of Labor, a record number of Kentuckians filed for unemployment benefits for the weeks ending March 21 and 28, due to layoffs and furloughs.<sup>21</sup>

#### Relationship Problems and Loss

Relationship problems are associated with increased suicide risk for both men and women. Intimate partner violence (IPV) is related to intimate partner homicide-suicide.<sup>22</sup> In Kentucky and across the nation, reports of IPV and visits to online domestic violence resources have increased since the onset of social distancing.<sup>23</sup>

## Access to Lethal Means

According to Federal Bureau of Investigation statistics on firearm background checks for March 2020, Americans purchased firearms at record rates,<sup>24</sup> an increase of 80% over the previous year.

Preliminary data show that suicides in Kentucky during the weeks of March 13–March 20 and March 20–March 27 were about 50% lower than the average of the previous 7 years.<sup>i</sup> The lower rate does not imply that the pandemic will not impact state and national suicide rates. Historically, suicide rates decrease during the early phase—or "honeymoon" period—of a crisis and during periods of high community cohesion.<sup>25</sup>

Following the honeymoon period, however, based on historical trends, rates will likely increase. Established disaster recovery frameworks can be applied to help predict where we find ourselves as the response to and recovery from this pandemic continues, indefinitely. According to the Substance Abuse and Mental Health Services Administration, the next phase in a disaster is "disillusionment," as people realize the limits of assistance.<sup>26</sup> As the crisis becomes chronic, discouragement, stress, exhaustion, and substance misuse may begin to emerge. Increasing gaps between those that return to business as usual and those that have continued needs lead to feelings of abandonment. This phase can last months and even years.

The convergence of suicide risk factors related to the pandemic, as well as points of intervention, can be understood in terms of the I<sup>3</sup> model and PST. The second- and third-order psychological and social effects of the novel coronavirus are only beginning to emerge in Kentucky and across the nation. Most of the impact remains undiscovered at this time. Due to extended periods of social isolation from social distancing coupled with the extreme economic upheaval, the COVID-19 pandemic creates a "perfect storm" of antecedent conditions for suicide, necessitating week-to-week monitoring of suicide trends in Kentucky

and the nation. Further study on the impact of the pandemic on suicide in special populations, such as older persons, veterans, persons with chronic health conditions, and those living in rural areas, will be necessary. As we acclimate to a new way of life, we must be proactive in developing targeted pandemic suicide prevention efforts aimed at our most vulnerable populations.

## Endnote

<sup>i</sup> The decrease could be due to incomplete reporting or investigation.

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