



## Original Article

## Risk factors for attempting suicide during the COVID-19 lockdown: Identification of the high-risk groups

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### المخلص

**أهداف البحث:** تمثل الصحة النفسية والوفيات الناجمة عن الانتحار قضية واسعة الانتشار خلال جائحة "كوفيد-19"، استهدفت هذه الدراسة تحديد الضغوطات المحفزة للسلوك الانتحاري وعوامل الخطر للتعرف على الفئات الأكثر عرضة لخطر الانتحار أثناء فترة الإغلاق وحظر التجول.

**طرق البحث:** فحصت هذه الدراسة بأثر رجعي ٢٩ حالة من محاولات الانتحار خلال الأشهر الثلاثة من فرض حظر التجول والإغلاق في المملكة العربية السعودية للحد من انتشار فيروس كورونا المستجد "كوفيد-19". تم تقييم عوامل خطر الانتحار باستخدام مقياس (الأشخاص الحزينون) المعدل إلى جانب التقييم الشامل لضغوطات الحياة المحفزة لمحاولة الانتحار.

**النتائج:** تم تحديد العديد من الضغوطات المحفزة لمحاولة الانتحار وقت الإغلاق، منها: الضغط النفسي، تآزم العلاقات الاجتماعية، الضائقة المالية، والخوف الشديد من الإصابة بـ "كوفيد-19". كما أظهرت النتائج أن جميع الفئات العمرية كانت معرضة لخطر مماثل تقريبا لمحاولة الانتحار أثناء فترة حظر التجول. وشكلت نسبة المصابين بالاضطرابات النفسية ٦٩٪ من العينة، وشكلت النساء ٦٥.٥٪. وكان عاملا اليأس والاكتئاب مرتبطين إلى حد كبير بمحاولات الانتحار، إضافة إلى التصريح بالنوايا المستقبلية لتكرار المحاولة، بنسبة ٧٢.٤٪ و٦٥.٥٪ على التوالي. ومن الجدير بالذكر أن ثلثي محاولات الانتحار كانت مهددة للحياة واحتاجت إلى التدخل الطبي العاجل لإنقاذها، وأن العديد من النساء شعرن بعدم الأمان في منازلهن أثناء الحظر.

**الاستنتاجات:** النساء والأشخاص المصابون بالاضطرابات النفسية أكثر عرضة للانتحار وقت الإغلاق. من الممكن لهذه النتائج أن تسهم في رفع الوعي حول أزمة العنف الأسري المصاحبة لجائحة "كوفيد-19" وتحسين الخدمات المقدمة لمنعها، ووضع استراتيجيات عاجلة للحد من خطر الانتحار، والتأكيد على الحاجة لتطوير مرافق رعاية الصحة النفسية.

**الكلمات المفتاحية:** محاولة الانتحار؛ حظر كوفيد-19؛ الصحة العقلية؛ المرضى النفسيون؛ النساء

### Abstract

**Objectives:** In the wake of the coronavirus disease 2019 (COVID-19) pandemic, we have witnessed a rise in the instances of mental health problems and the suicide-related mortality rates. This study aims to identify the suicide-related risk factors and stressors to determine the groups at a greater risk of attempting suicide during the COVID-19 lockdown.

**Methods:** This retrospective study examined 29 cases of attempted suicide during the 3-month COVID-19 lockdown in KSA. The suicide risk factors were evaluated using specific instrument the modified (SAD PERSONS) scale. It is an acronym for sex, age, depression, previous attempt, excess alcohol, rational thinking loss, social status, organized plan, no social supports and stated future intent.

**Results:** The lockdown stressors that may have triggered suicidal behaviours were identified as follows: psychological distress, relationship problems, financial difficulties, and extreme fear of the COVID-19 infection. While all age groups carried the risk of attempting suicide during the lockdown, patients with psychiatric disorders and women accounted for 69% and 65.5% of the cohort, respectively. Factors like hopelessness and depression were highly related to suicide attempts, as well as the statement of future intent to repeat the attempt, at 72.4% and 65.5% respectively. Almost two-thirds of the attempts made were serious, and many women felt unsafe in their own homes during the lockdown.

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**Conclusion:** Patients with pre-existing psychiatric disorders and women carry high risk of attempting suicide during the COVID-19 lockdown. This study offers insights on the greater outreach efforts that can be carried out for these patients by calling for the prioritization of mental health care, improvement of domestic violence services, and strengthening of suicide prevention strategies

**Keywords:** Attempted suicide; COVID-19 lockdown; Mental health; Psychiatric patients; Women

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## Introduction

A suicide attempt is a self-harm behaviour that carries the intent to die.<sup>1</sup> Suicide attempts are 30 times more frequent than the completed suicides, and are established as a predictor of the risk of death that accompanies in future attempts.<sup>2,3</sup> Suicide survivors are at an increased risk of developing post-traumatic disorders, repeating suicidal behaviours, and feeling guilt, shame, and social stigmas.<sup>4,5</sup> Suicide is not a single-cause event, rather a complex phenomenon involving several factors such as biological factors, psychological factors, and sociocultural factors.<sup>6</sup> While some of these factors reflect a longstanding suicide risk, others represent the current distress an individual is facing.<sup>6</sup> A previous study investigating the history of suicide completers found that most of them had a precipitating event,<sup>7</sup> indicating that stressful life events may play a crucial role in one committing suicide.<sup>8</sup> Certain life events are intolerable; they lead to mental and physical breakdowns, which in turn trigger a vulnerable individual's desire to attempt suicide.<sup>9,10</sup> The most common known stressors for suicide attempts and completed suicide were related to economic depression, relationship problems, and chronic diseases.<sup>11–13</sup> Evaluating these events is important to understand an individual's suicide risk and recognize the display of suicidal behaviour by the individual at any given moment.<sup>14</sup> A combination approach for suicide assessment requires an integration of individual demographics, psychiatric diagnosis, and situational factors that function as recent stressors.<sup>15</sup> Such an approach is effective to determine the groups that are at a greater risk of committing suicide.

In March 2020, the World Health Organization (WHO) declared the coronavirus disease 2019 (COVID-19) a pandemic, which is new viral pneumonia.<sup>16</sup> Previously published case reports and the experiences from the 1918 flu pandemic and the 2003 severe acute respiratory syndrome outbreak in Hong Kong bring to notice the increased suicide rates found during that period.<sup>17,18</sup> Due to the dramatic lifestyle changes and stressors associated with the current pandemic, the possibilities of there being increased suicide attempts and completed suicide remain

high. Studies have shown that the current pandemic and public health measures, such as social distancing, lockdown, and travel restrictions, have come to threaten mental health and aggravate the suicide risk factors.<sup>19–22</sup> The pandemic and the public health measures have contributed toward increased levels of distress, anxiety, grief, depression, loneliness, interpersonal conflict, and financial loss, and exacerbation of pre-existing mental illnesses along with lack of access to mental health care services.<sup>23–26</sup> A review of the 69 suicide cases indicates fear of COVID-19 infection to be a prominent factor in most of the cases, followed by financial crisis, work-related stress, and feeling of loneliness.<sup>27</sup>

In KSA, the first case was reported on March 2, 2020.<sup>28</sup> Eventually, the government imposed a lockdown in major cities, particularly in Riyadh, and sanctioned travel restrictions throughout the country from the end of March to end of June, 2020.<sup>29</sup> A study conducted to assess the psychological effects of the COVID-19 pandemic among the general population of KSA showed 23.6% of the population to be moderately or severely affected psychologically; the population particularly showed depression, anxiety, and stress symptoms.<sup>30</sup>

Suicide can be prevented by implementing appropriate interventions.<sup>31</sup> To our knowledge, the biopsychosocial factors and situational factors influencing COVID-19-related suicides are yet to be extensively studied. Therefore, the present study aims to identify the suicide risk factors and summarize the recent stressors that contributed towards the suicide attempts carried out during the COVID-19 lockdown. Furthermore, this study highlight the high-risk group suicide attempts carried out during the pandemic, provide early interventions to suicidal individuals, and formulate effective mechanisms for preventing suicides.

## Materials and Methods

This is a retrospective study conducted at King Saud Medical City (KSMC), Riyadh. It was conducted during the COVID-19 pandemic, when there was a curfew and lockdown in KSA from April to June, 2020.

During the 3-month COVID-19 lockdown, a total of 29 male and female patients aged  $\geq 16$  years who survived the suicide attempts were admitted to KSMC, and then referred to the psychiatry unit. All of these patients constitute the participants of this study. Children and completed suicide cases were excluded from this study. All of the patients were fully assessed for suicide attempts via in-person interviews. These interviews conducted by a psychiatrist during the admissions, after having stabilized their medical conditions. Additional data was gathered from the patients' relatives, companions, and admissions records.

In order to ensure that the research objectives are met, the following actions were carried out. First, we discussed the recent stressful life events witnessed by each of the individuals who attempted suicide during the lockdown. Second, in addition to the suicide assessment interviews, we used the modified SAD PERSONS scale (MSPS) to evaluate the suicide risk factors. While MSPS is the most specific instrument available to assess suicide risk, it has low sensitivity.<sup>32</sup> Nevertheless, it has been considered as a commonly used

scale that carries wide reaching benefits in improving patient care.<sup>33</sup> The MSPS includes the following sociodemographic variables: sex, age, marital status, and social support; mental state and psychiatric history including hopelessness and depression, previous attempts, outpatient or inpatient psychiatric care, chronic addiction or frequent use, psychosis or organic brain syndrome; and description of the current suicide attempt plan. The scale attempts to measure if the suicide was impulsive or well thought out, if it has a life-threatening presentation, and if there is a stated future intent to repeat the attempt or there is an ambivalence.<sup>34</sup> The scale contains 10 factors, with each factor scored as 1 if present and 0 if absent; exceptions being 4 factors, which are scored as 2 if present and 0 if absent (Appendix 1). The resulting cumulative scores define the specified levels of suicide risk: low risk, 0–5; moderate risk, 6–8; and high suicide risk, >8.

## Results

The review of the recent stressful life events (shown in Table 1) of the 29 suicide patients showed overlapping results. The most common COVID-19 lockdown stressor that triggered suicide attempts was psychological distress (n = 10). This was followed by relationship problems (n = 8), financial crisis (n = 5), fear of COVID-19 infection (n = 4), and lack of access to addictive substances (n = 2).

As per the results summarized in Table 2, women attempted suicide more often than men, 65.5% vs. 34.5%. While the frequency of suicide attempts was 44.8% for the participants belonging to the high-risk age group of <19 years and >45 years, it was 55.2% for the participants belonging to the high-risk age group of 19–45 years. The highest frequency of suicide attempts was found amongst the participants who reported of feeling depressed and hopeless, namely 72.4%. The frequency of suicide attempts for those with a previous history of suicide attempts or psychiatric care was 69%. The results showed 24.1% of the suicide attempters having a history of using alcohol or drugs, and 31% having psychosis or loss of rational thinking. Overall, 51.7% of the total participants were single, divorced, widowed, or separated, and 48.3% were married. In line with these findings, 58.6% of the participants were reported of lacking social support. While most of the suicide attempt cases were a result of the participants being impulsive, 62.1% of the cases were life-threatening, requiring intensive medical and surgical care. As a result of the participants going through high levels of hopelessness and depression, 65.5% of the participants admitted their future intent to die or were at least ambivalent. The overall scores of the MSPS showed 24.1% participants facing mild suicide risk, 31% facing moderate suicide risk, and 44.8% facing high suicide risk.

## Discussion

The COVID-19 pandemic and public health measures promoted stress, thereby increasing suicidal behaviour. In the present study, multiple COVID-19 lockdown stressors were identified; however, psychological impact was found to be the most reported among 10 of the patients. Most of the patients affected were those with psychiatric disorders. Those

**Table 1: Self-reported recent life stressors found during the COVID-19 lockdown.**

Age	Gender	The recent stressors
17	Female	Psychological distress
28	Male	Psychological distress
16	Female	Psychological distress
26	Female	Psychological distress
25	Male	Psychological distress
43	Female	Psychological distress
22	Female	Psychological distress
16	Female	Psychological distress
18	Female	Psychological distress
31	Female	Psychological distress
24	Female	Relationship problems
46	Female	Relationship problems
17	Female	Relationship problems
30	Female	Relationship problems
18	Female	Relationship problems
30	Female	Relationship problems
16	Female	Relationship problems
24	Male	Relationship problems
49	Male	Financial crisis
28	Female	Financial crisis
21	Male	Financial crisis
53	Male	Financial crisis
35	Female	Financial crisis
26	Female	Fear of COVID-19 infection
47	Male	Fear of COVID-19 infection
71	Male	Fear of COVID-19 infection
18	Female	Fear of COVID-19 infection
29	Male	Unavailability of addictive substances
24	Male	Unavailability of addictive substances

who reported relapse or worsening psychiatric symptoms due to high levels of anxiety, depression, insomnia, feeling of hopelessness and helplessness, feeling of loneliness, change in daily routine, decreased activities, intolerance, and social

**Table 2: Data of the suicide attempt cases distributed to the modified SAD PERSONS scale.**

Factors		N (%)
S Sex:	Male	10 (34.5%)
	Female	19 (65.5%)
A Age:	<19 or >45 years	13 (44.8%)
	19–45 years	16 (55.2%)
D Depression or hopelessness:	Yes	21 (72.4%)
	No	8 (27.6%)
P Previous suicide attempt or psychiatric care:	Yes	20 (69%)
	No	9 (31%)
E Excess alcohol or drug use:	Yes	7 (24.1)
	No	22 (75.9)
R Rational thinking loss:	Yes	9 (31%)
	No	20 (69%)
S Single, separated, divorced, or widowed		15 (51.7%)
	Married	14 (48.3%)
O Organized plan or serious attempt:	Yes	18 (62.1%)
	No	11 (37.9%)
N No social support		17 (58.6%)
	Socially supported	12 (41.4%)
S Stated future attempt:	Yes	19 (65.5%)
	No	10 (34.5%)

distancing. The other stressors include decreased activity or closure of mental health services, unavailability of psychotropic medications, and reluctance to visit hospitals due to the fear of COVID-19 infection. We found that the schizophrenic patient had relapsed because of missing injections for 6 weeks.

As we evaluated the suicide risk factors based on the MSPS, we found that one-third of the participants had psychosis during their attempt. The respective participants were diagnosed with schizophrenia, bipolar disorder in manic episodes, depression with psychosis, and substance use disorder. However, in two of the suicide attempters, the lack of access to addictive substances has been considered as a stressor. Thus, the use of alcohol or substances was comparatively lower than the other factors in the suicide attempt cases witnessed during the lockdown. It was implicated in less than a quarter of the cases. Based on the data analysed, we found that most of the patients who attempted suicide during the COVID-19 lockdown suffered from hopelessness and depression, and feelings related to troubling situations during the period. Two-thirds of the patients were found to have a previous history of suicide attempts and received psychiatric care. In most of the cases, the attempters used psychotropic medication as a means to attempt suicide. The history of suicide attempts prove to be the strongest indicator of whether a patient is bearing the risk of future suicidal ideation and behaviour.<sup>35,36</sup>

A recent study on the impact of the COVID-19 pandemic and strict lockdown measures on the patients with psychiatric disorders found suicidal ideation to be significantly higher among them than in non-clinical populations. Other negative psychological effects included increased anxiety and depressive symptoms, post-traumatic stress disorder, and relapses.<sup>37</sup> Further, the risk of suicide is 3–12 times higher in these patients than in non-clinical populations.<sup>38</sup>

Our results revealed that, in eight patients, relationship problems, including marital conflict, parent conflict, family conflict, and problems with friends, were the second most reported stressors during the curfew and the lockdown. The findings suggest suicide risk factors, including some of the protective factors, to be negatively affected by the COVID-19 pandemic. Several studies agree with the position that marriage is a protective factor against suicide, especially if there are children.<sup>39,40</sup> However, our results show an unexpected finding of marriage being a risk factor for suicide during the COVID-19 lockdown. There was no significant difference between the single, divorced, or widowed, and married participants with regard to the suicide attempt. One potential explanation for this finding is that the lockdown measures have a range of social consequences, such as decreasing social activities and engagement, and increasing anger, nervousness, tension, and impulsivity, that enhance unhealthy home life situations.<sup>41</sup> Domestic abuse and domestic violence (DV) have become more frequent and dangerous.<sup>42</sup> The WHO stated violence against women to be strongly associated with suicide attempts.<sup>43</sup> In KSA, DV is prevalent and can be perceived as a public health concern.<sup>44</sup> This could be attributed to the social taboos and the predominantly male-dominated culture that exist in the society.<sup>44</sup> Many studies have estimated the prevalence of DV in the various cities of KSA.<sup>45–47</sup> The prevalence in

Riyadh was 43.0%, as reported by the married Saudi women.<sup>48</sup> While we have limited information regarding the association between the COVID-19 lockdown in KSA and the DV incidence, increasing association and incidences are said to have been reported worldwide.<sup>42</sup> In line with the previous results concerning marital status, two-thirds of the participants showcased poor interpersonal relationships, cold marital relationships, and no close family members or friends. Suicide is more common in people who have poor social support.<sup>49</sup>

In five of the patients, financial crisis and concerns regarding uncertain future due to job loss, termination of a contract, or loss of business were reported as the recent stressors. It is worth mentioning that the COVID-19 pandemic created an economic crisis globally.<sup>50</sup> The stress of job loss heightens suicide risk; unemployment is found to be the strongest sociodemographic indicator of subsequent death by suicide.<sup>51–53</sup>

Social media, especially in the early stages of the COVID-19 outbreak, circulated misinformation and misconceptions in the communities.<sup>54</sup> Consequently, this fuelled extreme fear of the COVID-19 infection and triggered psychological distress.<sup>54</sup> In our study, four of the patients attempted suicide because of these fears. Of these four, two had an extreme fear of getting infected and eventually died away from their home country. The third patient was an old man who was afraid of death as he believed that all elderly patients died once diagnosed with COVID-19. The last patient had an extreme fear drawn from the belief that COVID-19 is related to the end of the world, influenced by the information disseminated in social media. In KSA, in addition to developing appropriate health and social policies to contain the spread of COVID-19, the Ministry of Health designed social media awareness campaigns to encourage people to stay at home and follow the instructions articulated by them.<sup>55</sup> They disseminated trusted approachable sources of news to diminish COVID-19-related misinformation.<sup>56</sup>

The findings of our study show that women attempted suicide more often than men during the lockdown, 65.5% vs. 34.5%. Women attempted suicide three times more often than men.<sup>57,58</sup> The likelihood of committing suicide increases with age.<sup>59</sup> The peak age period when women and men committed suicide was after the age of 55 and 45 years, respectively.<sup>59</sup> However, suicide is the third leading cause of death among those aged 15–24 years.<sup>39</sup> Based on the MSPS, people belonging to the age groups of <19 years or >45 years were at the highest risk. However, our results show all age groups of carrying the risk of attempting suicide during the COVID-19 lockdown.

A number of serious suicide attempts are planned and organized.<sup>60</sup> Thus, it is interesting to observe that most of the suicide attempts during the lockdown were simultaneously impulsive and well planned out. Almost two-thirds of the attempters chose lethal methods such as setting themselves on fire, jumping from high places, ingesting high doses of psychotropic medications, and using organophosphorus poisoning. During the interviews, these attempters expressed their future intent to die or they were ambivalent about their intentions, making statements such as “nothing will be

changed,” “I cannot tolerate anymore,” and “I am already dead.”

The study of the adaptation of evidence-based suicide prevention strategies during the COVID-19 pandemic recommended the division of the strategies into universal and selective.<sup>31</sup> The universal suicide preventive strategies target the community by increasing the community’s awareness of mental health and suicide behaviour.<sup>31</sup> They promote the building of a strong personal relationship, practicing of positive coping mechanisms, and strengthening of religious or spiritual beliefs.<sup>61,62</sup> Further, they mitigate the impact of economic depression by addressing this issue through the government, directing responsible media reporting, improving mental health services, and limiting the access to suicide.<sup>24</sup> On the contrary, selective suicide preventive strategies target vulnerable groups that exhibit signs of suicidal behaviour and are in need of an appropriate mental health care intervention.<sup>31</sup> Examples of selective interventions include reinforcement of crisis helplines, creation of online networks for social support, development of telemedicine to deliver interventions remotely via expert psychiatric assessments, provision of psychiatric medications along with close follow-up, and improvement of mental health access. Furthermore, it is important to reach out to the victims of DV and ensure their safeties by improving the services.<sup>24</sup>

The strength of the study lies in the evaluation of the suicide risk factors and examination of the suicide attempt cases found during the COVID-19 lockdown. However, this study has some limitations. First, some of the biological, psychological, and social factors explored as suicide risk factors were not included in the MSPS. Second, the study design was based on a retrospective approach, as a result, the observations may be biased. Third, the sample size was small. This may perhaps be because of the influence of the pandemic on the admission of suicide attempters in our hospital, where the staff was busy managing COVID-19 cases, and the lockdown probably reducing the suicide cases’ access to health care services.

## Conclusion

The present study established the precipitating stressors for almost all of the suicide attempt cases found during the 3-month COVID-19 lockdown in KSA. The stressors were psychological distress, relationship problems, DV, loss of job and financial difficulties, and intense fear of getting infected. The study determined the groups who were affected the most by the lockdown: women, especially victims of DV, and psychiatric patients. Further research is warranted to investigate the suicide risk factors and protective factors during the pandemic to provide early interventions to the individuals with suicidal ideation and establish effective mechanisms for the prevention of suicides.

## Recommendation

People who are suffering during the lockdown need utmost care and access to appropriate facilities to address their needs. We need to improve our services such as crisis helplines, online social support networks, and tele-mental

health care. Greater attention and intensive intervention should be provided to the survivors of serious suicide attempts to manage mental and physical injuries as well as prevent the risk of subsequent attempts.

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## Conflict of interest

The author has no conflict of interest to declare.

## Ethical approval

The manuscript is approved by the Institutional Review Board Committee of King Saud Medical City dated 14-Dec-2020. Proposal Reference No. H1RI-24-Aug20-02.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jtumed.2021.04.010>.

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