

Impact of the COVID-19 Pandemic on Suicide Attempts: A Comparative and Retrospective Study from a Forensic Medicine Centre in Antalya, Türkiye


F Aslan¹, C Deveci²

¹Health Sciences University, Antalya Training and Research Hospital, Clinic of Forensic Medicine, Antalya, ²Council of Forensic Medicine, Antalya Group Administration, Antalya, Turkey

Received:
20-Jan-2024;
Revision:
16-Dec-2024;
Accepted:
17-Dec-2024;
Published:
27-Mar-2025

INTRODUCTION

Suicide, defined as an individual taking their own life, is a significant public health issue that affects both the individual and the systems surrounding them. According to the World Health Organization (WHO), over 700,000 people die by suicide annually.^[1] The WHO categorizes suicide into two main types: completed suicides and suicide attempts. Completed suicides refer to suicide attempts that result in death, whereas suicide attempts encompass all non-fatal suicidal, self-destructive, or self-harming behaviours.^[2] According to the literature, suicide attempts are 30 to 40 times more prevalent than completed suicides.^[1-3]

Access this article online	
Quick Response Code: 	Website: www.njcponline.com
	DOI: 10.4103/njcp.njcp_72_24

ABSTRACT

Background: Understanding the dynamics of suicide attempts during the pandemic, especially in vulnerable subgroups, is crucial for effective prevention strategies. **Aim:** The primary objectives were to analyse the prevalence of suicide attempts during the pre-pandemic and pandemic periods, explore demographic shifts, and assess the impact of specific pandemic stressors on suicide attempts from both forensic and clinical perspectives. **Methods:** Two distinct periods were considered: the pre-pandemic period spanning January 2018 to February 2020 and the pandemic period from March 2020 to June 2021. Data collection involved retrospective analysis of forensic reports for cases of suicide attempts during the specified periods. **Results:** During the pandemic period, a decrease in frequency of total suicide attempts was observed compared to the pre-pandemic period. The median age of suicide attempters was lower during the pandemic (29 vs. 25, $z = -5.420$, $P < 0.001$), with increased rates among adolescents and young adults. Foreign nationals experienced significantly lower suicide attempt rates during the pandemic ($\chi^2(1) = 21.298$, $P < 0.001$). Suicide methods showed pandemic-related shifts, with significantly increased use of prescription medications ($\chi^2(10) = 41.299$, $P < 0.001$). Individuals with a prior psychiatric diagnosis demonstrated a decrease in suicide attempts during the pandemic ($\chi^2(1) = 44.635$, $P < 0.001$). **Conclusion:** The findings underscore the need for nuanced suicide prevention strategies that consider age, gender, and household dynamics. Future research, ideally longitudinal and multi-centred, is warranted to comprehensively understand the prolonged effects of the pandemic on suicide behaviour.

KEYWORDS: Attempted suicide, COVID-19, forensic medicine, mental health

Research indicates that in completed suicides, men outnumber women, while in suicide attempts, women outnumber men. Gender-based etiological factors are proposed to contribute to this trend.^[4,5] It is noted that the experiences of exclusion and discriminatory behaviours have a significant impact on suicide behaviours among women and LGBTQ+ individuals.^[3,6,7]

Address for correspondence: Dr. C. Deveci, Council of Forensic Medicine, Antalya Group Administration, Pinarbasi Mh., Akdeniz University Campus, 07070 Antalya, Türkiye.
E-mail: cemyigit.deveci@gmail.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Aslan F, Deveci C. Impact of the COVID-19 pandemic on suicide attempts: A comparative and retrospective study from a forensic medicine centre in Antalya, Türkiye. *Niger J Clin Pract* 2025;28:174-80.

The COVID-19 pandemic and public life restrictions may have had a negative impact on people's mental well-being by imposing social and financial burdens. The pandemic has been associated with an increase in various mental health disorders, such as depression and post-traumatic stress disorder (PTSD), which have been linked to a rise in suicidal ideation among vulnerable groups.^[6] Several similar publications mention that these disorders are also associated with an increase in suicidal ideation during normal times.^[3,6-13] It is acknowledged that while the potential for the pandemic to increase suicide attempts has been suggested, very little is known about which sociodemographic characteristics or COVID-19 experiences are associated with this potential.^[6,14,15]

According to the results of a survey conducted in the USA in 2022, seven sociodemographic risk factors (young age, low income, unmarried relationship status, non-heterosexual sexual orientation, particularly bisexual, part-time employment, and living in a city) were identified, along with six pandemic-related factors (not engaging in protective COVID-19 behaviours, receiving medication and/or psychotherapy for mental health due to the pandemic, socializing during the pandemic, job loss due to COVID-19, having a friend during COVID-19, and having had an encounter with COVID-19).^[6]

Initial studies investigating the pandemic's impact on suicide rates reported heterogeneous results, with some even noting decreases in pandemic-related suicides. However, there has been an increase in monthly data, particularly after the second wave, and among vulnerable subgroups such as women and adolescents. It has been noted that the long-term effects of the pandemic need to be investigated.^[10] Therefore, to clarify the relationship between the pandemic and suicidal behaviour, there is a need for more longitudinal studies focusing on these vulnerable populations.

In the study, we conducted a cross-sectional analysis of suicide attempts that were observed in our clinic during the pre-pandemic and pandemic periods, considering sociodemographic and other variables. We were able to examine the effects of specific pandemic stressors, which we hypothesised as predictors, on suicide attempts from both demographic and forensic perspectives.

MATERIALS AND METHODS

Study design

During the COVID-19 pandemic, healthcare services and testing were provided by the government across the country. Private healthcare institutions continued operating, offering additional options. Although layoffs

in the private sector were temporarily banned during the pandemic, unemployment rates gradually increased due to bankruptcies and job terminations.

The government also took necessary precautions in public areas to minimise the impact of the COVID-19 outbreak in both Türkiye and Antalya. Social interactions were minimized, and educational facilities, preschools, cultural venues, sports and entertainment facilities, hotels, gastronomy establishments, and most stores were kept closed. However, most of these restrictions did not apply to foreign nationals and tourists. Education continued online and/or in a hybrid format for two years. When planning our study, we defined the period between March 2020, when these measures began, and June 2021, when most of the measures were lifted, as the pandemic period. A more extended pre-pandemic period was chosen to ensure a strong and reliable dataset for comparison. This prolonged duration enables a more thorough comprehension of the trends and patterns in suicide attempts prior to the commencement of the pandemic. By capturing a broader timeframe, it was aimed to account for potential seasonal and yearly variations that could influence suicide attempt rates.

The study was conducted in a prominent forensic medicine department in Antalya, which is known for receiving the highest number of forensic medical applications in the city, located within the Antalya Education and Research Hospital. The study included individuals with suicide attempts who were referred to the department between January 2018 and February 2020 (pre-pandemic period), as well as between March 2020 and June 2021 (pandemic period). Individuals with suicidal ideations (SI) without actual suicide attempts were excluded from the study. Data from the forensic reports of cases of suicide attempts (SA) were collected, recorded, and classified using a specific form developed by the researchers. While a clear differentiation between suicidal self-injury (SSI) and non-suicidal self-injury (NSSI) incidents could not be made, the total number of cases is provided in Table 1.

Injury severity assessment

The cases included in the study were classified into three different categories based on the severity of their injuries: mild, moderate, and severe. These categories were established according to guidelines designed and regularly updated by a panel of forensic medicine experts and utilized for determining the severity of any injury involved in criminal cases in Türkiye.^[16] According to these guidelines, injuries expected to resolve with simple medical intervention were classified as mild, injuries requiring more than simple medical intervention but do not result in any impairment or loss of organs or sensory

functions classified as moderate, and injuries leading to impairment or loss of any organ or sensory function were classified as severe.

Data analysis

The statistical analysis was conducted using IBM SPSS version 23 (IBM, Armonk, NY, USA). The results were reported as numbers and percentages (n, %) or as mean \pm standard deviation. The normal distribution of the numerical variable (age) was assessed using the Kolmogorov–Smirnov test. As the variable was found to be not normally distributed, the Mann–Whitney U test was employed. The Chi-square test was used to compare the percentages of categorical variables between the groups.

Ethical approval

The study was conducted in accordance with the Helsinki Declaration, and ethical approval was obtained from the Antalya Education and Research Hospital Ethics Committee of the Health Sciences University under the date and decision number: 18.05.2022 and 10/3.

RESULTS

During the pre-pandemic period, 1,026 suicide attempts were recorded out of a total of 28,084 cases, while during the pandemic period, 698 suicide attempts were recorded out of 23,401 cases. The difference between the frequencies was statistically significant ($\chi^2(1) = 17.734, P < 0.001$).

The median age was 29 (Q1 = 20, Q3 = 42, IQR = 22) during the pre-pandemic period and 25 (Q1 = 19, Q3 = 37, IQR = 18) during the pandemic period. There was a statistically significant difference in the median

age between the pre-pandemic and pandemic periods ($z = -5.420, P < 0.001$). The majority of the cases were in the 18-34 years group in both study periods. When examining the impact of the pandemic on different age groups (subgroup analysis), an increase in suicide attempts rates was found during the pandemic period among adolescents (<18 years) and young adults (18-35 years), while a decrease in suicide attempts was observed among adults over 35 years old and the elderly ($\chi^2(3) = 44.999, P < 0.001$).

Regarding the gender distribution of the total suicide attempt cases, they were classified as follows: female (58%), male (41.2%), and LGBT+ individuals (0.8%). The difference in distribution of gender between the pre-pandemic and pandemic periods was found to be statistically significant ($\chi^2(2) = 6.804, P = 0.033$). Furthermore, a statistically significant reduction was identified in the rate of suicide attempts among foreign nationals during the pandemic period ($\chi^2(1) = 21.298, P < 0.001$).

It is evident that the pandemic had an impact on methods used in suicide attempts, which was confirmed by statistical tests ($\chi^2(10) = 41.299, P < 0.001$). Suicide attempts involving prescription medications remained the most common method in both periods, but there was a statistically significantly higher incidence during the pandemic period (60.4% vs. 66.9%). Conversely, there was a statistically significant decrease in suicide attempts involving dry (5.7% vs. 1.9%), corrosive (3.1% vs. 1.3%), and liquid (2.8% vs. 1.3%) chemical substances. Although not statistically significant, the use of hanging as a method showed an increase during the pandemic period, while there were non-significant decreases in the rates of gas usage and self-mutilation wounds. Details of suicide methods are shown in Table 2.

During the pandemic period, 40.2% (n = 412) of the cases had been previously diagnosed with a mental health disorder, in contrast to 24.6% (n = 172) in the pandemic period. This difference between the two study periods were statistically significant ($\chi^2(1) = 44.635, P < 0.001$).

The impact of the pandemic could also be observed in the levels of consciousness of the cases when they were brought to the healthcare centre. Categorizing the patients' levels of consciousness based on the literature revealed that the majority of cases during both the pandemic period and pre-pandemic period had a conscious state in which they could respond to all stimuli. However, a statistically significant increase in conscious state was also observed in pandemic period ($\chi^2(3) = 69.244, P < 0.001$). Similarly, when categorising the injuries of the cases according to

Table 1: Demographic distribution of the cases in two different study periods

	Pre-pandemic n (%)	Pandemic n (%)	Chi-square value	P
Age Groups			44.999	<0.001
<18 years	169 (16.5) ^a	164 (23.5) ^b		
18-34 years	447 (43.6) ^a	345 (49.4) ^b		
35-54 years	305 (29.7) ^a	165 (23.6) ^b		
≥55 years	105 (10.2) ^a	24 (3.4) ^b		
Gender			6.804	0.033
Female	587 (57.2) ^a	413 (59.2) ^a		
Male	426 (41.5) ^a	284 (40.7) ^a		
LGBT+	13 (1.3) ^a	1 (0.1) ^b		
Nationality			21.298	<0.001
Turkish	948 (92.4) ^a	681 (97.6) ^b		
Foreign	78 (7.6) ^a	17 (2.4) ^b		
Total	1026 (100)	698 (100)		

*Each superscript letter indicates proportions that do not differ significantly from each other between columns at the 0.05 level

Table 2: The used methods in suicide attempts in both study periods

	Pre-pandemic <i>n</i> (%)	Pandemic <i>n</i> (%)	Chi-square value	<i>P</i>
Drug overdose	620 (60.4) ^a	467 (66.9) ^b	41.299	<0.001
Hanging	30 (2.9) ^a	23 (3.3) ^a		
Complex	21 (2) ^a	35 (5) ^b		
Dry chemical (pesticide, rat poison)	58 (5.7) ^a	13 (1.9) ^b		
Corrosive substance	32 (3.1) ^a	9 (1.3) ^b		
Liquid chemical (bleach, alcohol, etc.)	29 (2.8) ^a	9 (1.3) ^b		
Self-mutilation cuts	99 (9.6) ^a	60 (8.6) ^a		
Firearm	45 (4.4) ^a	32 (4.6) ^a		
Gas	22 (2.1) ^a	11 (1.6) ^a		
Jumping from height	34 (3.3) ^a	18 (2.6) ^a		
Other (traffic accident, burn)	36 (3.5) ^a	21 (3) ^a		
Total	1026 (100)	698 (100)		

*Each superscript letter indicates proportions that do not differ significantly from each other between columns at the 0.05 level

Table 3: The levels of consciousness, severity of injuries, and the treatment methods of the cases

	Pre-pandemic <i>n</i> (%)	Pandemic <i>n</i> (%)	Chi-square value	<i>P</i>
Level of Consciousness			69.244	<0.001
Responsive to all stimulus	717 (69.9) ^a	601 (86.1) ^b		
Responsive to verbal and pain stimulus	155 (15.1) ^a	41 (5.9) ^b		
Only responsive to pain stimulus	96 (9.4) ^a	47 (6.7) ^b		
Unresponsive	58 (5.7) ^a	9 (1.3) ^b		
Severity of Injuries			25.858	<0.001
Mild	493 (48.1) ^a	393 (56.3) ^b		
Moderate	437 (42.6) ^a	280 (40.1) ^a		
Severe	96 (9.4) ^a	25 (3.6) ^b		
Treatment method			28.540	<0.001
Outpatient	504 (49.1) ^a	434 (62.2) ^b		
Inpatient	522 (50.9) ^a	264 (37.8) ^b		
Total	1026 (100)	698 (100)		

*Each superscript letter indicates proportions that do not differ significantly from each other between columns at the 0.05 level

their severity, a statistically significant difference between the pandemic and pre-pandemic periods was detected ($\chi^2(2) = 25.858$, $P < 0.001$). According to the statistical test results, during the pandemic period, mild injuries were significantly more frequent compared to the pre-pandemic period, while severe injuries were significantly less frequent. No significant difference was observed in the frequency of moderate injuries. During the pandemic period, a higher proportion of suicide attempt cases were followed up at home after initial intervention, and the hospitalization rate was lower compared to the pre-pandemic period ($\chi^2(1) = 28.540$, $P < 0.001$). The levels of consciousness, severity of injuries, and the treatment methods of the cases are detailed in Table 3.

DISCUSSION

Our study results have shown that the rate of suicide attempts during the pandemic was unexpectedly lower compared to the pre-pandemic period. Previous studies have suggested that during the COVID-19 pandemic,

factors such as social isolation, economic stress, fear of infection, and uncertainty about the future could contribute to an increased suicide risk.^[14,15] A study analysing data collected during the early months of the pandemic from 21 countries, except for three countries (Austria-Vienna, Puerto Rico, Japan), reported no increase in suicide numbers as expected.^[17] However, it has been noted that increases were reported in the later stages of the pandemic, emphasising the need for further studies on this topic.^[9] The reduction in suicide attempts observed in our study may be attributed to lower daily stress levels during stay-at-home periods and a sense of shared experience globally.

A study conducted in Germany over a 5-year period, which included the pre-pandemic and pandemic periods, found that the COVID-19 pandemic and related measures did not significantly impact the frequency of suicide attempts. However, it was determined that the pandemic and these measures did affect the dynamics and patterns of suicidal behaviour to a significant extent.^[10] This study highlights the importance of examining other

dynamics associated with suicidal behaviour, even if limited in scope.

The finding of a lower average age during the pandemic period in the study, as well as the observed increase in suicide attempt rates among adolescents and young adults in subgroup analysis, is quite noteworthy. Furthermore, supporting this, a survey conducted in the USA in 2022 identified young age as one of the risk factors for suicide during the pandemic period.^[6] Bridge *et al.*^[18] designed a cross-sectional study in which the US national suicide data from 2015 to 2020 for youth aged between 5 and 24 were analysed and found a significant increase in overall observed youth suicide numbers compared to expected numbers. The reason for increased youth suicide during the pandemic, reported multiple times in the literature, may stem from increased mental issues due to prolonged social isolation.^[18] Therefore, precautions to ensure free and accessible mental health support, especially for the young, should be implemented in future pandemics to reduce youth suicide rates.

A statistically significant slight increase in the frequency of suicide attempts among women was observed in our study. Similar findings have been reported in the literature, suggesting that gender-based etiological factors contribute to a higher number of suicide attempts among women.^[4,5] Furthermore, although our study found an increase among LGBT + individuals, the low representation of LGBT + individuals in our sample affects our ability to make definitive conclusions. It is important for each society to conduct gender-based studies, especially in matters related to public health, to analyse and address these trends effectively.^[19]

The nonpharmaceutical interventions taken during the pandemic varied across the period and between cities in the country. To summarize these interventions^[20], the first COVID-19 cases in Turkey were identified on March 11, 2020. Initial measures included suspending education on March 16, declaring curfews for those over 65 years old on March 20, and restricting intercity travel in 30 big cities, including Antalya, on April 3. By May, a phased normalization began, with the reopening of barbers, shopping malls, and other public venues. Over the summer, further easing occurred, but by November, as the number of cases increased dramatically, weekend curfews were reinstated, and dining venues were once again limited to takeaway services. From December 1, stricter curfews were implemented, extending to weekends and weekdays. By March 2021, a localized decision-making phase was introduced, categorizing provinces by risk levels and adjusting restrictions accordingly. In April 2021, a partial lockdown was declared, followed by a full lockdown on April 29,

suspending education and reducing public transport capacity. Gradual normalization resumed on May 17, with curfews and limited service at public venues, transitioning to a second phase of gradual normalization from June 1, continuing specific guidelines for public spaces. These measures were only applicable to Turkish citizens. In order to protect tourism revenues and ensure the continuity of international tourism in the country, foreign tourists were exempt from these restrictions and measures. This decision was particularly noticeable in Antalya, one of the most popular destinations for foreign tourists. In the study, it was found that the suicide attempt rates among foreign nationals were significantly lower during the pandemic period compared to the pre-pandemic period. This can be attributed to several factors, such as the exemptions granted to foreign nationals from the aforementioned pandemic-related restrictions in Antalya and the accessibility of the city's tourism facilities to foreign nationals. This may allow them to break free from the social isolation that had been experienced by the local residents and therefore prevented further mental health deterioration.

The use of prescribed medications for suicide attempts remained the most common method in both periods, but there was a relative increase during the pandemic period. Other studies in literature report that self-poisoning by ingesting medication is a leading method in attempted suicides, likely due to factors such as ease of access to medications, the possibility of leaving a suicide note after ingestion, and the fact that it is a non-violent and relatively comfortable method of suicide.^[21] A significant decrease has been observed in suicide attempts involving the use of other chemical substances during pandemic period. This trend could be attributed to the challenges in access to these substances due to social restrictions and the scarcity of supplies (such as agricultural chemicals) due to production inadequacies.

A significant decrease was identified in the rates of individuals with a prior psychiatric disorder diagnosis attempting suicide during pandemic. This phenomenon is believed to be more a result of people's reluctance to pursue medical assistance to avoid catching COVID-19 or a restricted access to healthcare amenities, owing to factors like lockdown protocols. This decline is likely attributed to these circumstances rather than an actual decrease in the occurrence of psychiatric disorders, which means a decrease in the documented diagnosis rates.

Although the percentage of one-person households has increased year by year, the one-person household percentage in Turkey is still the lowest among the European Union countries and the USA.^[22] It is thought

that during the pandemic period, as all members of the household were in lockdown, suicide attempts were detected by relatives more quickly and at a milder clinical level, allowing for immediate intervention. This might have resulted in more responsive states of mind as well as less severe injuries.

Pandemic period investigations revealed that suicide attempts were more often monitored at home following initial intervention, and the rate of hospitalization was lower compared to the pre-pandemic period. Ahmadi *et al.*^[23] compared hospitalisation rates between pre-COVID-19 outbreak and pandemic periods for nine groups of diseases, including mental and behavioural disorders and found that, for all nine categories, the average monthly hospitalisation per 100,000 population decreased. Similar to findings of Ahmadi *et al.*, we interpreted our results as an impact of the pandemic on treatment plans as well.

In conclusion, the study aimed to investigate the impact of the COVID-19 pandemic on suicide attempts by analysing data from a prominent forensic medicine department in Antalya. The findings shed light on several key aspects related to suicide attempts during the pandemic period.

Overall, the study adds valuable insights into the complex interaction between the pandemic and suicide attempts. It highlights the need for more nuanced approaches to suicide prevention, considering factors such as age, gender, and household dynamics. The findings emphasize the importance of addressing mental health needs within vulnerable groups, such as adolescents and young adults, during future crises, and suggest that longitudinal multi-centre studies are necessary to fully understand the longer-term effects of the pandemic on suicide behaviour.

Limitations

Our study is subject to limitations typical of a retrospective design. For example, being retrospective, the study cannot establish causality. It can only identify associations and trends. Additionally, the fact that the data come from a single centre in a single city limits the generalisability. The absence of certain socio-demographic data such as marital status, educational level, and triggering stressors, which could also be risk factors for recurrent suicidal behaviours, as well as the lack of information on comorbidities, constitutes further constraints of the study.

Another limitation of our study is the non-differentiation between suicide attempts and NSSI. There is often a significant overlap in the presentation of suicide attempts and NSSI. Furthermore, some individuals

may not disclose their true intentions, thus leading to misclassification. Therefore, it can be challenging to distinguish between the two based on available data.

Ethical statement

The study was conducted in accordance with the Helsinki Declaration, and ethical approval was obtained from the Antalya Education and Research Ethics Committee of the Health Sciences University under the date and decision number: 18.05.2022 and 10/3.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. World Health Organization. Preventing suicide: A resource for filmmakers and others working on stage and screen. 2019. Available from: <https://www.who.int/publications/i/item/preventing-suicide-a-resource-for-filmmakers-and-others-working-on-stage-and-screen>. [Last accessed on 2024 Jan 03].
2. World Health Organization. Suicide worldwide in 2019: Global health estimates. 2021. Available from: <https://www.who.int/publications/i/item/9789240026643>. [Last accessed on 2024 Jan 03].
3. Cengisiz C, Tamam L, Dizdar G, Paşaoğlu E, Yılmaz E. Comparison of suicidal tendencies before and during the COVID-19 pandemic in a city in the western region of Turkey. *Cukurova Med J* 2022;47:1095-104.
4. Appleby L. What has been the effect of covid-19 on suicide rates? *BMJ* 2021;372:n834. doi: 10.1136/bmj.n834.
5. Turkish Statistical Institute. Death and Cause of Death Statistics, 2019. 2020. Available from: <https://data.tuik.gov.tr/Bulten/Index?p=Death-and-Causes-of-Death-Statistics-2019-33710>. [Last accessed on 2024 Jan 03].
6. Dolsen EA, Nishimi K, LeWinn KZ, Byers AL, Tripp P, Woodward E, *et al.* Identifying correlates of suicide ideation during the COVID-19 pandemic: A cross-sectional analysis of 148 sociodemographic and pandemic-specific factors. *J Psychiatr Res* 2022;156:186-93.
7. Nicholas A, Krysinska K, King KE. A rapid review to determine the suicide risk and risk factors of men who are survivors of sexual assault. *Psychiatry Res* 2022;317:114847. doi: 10.1016/j.psychres.2022.114847.
8. Czymara CS, Langenkamp A, Cano T. Cause for concerns: Gender inequality in experiencing the COVID-19 lockdown in Germany. *Eur Soc* 2021;23(Suppl 1):S68-81.
9. Gerstner RM, Narváez F, Leske S, Troya MI, Analuisa-Aguilar P, Spittal MJ, *et al.* Police-reported suicides during the first 16 months of the COVID-19 pandemic in Ecuador: A time-series analysis of trends and risk factors until June 2021. *Lancet Reg Health Am* 2022;14:100324. doi: 10.1016/j.lana.2022.100324.
10. Kastner UW, Javaheripour N, Arand J, Schönherr D, Sobanski T, Fehler SW, *et al.* Effects of the COVID-19 pandemic on suicide attempts in a rural region in Germany, a 5-year observational study. *J Affect Disord* 2022;318:393-9.
11. Mamun MA, Ullah I. COVID-19 suicides in Pakistan, dying off not COVID-19 fear but poverty?-The forthcoming economic challenges for a developing country. *Brain Behav Immun* 2020;87:163-6.

12. Na PJ, Tsai J, Hill ML, Nichter B, Norman SB, Southwick SM, *et al.* Prevalence, risk and protective factors associated with suicidal ideation during the COVID-19 pandemic in U.S. military veterans with pre-existing psychiatric conditions. *J Psychiatr Res* 2021;137:351-9.
13. Thakur A. Mental health in high school students at the time of COVID-19: A student's perspective. *J Am Acad Child Adolesc Psychiatry* 2020;59:1309-10.
14. Reger MA, Stanley IH, Joiner TE. Suicide mortality and coronavirus disease 2019-A perfect storm? *JAMA Psychiatry* 2020;77:1093-4.
15. Yao H, Chen JH, Xu YF. Patients with mental health disorders in the COVID-19 epidemic. *Lancet Psychiatry* 2020;7:e21.
16. Balçı Y, Çolak B, Gürpınar K, Anolay NN, editors. Guide for the Forensic Evaluation of Assault Crimes Defined in the Turkish Penal Code [in Turkish]. Turkish Council of Forensic Medicine; 2019. Available from: <https://www.atk.gov.tr/tckyralama24-06-19.pdf>. [Last accessed on 2024 Jul 27].
17. Pirkis J, John A, Shin S, DelPozo-Banos M, Arya V, Analuisa-Aguilar P, *et al.* Suicide trends in the early months of the COVID-19 pandemic: An interrupted time-series analysis of preliminary data from 21 countries. *Lancet Psychiatry* 2021;8:579-88.
18. Bridge JA, Ruch DA, Sheftall AH, Hahm HC, O'Keefe VM, Fontanella CA, *et al.* Youth suicide during the first year of the COVID-19 pandemic. *Pediatrics* 2023;151:e2022058375. doi: 10.1542/peds.2022-058375.
19. Adelson SL; American Academy of Child and Adolescent Psychiatry (AACAP) Committee on Quality Issues (CQI). Practice parameter on gay, lesbian, or bisexual sexual orientation, gender nonconformity, and gender discordance in children and adolescents. *J Am Acad Child Adolesc Psychiatry* 2012;51:957-74.
20. İlhan MN, Tüzün H, Kiliç R, Yildirim N. Nonpharmaceutical interventions in Turkey and worldwide during COVID-19 pandemic. *Turk J Med Sci* 2021;51:3207-14.
21. Kim B, Ahn JH, Cha B, Chung YC, Ha TH, Hong Jeong S, *et al.* Characteristics of methods of suicide attempts in Korea: Korea National Suicide Survey (KNSS). *J Affect Disord* 2015;188:218-25.
22. United Nations Economic Commission for Europe. Proportion of one person households in all households. United Nations Economic Commission for Europe; 2020. Available from: <https://w3.unece.org/PXWeb/en/Table?IndicatorCode=318>. [Last accessed on 2024 Jul 27].
23. Ahmadi S, Kazemi-Karyani A, Badiie N, Byford S, Mohammadi A, Piroozi B, *et al.* The impact of COVID-19 pandemic on hospital admissions for nine diseases in Iran: Insight from an interrupted time series analysis. *Cost Eff Resour Alloc* 2022;20:58. doi: 10.1186/s12962-022-00394-9.