

Evaluating the relationship between COVID-19 and suicide deaths in Türkiye

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Abstract

Background: The effects of the COVID-19 pandemic on other aspects of public health and social life are still being studied globally.

Aim: To determine the relationship between COVID-19 and suicide deaths in Türkiye.

Methods: This retrospective, descriptive study collected and analysed suicide data for 2019–2023 from the Turkish Statistical Institute to evaluate the causes of the suicide deaths. Chi-square test was used to evaluate the statistical significance of the observed differences. $P < 0.05$ was considered statistically significant.

Results: Between 2019 and 2023, a total of 19 659 suicide deaths were documented in Türkiye. The number of suicides increased during the period, with the highest increases recorded in 2019/2020 and 2020/2021. The majority of the cases (76.4% of all cases, $P < 0.001$) were men. Reasons given for the suicide were illness, family incompatibility, economic problems, business failure, emotional relationship and not marrying the desired person, educational failure, and others.

Conclusion: Fear, social isolation, the prevailing situation, and measures taken to control COVID-19 may have contributed to the increases in suicide deaths during the peak pandemic period in Türkiye. There is a need for strategies to help prevent suicide deaths during health emergencies and pandemics.

Keywords: COVID 19, suicide, pandemic, health emergency, Türkiye

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Introduction

The world has been dealing with pandemics such as plague, cholera, influenza, smallpox, etc. for millennia, and recently the first pandemic of the 21st Century, COVID-19 (1,2). The first case in Türkiye was reported on 11 March 2020, the day COVID-19 was declared a pandemic by WHO. The first curfew restrictions in Türkiye started on 10 April 2020 and was followed by a period of controlled normalization from 2 March 2021, and a return to normal life on 1 July 2021 (3).

In 2019, the fear of contracting the virus; lack of personal protective and basic medical equipment; physical distancing and isolation due to quarantine; job loss; the social stigmatization of those who had become ill (4,5); as well as the startling, inaccurate and potentially frightening information about COVID-19 in the media, impacted people's lives and may have been the cause of suicide for some individuals (6,7). The different country-specific socioeconomic environments and the existence of government measures to prevent the spread of the virus may also have had an impact on the number of suicides (8–10). The global spread of infectious diseases can affect not only disease-related deaths but may also exacerbate the burden of disease and the number of suicides (3,6). At the beginning of the pandemic period, suicide rates did not spike, and research findings showed no

significant increase in risk of suicide in any country or area. As the pandemic persisted, however, death rates and number of suicide attempts increased in some countries (7,11–13).

The WHO estimates that deaths from suicide will exceed one million worldwide by 2030, indicating a serious social problem, particularly because it is projected that 73% of suicides will occur in low- and middle-income countries (14). Causes of suicide may be political, social, cultural or economic, as well as epidemics (11,15) and personal problems related to depression, anxiety, alcohol and drugs. There may also be multifactorial causes such as childhood trauma, family discord, domestic violence, divorce, forced marriage, unemployment (16), job and school competition, education level (12), other forms of violence or disruption such as natural disasters or conflict, forced migration; personal family difficulties or losses; chronic illness (7) and poor access to health services.

Suicide, which is influenced by cultural, biological, psychological, social and environmental factors that exist throughout the life course, has received much greater prominence during the pandemic (14). It is thought that the COVID-19 pandemic, unlike previous pandemics, resulted in lockdowns, preventive measures taken at the international level, and the repercussions on economic and social life, which

cannot be easily forgotten. It is especially important to evaluate suicides, which are affected by clinical, psychologic, cultural, social and environmental factors (17), especially during COVID-19, as a public health issue that has intensified worldwide.

Considering the strict quarantine processes and curfews that were implemented in Türkiye during 2020–2021 to prevent the spread of COVID-19, this study was designed to determine the effects of this situation on the number of suicides and to investigate any differences between males and females. For the first time, the association between COVID-19 pandemic and cause of suicide in Türkiye was explored. Because regular analyses of mortality statistics are useful for public health evaluation, an understanding of the impact of the pandemic on suicide could be valuable in designing appropriate mental health programmes and tailoring responses to future pandemics.

Methods

This retrospective descriptive study, conducted via online research, used TURKSTAT data on “suicide by cause and sex” in Türkiye between 2019 and 2023 (13). TURKSTAT regularly publishes death statistics using data from the Central Population Administration System and the Ministry of Health Death Notification System. These data come from information gathered by the police, gendarmerie, the Ministry of Justice General Directorate of Prisons and Detention Houses and Presidency of General Staff, and suicide registers obtained from the death certificates, which report every suicide occurring in residential areas using a suicide statistics form (18). These forms contain information about the individual. In this study, the causes of suicide included illness, family incompatibility, economic problems, business failure, emotional relationships and not marrying the desired person, educational failure, other, and unknown reasons.

Data for all years were integrated into a single table using *Microsoft Office Excel*. Percentages for each recorded cause of suicide were calculated for each year between 2019 and 2023. Percentages for cause-specific suicide categorized by sex were also calculated. The number of suicides that occurred over the 5 years of our study according to the cause of suicide for both sexes was calculated using joinpoint regression software. The chi-square test was used to evaluate the statistical significance of the observed differences and $P < 0.05$ was considered statistically significant.

Ethics considerations

According to Turkish Statistical Law No. 5429 of 2005, reuse of data obtained from publications or databases within the scope of the official statistics portal is allowed without the need for any permission, provided that the source is appropriately acknowledged. The principles outlined in the Declaration of Helsinki were followed in this study. As the study is based on internet research,

using publicly available data, no ethics approval was required.

Results

Between 2019 and 2023, 19 659 suicides were recorded in Türkiye: 15 027 were men and 4 632 were women (Table 1). From 2019, the number of suicides increased, except in 2023, with a slight decrease from 2022. There were markedly more suicides among males than females for each year ($P < 0.001$) (Figures 1,2) (18).

The lowest number of suicides was reported in 2019, and the highest in 2022 (Table 1). Suicides showed the highest changes in increase between 2020–2021 and 2019–2020. Increase in suicides in 2020–2021 was driven by “other reasons” (38.4%) and “illness” (26.2%). The rate of change was 9.4% for “other reasons” and 4.7% for “illness”.

Changes in “other reasons” showed statistical significance for 2020–2021 ($P < 0.001$) and 2022–2023 ($P < 0.001$). When the change for “other reasons” was examined by linear regression, it was positively significant for 2020–2021 [unstandardized β 0.382; $P < 0.001$; variance inflation factor (VIF) 1.180; adjusted R^2 0.674].

Changes in terms of illness for 2020–2023, 2021–2023 and 2022–2023 were statistically significant ($P < 0.001$ for all). Increasing positive correlation (0.754 in 2020–2021, 0.784 in 2020–2022, and 0.872 in 2020–2023) was also statistically significant ($P < 0.001$). When this was evaluated by linear regression, positive significance was observed for illness as cause of suicide for 2020–2021 (unstandardized β 0.872; $P < 0.001$; VIF 1; R 0.754; adjusted R^2 0.674).

“Unknown reasons” as cause of suicide in 2020–2021 and 2021–2023 showed statistical significance ($P < 0.001$ for both). When this was evaluated by linear regression, 2021–2022 showed positive significance (unstandardized β 0.854; $P < 0.001$; VIF 1; adjusted R^2 0.348).

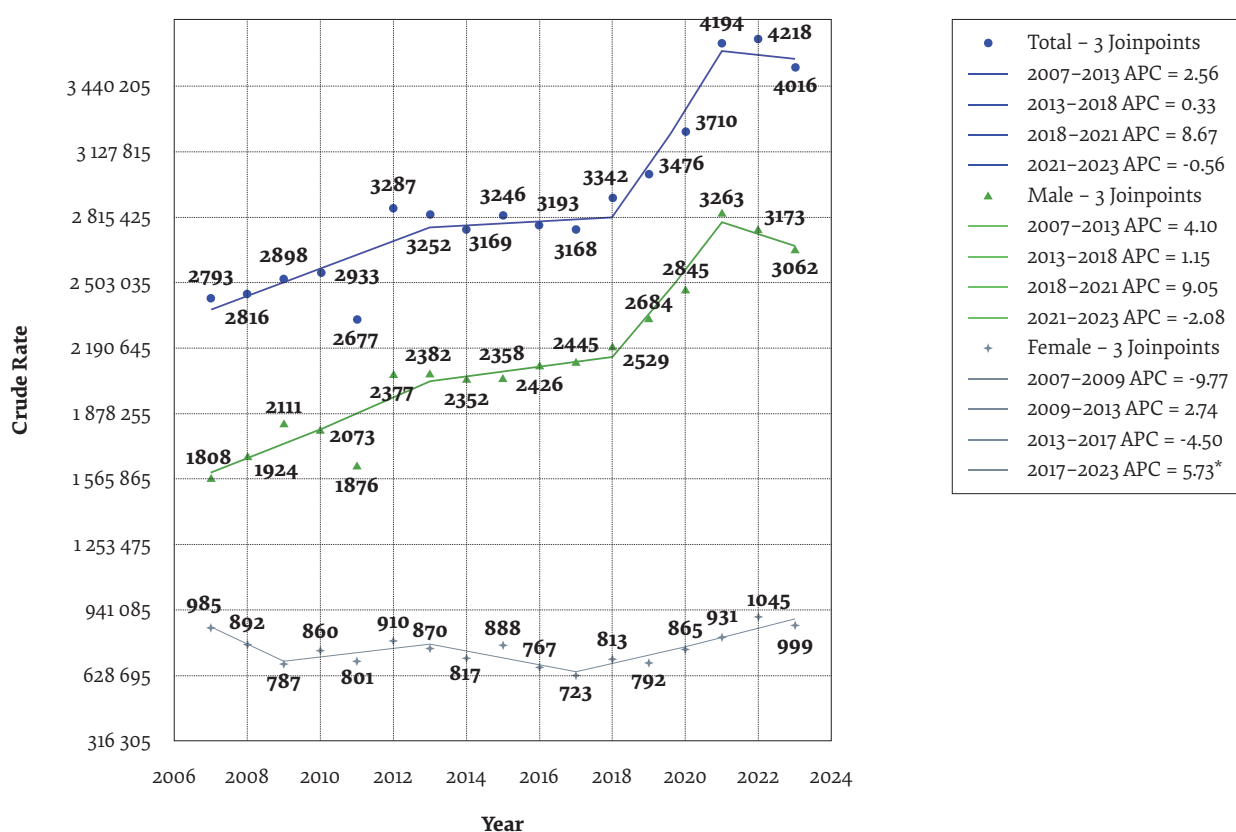
Discussion

Suicide rates vary globally: Lithuania and Russia (31 per 100 000 population), Guyana (29.2 per 100 000), Finland (11.7 per 100 000), Spain (5.9 per 100 000), and Italy (4.3 per 100 000) (14). The crude suicide rate in Türkiye is < 5 per 100 000 population: it was 4.21 in 2019, increasing slowly to 4.76 in 2023 (18), i.e. Türkiye is a country with a comparatively low suicide rate. The prevailing culture and religious beliefs in the country do not support suicide behaviour, and this may be a reason that the suicide rate is much lower than in many other countries.

It remains unclear whether the COVID-19 pandemic has had an impact on the number of suicides; measures to control COVID-19 such as physical distancing, economic lockdown or temporary reorganization of the health system, fear of infection, and social isolation, have been purported to increase suicide rates (10,11,19,20). Some studies suggest that economic recession, an increase in unemployment, and their effects on mental health have had an impact on suicide deaths (19,21–25).

Table 1. Suicide deaths in Türkiye by cause and sex, 2019–2023 (N = 19 659)

Year (No.)	Illness	Family incompatibility	Economic problems	Business failure	Emotional relationship and not marrying the desired person	Educational failure	Other	Unknown
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2023 (4061)								
Males (3062)	738 (24.1)	135 (4.4)	262 (8.6)	8 (0.3)	95 (3.1)	2 (0.1)	1005 (32.8)	817 (26.7)
Females (999)	334 (33.4)	51 (5.1)	16 (1.6)	–	13 (1.3)	2 (0.2)	265 (26.5)	318 (31.8)
2022 (4218)								
Males (3173)	774 (24.4)	135 (4.3)	281 (8.9)	4 (0.1)	87 (2.7)	9 (0.3)	1010 (31.8)	873 (27.5)
Females (1045)	336 (32.2)	52 (5.0)	19 (1.8)	1 (0.1)	22 (2.1)	3 (0.3)	289 (27.7)	323 (30.9)
2021 (4194)								
Males (3263)	786 (24.1)	148 (4.5)	310 (9.5)	5 (0.2)	79 (2.4)	5 (0.2)	1222 (37.5)	708 (21.7)
Females (931)	299 (32.1)	43 (4.6)	14 (1.5)	–	16 (1.7)	1 (0.1)	374 (40.2)	184 (19.8)
2020 (3710)								
Males (2845)	686 (24.1)	107 (3.8)	276 (9.7)	7 (0.2)	69 (2.4)	4 (0.1)	1091 (38.3)	605 (21.3)
Females (865)	287 (32.1)	29 (3.4)	13 (1.5)	–	25 (2.9)	3 (0.3)	334 (38.6)	174 (20.1)
2019 (3476)								
Males (2684)	520 (19.4)	97 (3.6)	305 (11.4)	7 (0.3)	67 (2.5)	4 (0.1)	761 (28.4)	923 (34.4)
Females (792)	227 (28.7)	30 (3.8)	14 (1.8)	–	24 (3.0)	2 (0.3)	248 (31.3)	247 (31.2)

Multiple Joinpoint Models Figure 1**Figure 1. Changes in number of suicide deaths in Türkiye, 2006–2024**

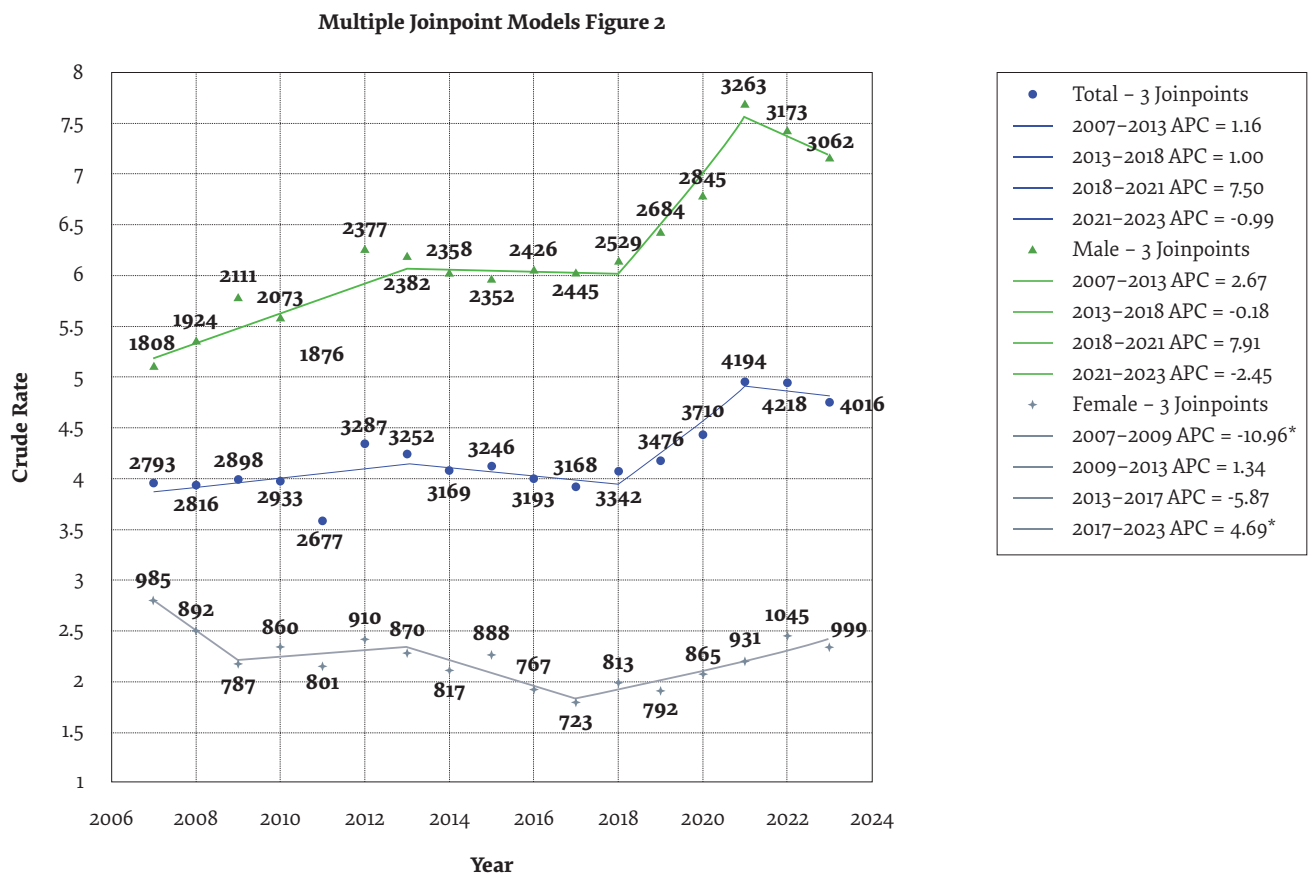


Figure 2. Crude suicide rates in Türkiye, 2006–2024

Disability-adjusted life-years (DALYs) are a useful metric for understanding the effects of the COVID-19 pandemic on population health because they capture the overall burden of disease by measuring how diseases and injuries reduce years of healthy living. The burden of COVID-19, as measured by DALYs, increased between 2020 and 2021 (26).

Our findings indicate that the increase in suicides in 2020 and 2021 can be attributed to the COVID-19, particularly fear due to the disease or due to economic stagnation. The rate of increase and the number of other reasons found in our study for 2022–2023 were lower than for 2020–2021. There is no separate COVID-19-related suicide category in the Turkish data. Thus, our findings are consistent with the suicide data showing statistical significance during the COVID-19 and with the data of other studies highlighting the increase; as well as with global increases in age-standardised all-cause rates for DALYs during the COVID-19 pandemic (26).

Our study indicates a possible difference between males and females regarding the effects of the pandemic on suicides. The higher proportion among males is consistent with data from non-pandemic and pandemic periods (7,12,20,25). Also, in 2021 the age-standardised DALYs rates were higher for males than for females. The incidence of COVID-19 and the DALYs rates were greater in locations with low sociodemographic index

(26). However, some studies have indicated that suicide is more likely to occur among females due to their high vulnerability to mental health challenges (20,25). The critical point in suicide, which is a preventable phenomenon, is the protection of the person.

The statistically significant increase in the prevalence of suicide due to illness during the COVID-19 pandemic is important because this is not considered to be surprising since the mental health of people who are ill may be affected and they may also exhibit conditions such as depression and anxiety. Any fear they have of COVID-19 would be an addition to this. In 2021, COVID-19 was the leading cause of DALYs globally, and between 2010 and 2021, among the 25 leading Level 3 causes, age-standardised DALY rates increased at a substantially greater rate for anxiety disorders, depressive disorders and diabetes. Healthy life expectancy decreased by 2.2% between 2019 and 2021 (26).

Misinformation through social media may have contributed to the situation because it can make people feel uneasy, and even frightened (7,12,25,27). It is important to remember that some people may have committed suicide after contracting COVID-19. A protracted period of stress/uncertainty, in this case 2 years, and a period of precautionary measures and curfews can leave people pessimistic and without hope, and some patients (with

any condition) may have had to contend with delays in their treatment as a consequence of such measures.

The slightly higher number of suicides in 2022 than 2023 also represents a post-COVID-19 impact due to the full lockdowns and quarantine-provoked economic hardship and impoverishment. Economic downsizing was reported throughout the world. In July 2021, steps were taken towards normalization, but economic recovery did not occur in parallel (27). However, difficulty in making a living did not show any statistical significance in this study. The statistically significant increase in “unknown causes” in 2022 may implicitly reflect a COVID-19 link to the recession since every 1% increase in unemployment correlated to a 0.79% increase in suicides (21). The increase in suicides of “unknown cause” in 2022 may attributed to COVID-19 survivors who lost loved ones and people who were affected by COVID-19, an increase that indicates a long-term outcome of the biopsychosocial impact of COVID-19 (7–9,26). Türkiye is considered a country where irregular migration is an everyday phenomenon, and this prolonged effect should also be evaluated in relation to the dynamics of migration (28).

Study limitations and strengths

This research had certain strengths and weaknesses. While the reliability of death certificates was questioned during the pandemic, this study included routinely provided suicide deaths data, which are reliable. However, the lack of access to data on personal illness, behavioural factors, psychiatric illness and personal suicidal thoughts prior to death by suicide constitutes a limitation.

Conclusion

This study revealed an increase in suicide deaths during the pandemic, but could not attribute them explicitly to COVID-19 due to the lack of data specifically referring to COVID-19. The effects may be attributed to fears, the economy, migration, and even the COVID-19 preventive measures. It is very important to consider inclusive, sustainable and less disruptive preventive measures during pandemics and health emergencies considering that people can be vulnerable to mental health challenges, which can sometimes lead to suicide.

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Competing interests: None.

Évaluation du lien entre la COVID-19 et les décès par suicide en Türkiye

Résumé

Contexte : Les effets de la pandémie de COVID-19 sur d'autres aspects de la santé publique et de la vie sociale font encore l'objet d'études à l'échelle mondiale.

Objectif : Déterminer le lien entre la COVID-19 et les décès par suicide en Türkiye.

Méthodes : La présente étude rétrospective descriptive a permis de recueillir et d'analyser les données sur le suicide pour la période 2019-2023 auprès de l'Institut statistique de Türkiye afin d'évaluer les causes des décès par suicide. Le test du chi-carré a été utilisé pour évaluer la signification statistique des différences observées. Une valeur p inférieure à 0,05 était considérée comme statistiquement significative.

Résultats : Entre 2019 et 2023, un total de 19 659 décès par suicide ont été recensés en Türkiye. Le nombre de suicides a augmenté au cours de la période susmentionnée, les mouvements les plus élevés ayant été enregistrés en 2019-2020 et 2020-2021. La majorité des cas (76,4 % de tous les cas, $p < 0,001$) étaient des hommes. Les raisons invoquées pour le suicide étaient la maladie, l'incompatibilité familiale, les problèmes économiques, l'échec professionnel, les relations affectives, l'échec éducatif et le fait de ne pas épouser la personne désirée, ainsi que d'autres motifs.

Conclusion : La peur, l'isolement social, la situation prévalente et les mesures prises pour lutter contre la COVID-19 pourraient avoir contribué à l'augmentation du nombre de décès par suicide pendant la période de pic de la pandémie en Türkiye. Il est nécessaire de mettre au point des stratégies pour prévenir les décès par suicide pendant les urgences sanitaires et les pandémies.

دراسة مقطعية لأهم عوامل خطر أمراض القلب والأوعية الدموية القابلة للتعديل في صفوف البالغين في المغرب

كريمة مهتدي، حنان الخالدي، حليلة لبرازي، أناس الكتاني، حسن التاكي، رشيد الصايل

الخلاصة

الخلفية: لا تزال آثار جائحة كوفيد-19 على جوانب أخرى للصحة العامة والحياة الاجتماعية قيد الدراسة على الصعيد العالمي.

الأهداف: هدفت هذه الدراسة إلى تحديد العلاقة بين كوفيد-19 والوفيات الناجمة عن الانتحار في تركيا.

طرق البحث: جمعت هذه الدراسة الوصفية الاسترجاعية بيانات الانتحار وحللتها للفترة بين 2019-2023 من المعهد الإحصائي التركي لتقييم أسباب الوفيات الناجمة عن الانتحار. واستُخدم اختبار مربع كاي لتقييم الدلالة الإحصائية للاختلافات المرصودة. وقد عُدت قيمة الاحتمال > 0.05 ذات دلالة إحصائية.

النتائج: في الفترة بين عامي 2019 و2023، سُجِّل ما مجموعه 19659 وفاة ناجمة عن الانتحار في تركيا. وارتفع عدد حالات الانتحار خلال هذه الفترة، وسُجِّلَت أعلى زيادات في الشناتين 2020/2019 و2021/2020. وكانت غالبية الحالات من الرجال (76.4% من بين جميع الحالات؛ قيمة الاحتمال > 0.001). وجاء من بين أسباب الانتحار الاعتلال، وغياب التوافق الأسري، والمشاكل الاقتصادية، وفشل الأعمال، والعلاقة العاطفية وعدم الزواج من الشخص المراد الارتباط به، والفشل في التعليم، وغيرها.

الاستنتاجات: ربما ساهم كلٌّ من الخوف والعزلة الاجتماعية والوضع السائد والتدابير المتخذة لمكافحة كوفيد-19 في زيادة الوفيات الناجمة عن الانتحار خلال ذروة فترة الجائحة في تركيا. وهناك حاجة إلى استراتيجيات للوقاية من الوفيات الناجمة عن الانتحار أثناء الطوارئ الصحية والجوائح.

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