Short Communication

Epidemiological Features and Trends of Suicide Deaths in Babylon Governorate, Iraq

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Abstract

Recently, the prevalence of suicide has increased in Iraq, especially in the younger populations. The recent trends of suicide have been nationally concerning. This study was carried out to investigate the sociodemographical features and trends of completed suicide cases over the past 7 years. Suicide mortality data were extracted from the records of medicolegal directorate of Babylon governorate. Data included demographical data of completed suicide cases and were analyzed using Statistical Package for Social Sciences (SPSS) version 26. Time series analysis was performed on official data regarding the suicide death rates over a 7-year period (2015–2022) in Babylon. Ethical standards were considered throughout the study. This study included 169 documented cases of complete suicide over the past 7 years. The Mean age was found to be 24.28 (±11.13) years. Up to 45% of the total suicide deaths cases were less than 20-years old. Male-to-female ratio was 1.48:1. The most commonly used method of suicide was hanging (73.37%). And most suicide cases occurred in Hillah city. Suicide rates have highly increased lately. Being single, male gender, and young age were independent factors in this research.

Keywords: Epidemiology, Hillah, Iraq, suicide, trends

Introduction

Suicide is the deliberate act of bringing about one's own death,[1] according to the World Health Organization (WHO), over 800,000 people die by suicide each year.[2] Additionally, suicide has a significant emotional impact on the grieving loved ones.[3] Deaths from suicide may carry a higher risk of complex grief emotions and health issues for people bereaved by suicide than deaths from other causes. Those who have lost someone to suicide frequently struggle with emotions of guilt and humiliation, social stigma, rejection, and abandonment.[4-8] Therefore, it has been determined that a crucial public health goal and a universal imperative is to understand the factors that lead to suicide as well as the best methods for assessing, preventing, and treating suicidal behaviors.[9]

Suicide risk factors include a variety of psychiatric problems, such as depression, personality disorders, bipolar disorder, schizophrenia, drug misuse, and anxiety disorders.[10] Stress-related factors, such as financial and emotional difficulties, can lead to suicide. Suicidal attempts in the past are linked to a higher chance of suicide in the future.[11,12]

The highest rates of suicide are found in Europe, particularly in Eastern Europe, including Lithuania, Estonia, and Latvia, and to a lesser extent in nations like Finland, Russia, and Hungary. These statistics are true for both men and women. Each year, at least 60 million individuals are impacted by suicide attempts and suicide, with around 60% of suicides taking place in Asia. Due to a lack of resources, competing objectives, and health issues in many Asian nations, suicide and suicidal attempts have received less attention in Asia than in Europe and North America.[13] Suicide is typically underestimated since it is a delicate issue and is prohibited in many nations. Suicide

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may occasionally be mistakenly labeled as an accident or as other causes of death in nations with flawless recording. In affluent nations, men account for almost three times as many suicide deaths as women do; in poorer nations, the ratio is 1.5 men for every woman.[14,15]

Reported methods of suicide and self-harm include hanging, substance and drug abuse, burning, use of poison, self-cutting, jumping from bridges, poisoning, and firearms are considered the most popular methods used for suicide worldwide.[14-16]

As a universal intervention to stop suicide in the general population, awareness campaigns, and educational initiatives have been proposed to address this problem.[17,18]

Theoretical framework

it is understood that suicide is a complex public health problem that negatively affects sociocultural economical and psychological aspects of society. To the best of our knowledge, only a few studies have been performed in Iraq to identify the trends and correlates of this public health burden. Moreover, documented suicide data included insufficient information of suicide victims and misclassifications. Inadequate attention to suicide burden may lead to further complications. Therefore, improved quality of documented data is needed and time series analysis studies are required for formulating regional explanatory hypotheses and indirectly assessing the effectiveness of public policies.[19]

Aim of the study

The aim of this study was to study the sociodemographical data of suicide victims and identify the trends of suicide rates over the past 7 years in Babylon governorate.

Significance of the study

The particular significance of this study lies in raising awareness regarding suicide among health care providers and individuals by identifying the severity of suicide in Babylon governorate and the available epidemiological characteristics related to the suicide victims. To keep suicide rates under control, increasing attention to this matter in addition to multiple combinations of evidence-based strategies at the individual level and the population level should be adopted and performed to decrease the suicide rates nationwide.[20]

Materials and Methods

Study settings and design

A retrospective study was conducted to investigate the sociodemographical data of suicide cases and trends of suicide death rates in Babylon governorate. The study assessed documented suicide cases obtained from medicolegal directorate in Babylon governorate.

Sampling and data collection

A retrospective study was performed on documented suicide cases acquired from the forensics center in medicolegal directorate in Babylon. Total population sampling technique was used to collect 169 complete suicide cases over the period from 2015 to 2022.

Data analysis and procession

Excel 2016 was used to process and collect data. Statistical package of social sciences (SPSS) version 26 was used to analyze data. Chi-square test was performed to assess the significant difference between qualitative data. Independent *t* test was used to assess the significance of difference between quantitative data. ANOVA test was used to compare means of groups. Time series analysis was conducted on the rates of suicide cases to investigate the trends of suicide over the past 7 years.

Ethical considerations

Ethical approval was obtained from the ethical committees of Hillah University College and Hammurabi Medical College on February 20, 2023, in Hillah city. Ethical approval of the medicolegal directorate of Babylon governorate was also obtained on February 21, 2023. No personal data was shared or mentioned in the current study. All data included were anonymous and confidentiality was preserved to protect the privacy of collected data.

Results

Demographical data of the study sample

This study included 169 documented cases of complete suicide from January 2015 to the end of December 2022. The Mean age was found to be 24.28 (±11.13) years. Up to 45% of the total suicide deaths cases were less than 20-years old. The frequency of suicide deaths decreased as age increased. Only 1.8% of total suicide deaths was found within the age of 60 years and above. The male-to-female ratio was 1.48:1. A total of 59.8% of the suicide victims were male. Most of the suicide victims (60.9%) were single. There was a significant difference between groups ($P < 0.05$). Around 60.4% of the cases were either free workers or housewives. Up to 29% of the cases were students. A total of 8.3% of the cases were employees and 2.4% of the cases were retired. Most of the suicide (39.1%) cases were from Hillah city as seen in Table 1.

Table 2 shows that the mean age of male victims was significantly higher than that of females among suicide cases included in this study.

Methods of suicide

Regarding the distribution of suicide deaths according to suicide methods, hanging was the most commonly used method of suicide among the study group, which

accounted for 124 deaths (73.37%). While firearms were used by only 20 victims, representing (11.83%) cases. Burning was used by only 10 victims, which represented (5.92%), drowning was used by only four victims, which represented (2.37%) of the total cases, and poisoning method were used among seven cases (4.14%) [Figure 1]. Electrocution was chosen by only one male case (0.59%) and throat cut was also used by only one male victim (0.59%) [Table 3].

Trends of suicide rates

According to the year of suicide, we note that there were no statistically significant differences between the mean age of suicide deaths and the year of suicide ($F = 0.586$, $P = 0.767$). The highest mean age was during 2019 (27.24 ± 14.02 years), and the lowest mean age was reported in 2015 (20.3 ± 13.039 years) as seen in Table 4.

Table 1: Sociodemographic characteristics of the study sample

Characteristic	Parameter	Frequency (%)
Age groups	Mean, ± SD (years)	24.28 (11.13)
	<20 years	76 (45)
	20–29 years	54 (32)
	30–39 years	22 (13)
	40–49 years	8 (4.7)
	50–59 years	6 (3.6)
	Over 60 years	3 (1.8)
Gender	Male	101 (59.8)
	Female	68 (40.2)
Marital status	Single	103 (60.9)
	Married	66 (39.1)
Occupation	Free work	52 (30.8)
	Housewife	50 (29.6)
	Student	49 (29)
	Employee	14 (8.3)
	Retired	4 (2.4)
Residence	Hillah city	66 (39.1)
	Al-Qasim	7 (4.1)
	Al-Mussayab	21 (12.4)
	Al-Mahawil	15 (8.9)
	Al-Hashmiya	16 (9.5)
	Al-Kifil	8 (4.7)
	Diwaniya	1 (0.6)
	Basra	1 (0.6)

Discussion

Our retrospective study including 169 suicide deaths showed an increasing trend of suicide rates from 2015 to 2022. The suicide rate in 2022 was more than four times higher than the suicide rate in 2015 and more than 7-folds the suicide rate in 2016. Nearly half of these suicide victims (45%) were under 20 years of age. And around a third (32%) of the suicide victims were within the age group of 20–29 years. This indicates a higher suicidal behavior among younger population. A study conducted in Saudi Arabia showed repeated suicide attempts among younger populations especially between the ages of 10 and 24 years.[21] Our results were also similar to the results of another study conducted in Egypt where the majority of suicide attempts (81.8%) were between the ages of 15 and 18 years. Up to 60.9% of the suicide victims were single. Furthermore, suicide was the second leading cause of death among youth of 15–24 years of age in France.[22] Another study carried out on the suicide rates and attempts in Egypt found that 92% of suicide cases by poisoning were under the age of 25 years. However, the suicide attempts by poisoning among populations under 25 years of age constituted (47.4%) of the total suicide attempts by poisoning.[23] This can be due to lack of awareness, family disputes, academic stressors, work and financial problems, or psychological issues, or due to media.[24]

Regarding age, the mean age of male suicide victims was 26.87 (±13.169) years compared to that of females (20.44 ± 6.084 years), our study shows that the main suicide victims were males (59.8%). The male-to-female ratio was 1.48:1. This was similar to the results of an Iranian study

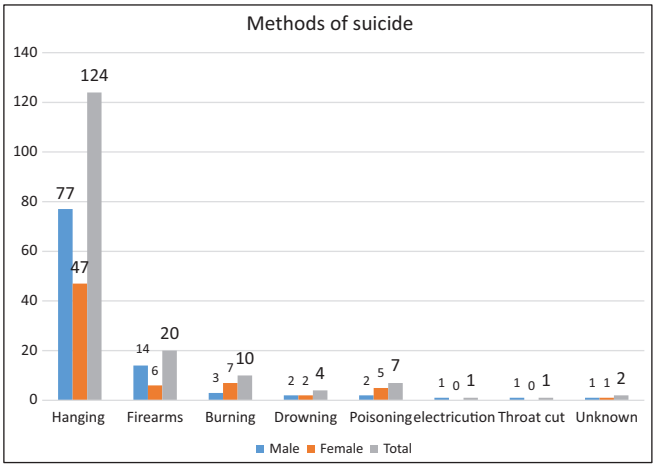

Figure 1: Distribution of suicide methods among the study group

Table 2: Age difference between male and female samples

Gender	*N*	df	Mean (SD)	*P*-value
Male	101	167	26.87 (13.169)	0.001[a]
Female	68		(6.084)	

[a]Independent *t* test

Table 3: Distribution of suicide methods by gender

Method	Frequency (%)		
	Male (*N* = 101)	Female (*N* = 68)	Total (*N* = 169)
Hanging	77 (76.24)	47 (69.12)	124 (73.37)
Firearm	14 (13.9)	6 (8.82)	20 (11.83)
Burning	3 (2.97)	7 (10.29)	10 (5.92)
Drowning	2 (1.98)	2 (2.94)	4 (2.37)
Poisoning	2 (1.98)	5 (7.35)	7 (4.14)
Electrocution	1 (0.99)	0	1 (0.59)
Throat cut	1 (0.99)	0	1 (0.59)
Unknown	1 (0.99)	1 (1.47)	2 (1.18)

Table 4: Mean age of suicide victims over the studied period

Year	Frequency	Mean age (± SD)	*F*	*P*-value
2015	10	20.3 (13.039)	0.586	0.767
2016	6	26.67 (17.5)		
2017	19	24.89 (10.88)		
2018	13	25.15 (10.1)		
2019	25	27.24 (14.02)		
2020	25	23.48 (10.599)		
2021	27	24.67 (11.79)		
2022	44	22.89 (9.05)		

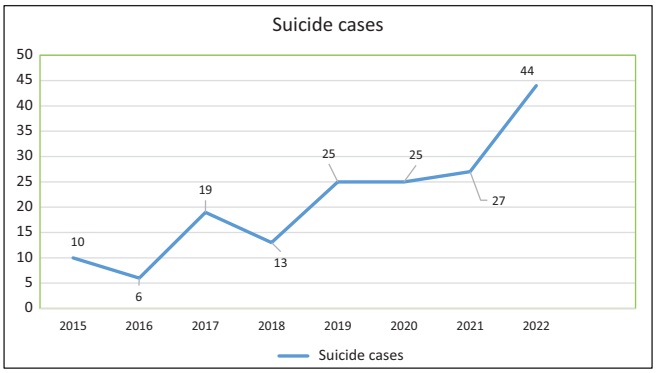

Figure 2: Trends of suicide cases over the period from 2015 to 2022

conducted on 7004 suicide deaths from 2006 to 2016. The study found that the male-to-female ratio was 1.55:1.[25] More studies demonstrated higher suicide rates among men yet more suicide attempts among women.[26,27]

Misclassification may also be a factor in the gender disparities in suicide mortality. Due to shame, stigma, or a lack of proof, suicide fatalities are frequently recorded as accidental or underdetermined.[28,29] The Egyptian study declared that 5% of suicide attempt causes were unknown.[23] This could be explained by the patients' family's propensity to downplay or ignore the suicide attempt. While evaluating and treating patients who do not have families. Thus, psychiatrists have additional challenges.[30]

Regarding methods of suicide used among victims, hanging was the most frequently used method of suicide accounting for 73.37% of the total cases. This agrees with the findings of a South Korean study which found that hanging was the most commonly used method of suicide,[31] in addition a study done in South Asia resulted that hanging was the most common method of suicide.[32] Also similar to the results of another study which found that hanging was the most commonly used method in complete suicide cases whereas drug poisoning was more common among suicide attempters.[33] Another study also revealed that hanging was the most frequently used method of suicide in seventeen Asian countries.[34] As well as in the Iranian study which also concluded that hanging was the most used method of suicide.[25] That can be due to the accessibility and availability of hanging materials moreover consideration of hanging as a clean, painless, and rapid method that is easily implemented.[35] According to the results of this study, female suicide victims tended to commit suicide by burning and poisoning more than men victims. Although our sample size was limited, the Egyptian study also showed that 79.6% of the cases attempting suicide by poisoning were females. The Egyptian study revealed that the most used substances in self-poisoning were pesticides and central nervous system depressants.[23] Differences between countries can be attributed to differences in socioeconomic conditions and access to medicines.[36]

The increase of suicide trends has been concerning lately in Iraq. According to WHO, completed suicide deaths have increased from 422 in 2017 to over 590 in 2019.[36] Our results reveal a concerning increase of suicide deaths after 2020 [Figure 2]. Due to the limitation of our study,

no spatiotemporal resolution was performed. Though the results show that most suicide victims were from Hillah city. An assumption can be made that this finding was related to higher population density. However, Various issues might have limited our study, our retrospective data were collected from one forensic center in which our findings may not generalize the results. Moreover, we have not included any clinical data. The available records were limited to little biographical data and there were no available records past 2015. Furthermore, two records included false gender classification.

Conclusion

Suicide trends have increased in a worrisome manner recently. This study spots light on the affected members of society showing more prevalent complete suicide rates among young male individuals. Suicidal behavior is a short-lived state of impulsiveness. This can be prevented by restricting access to means of suicide. The findings of this study are important to alert healthcare providers and community individuals of increasing suicide rates. Hence, more studies should be conducted on this topic and more attention should be paid to this burden.

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Conflicts of interest

There are no conflicts of interest.

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