

# Suicidal thoughts among sentenced adult male prison inmates of Sulaimani Campus of Prisoners

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## Abstract

**Background and objective:** Given the special environment of prisons, inmates usually undergo isolation, shame, distrust, hopelessness, and fear, leading to an increase in the rate of suicidal ideation and attempt. The present study was carried out to figure out the correlation between suicidal ideation and relevant variables among a population of prison inmates.

**Methods:** Using a case-control design, the present cross-sectional epidemiological study was carried out on 231 prisoners imprisoned in Chaksazi Gawran Prison in Sulaimani, the Kurdistan region of Iraq, from May 2016 to January 2017. The study also consisted of 231 individuals from the general population. The participants' suicidal ideation was assessed using the Beck Scale for Suicide Ideation, and their demographic data through a questionnaire, which was completed through face-to-face interviews. In order to compare the two groups, the collected data were analyzed through Social Sciences (SPSS version 21).

**Results:** The mean age of the prisoners and controls was respectively 34.35 and 37.87 years. The cases and controls were found to be significantly different regarding their suicide intent ( $p < 0.001$ ), previous suicide attempt ( $p = 0.0001$ ), family history of suicide ( $p = 0.007$ ), family history of mental illness ( $p = 0.0001$ ), chronic physical disease ( $p = 0.001$ ), and substance use ( $p = 0.0001$ ). Therefore, these factors were considered as risk factors for suicidal ideation and behavior. The type of crimes the prisoners had committed was not significantly correlated with their suicidal ideation ( $p = 0.12$ ), while the duration of their imprisonment was significantly correlated with their suicide ideation ( $p = 0.0001$ ).

**Conclusion:** The prison environment can intensify feelings such as hopelessness, loneliness, shame, and fear, which can, in turn, lead to an increase in suicide ideation. Prison inmates with a previous suicide attempt, family history of suicide, family history of mental illness, chronic physical disease, substance use, and long duration of their imprisonment are more likely to develop suicidal ideation and commit suicide; therefore, they need to be identified and provided with specialized psychiatric consultation.

## 1. Introduction

Suicide has been defined as one's intentional attempt to kill him/herself (Preti, 2006). Suicide consists of two important components: suicidal ideation (SI) and suicidal intent. SI is defined as the individual's thought to kill him/herself and believed to serve as a significant agent in one's death. Suicidal intent refers to the individual's subjective intent to commit suicide (Sadock et al., 2015). World health organization (WHO) has declared suicide as the third most common cause of death in

15 to 19 years aged teenagers, about 800 thousand individuals commit suicide. Moreover 79% of suicides are reported in low- and middle-income countries (World Health Organization, 2019). Certain researches have reported that Eastern European and Asian countries, particularly South Korea, have the highest rates of suicide, Muslim and Latin American counties have the lowest reported rates (Sorlie et al., 2015). Nevertheless, Asian countries have found a lack of systematic statistics system for suicide (Wu et al., 2012).

Several factors have been introduced that affect the initiation and completion of suicide, including hopelessness, socioeconomic changes, distress, mental illness, availability of lethal suicide methods, loss and a sense of isolation, and experiencing abuse, violence, disaster, conflict, or

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discrimination (Beck et al., 1990; Chang et al., 2011; Larney et al., 2012). Most of these factors are related to mental status; therefore, psychiatric professionals can play a vital role in diagnosing and preventing such suicidal behaviors and ideation (Jiao et al., 2014).

Compared with the general population, prisons have been reported with a three-time higher rate of suicide prevalence, such that suicide is the leading cause of death among prison inmates (Fazel et al., 2017). Suicidal ideation (SI), which plays a significant role in trying and completing suicide, is reported to be prevalent among prison inmates (Stefan et al., 2003). The prison environment is characterized by isolation, shame, lack of control, distrust, hopelessness, and fear, which all may lead to suicidal ideation and behavior (Ttripodi et al., 2007). Moreover, mental health, housing type, current cell duration, visits of relatives, and the prisoner's race have been referred to as the most important factors affecting suicidal behavior and ideation in prison (Larney et al., 2012; Way et al., 2013). Other risk factors have been mentioned as being white, single, male, and young (Gunter et al., 2013; Danial and Fleming, 2006).

Most studies have focused on identifying risk factors for suicide in prisons; however, research has shown having children belonging to Afro-American ethnicity, short sentence length, and having visited as protective factors (Gunter et al., 2011). Also, National Center on Institutions and Alternatives have identified six significant preventive policies, including suicide prevention policy, staff training, intake screening/assessment, housing, levels of supervision, and administrative and intervention review (Mills and Kroner, 2005).

The interpersonal theory of suicide has defined prison suicide as a basis for developing assessment, prevention, and intervention programs (Smith et al., 2013). The majority of prison suicide have been retrospective and mostly dependent on the prisoners' notes (Rivlin et al., 2012). Nevertheless, comprehensive clinical interview with prisoners often leads to disclosure of the subjective experiences in this regard (Knoll, 2010). For this reason, the present study is carried out to assess the prevalence of suicidal thoughts in inmate populations decipher how suicidal ideation is associated with the type of crime, sentence duration, and the prisoner's demographic characteristics.

## 2. Methods

### 2.1. Study design and setting

The present cross-sectional epidemiological

study with a case-control design was carried out on inmates imprisoned in Chaksazi Gawran Prison (CGP), the adult reformatory prison of Sulaimani, the Kurdistan region of Iraq, from May 2, 2016, to January 24, 2017.

### 2.2. Participants

According to the prison records' formal data in May 2016, 1,100 inmates were all males. Among that statistical population, a group of 231 prisoners was chosen as the case group. For this purpose, being sentenced for more than one year was considered as the inclusion criterion. The exclusion criteria were the age below 18 and sentence duration of less than one year. Another group of 231 males was chosen from the relatives of the prisoners as the control group. Both groups were selected randomly using an alphabetic list of the prisoners' names. The sample size was regulated employing the Decision Analyst STATS (version 2.0.0.2) by estimating a Maximum Acceptable Error of (5%), the Desired Confidence Level of (95%), and an Estimated Percentage Level of suicidal ideation among prisoners of (25%).

### 2.3. Data collection

Required demographic and medical data were collected using a questionnaire, leading to gathering data on age, gender, education, previous occupation, marital status, smoking, alcohol consumption, type of crime, sentence duration, chronic medical illness, family history regarding mental illness, and suicide, and onwards. The questionnaires were completed via face-to-face interviews, which were carried out in specialized visiting rooms to ensure confidentiality. Their suicidal ideation (SI) was examined employing the Beck Scale for Suicide Ideation (BSSI). The reliability of the scale was assessed via Cronbach's alpha coefficient and was highly acceptable ( $\alpha > 0.8$ ). Its validity was examined by conducting a pilot study on 12 cases, leading to some modifications. BSSI consisted of 21 items. The first 19 items aimed at evaluating suicidal ideation (SI) during the previous week and the last two items asked about past suicide attempts. The scale was scored based on a three-point scale ranging from 0 (no ideation) to 3 (strong ideation), producing a total score ranging from 0 to 38. Additionally, the severity of suicidal ideation was determined according to the total score (as 0 = no intent, 1-5 = low intent, 6-13 moderate intent, 14 and more = high intent) (Way et al., 2013).

### 2.4. Statistical analysis

The collected data were analyzed using Statistical Package for the Social Sciences (SPSS version 21.0 for Windows). In so doing, descriptive statistics were used to calculate the frequencies and percentages, and a Chi-square test was employed to examine the significance of the association between the studied variables and suicidal ideation. The level of statistical significance was set at  $p < 0.05$ .

### 2.5. Ethical considerations

To take ethical considerations into account, the study protocol was approved by the Scientific Research Units of Kurdistan Board for Medical Specialties (KBMS) (April 7th 2016, 128). Moreover, the inmates were informed about the purpose of the study and duration. They were also informed that their participation would not affect jail status or release date. In addition, verbal consent was obtained from each participant who were also given the right to withdraw from the study whenever they wanted.

### 3. Results

According to the collected demographic data, the mean age of the cases and controls was 34.35 and 37.87 years, respectively, and the two groups were not significantly different in this regard ( $p = 0.2$ ). However, the two groups were significantly different regarding their occupation ( $p < 0.001$ ) and residency ( $p = 0.004$ ) (See Table 1).

Comparing the data collected on the two groups' suicidal ideation through BSSI indicated that they were significantly different ( $p < 0.001$ ). It was seen that most of the controls (91.8%) had no suicide intent, while 58.9% of the control did not have such an intent, and the rest (41.1%) had suicidal ideation: low intent in 20.8%, moderate intent in 5.6%, and high intent in 14.7%. High, moderate, and low intent were seen respectively in 0.9%, 2.6%, and 4.8% of the controls (see Table 2).

Comparing the cases and controls revealed that they were significantly different regarding previous suicide attempts ( $p = 0.0001$ ), family history of suicide ( $p = 0.007$ ), family history of mental illness ( $p = 0.0001$ ), and chronic physical illness ( $p = 0.001$ ). All these variables had a higher frequency among the cases. Therefore, these factors can be considered as determinants of future suicide attempts among prisoners (See Table 3).

The results also indicated that the cases and controls were significantly different in terms of substance use ( $p = 0.0001$ ), such that most of the controls (72.3%) did not use any substances. While 38.1%, 32%, 9.5%, and 3% of the cases used poly-

substances, smoked, consumed alcohol, and used non-alcoholic substances. As a result, substance consumption is one factor affecting suicidal ideation among prisoners (See Table 4).

The results revealed no significant relationship between the prisoners' suicide intent and the type of crime they had committed (See Table 5).

According to the results, there was a significant correlation between the prison inmates' suicide intent and the duration of their sentence ( $p = 0.0001$ ), such that their suicide intent increased with an increase in their sentence duration (See Table 6).

### 4. Discussion

The current study was carried out in Chaksazi Gawran Prison (CGP) in Sulaimani, the Kurdistan region of Iraq, in order to figure out the prevalence of suicidal ideation (SI) among inmate prisoners and its associated variables. As revealed by the results, the prevalence of suicidal ideation was as high as 41.1% among the studied prisoners. This finding agrees with the study conducted in 15 prisons in Belgium by Favril et al. (2007), who reported that 43.1% of the prisoners had suicidal ideation. Similarly, Favril et al. (2017) reported suicidal ideation to be 44.4% among the prisoners in the Flanders region of Belgium. Schaefer et al. (2016) studied suicidal ideation in a United States jail and reported clinically significant SI upon incarceration among 16% of the jail inmates. Suicidal ideation has been reported to range from 2.6% to 16.3% among men in the general population (Kerr et al., 2008) which is in line with the present study results, which revealed SI was 8.3% among the controls. Similarly, Ibrahim et al. (2017) reported SI to be 14.89% among Malaysian youth aged 15-25. These slight differences can be attributed to the age difference of the participants in those studies.

According to the results of the present study, the cases and controls were significantly different regarding their previous suicide attempt; therefore, previous suicide attempts can be referred to as an effective factor in prison inmates' suicidal ideation. In agreement with this finding, Larney et al. (2012), who studied suicide attempts and suicidal ideation among prisoners in New South Wales, Australia showed a strong significant association between previous failed suicide attempts and suicidal ideation. This significant relation has also been reported by various studies among both jail inmates and general populations (Favril et al., 2007; Sepehrmanesh et al., 2014; Pandey et al., 2019).

Another factor that was found effective in increased suicidal ideation of the prison inmates

was their family history of suicide. This finding is in line with those of the study carried out by Jaramillo et al. (2015), who studied suicidal ideation and associated factors among Colombian jail inmates and reported positive family history of suicide as one of the significant factors determining suicidal ideation among prisoners. Lekka et al. (2006) also reported a significant relationship between suicidal ideation and family history of suicide among prisoners.

The results of the current study also revealed a significant difference between the cases and controls regarding family history of mental illness, such that a larger number of the prisoners had a positive family history of mental illness. Therefore, it can be concluded that prison inmates with a family history of mental illness are more prone to have suicidal ideation. This finding is in line with other previous studies carried out on both prisoners and general populations (Brent and Mann, 2005; Brent and Melhem, 2008). There are a large number of studies that have reported a significant association between the prisoners' mental illness and their suicidal ideation (Farvil et al., 2017; Schaefer et al., 2016; Optiz-Welke et al., 2013)

The two groups were also significantly different regarding their chronic physical illness, such that a larger number of prisoners had chronic physical diseases compared to the controls (14.7% versus 5.6%). Therefore, having a chronic physical disease can be considered as one of the effective factors in the prisoners' suicidal intention. In this regard, Meyer et al. (2012) also pointed out that physical illness can have a significant effect on prisoners' opinion about themselves and the likelihood to have suicidal thoughts.

Consuming substances were also found as one of the factors affecting the prisoners' suicidal ideation. This finding is in line with those of previously conducted studies (Larney et al., 2012; Poorolajal et al., 2016). The results indicated that the prisoners who committed murder had a higher suicide intent than those with robbery, traffic, and illegal substance use offenses. However, a type of crime did not have a significant relationship with the prisoners' suicidal ideation ( $p=0.12$ ). This finding is similar to those reported in the study conducted by Lekka et al. (2006). According to the results, it was concluded that prisoners with longer imprisonment duration had a significantly higher level of suicidal ideation. This finding is in good agreement with the results reported by Favril et al. (2017) and Lekka et al. (2006).

The present study had some limitations. First,

the limited size of the study sample can restrict the generalization of the results. Second, due to the regulations of the prison, the prisoners could not have the scale papers with them as complete them in their privacy. As a result, the scale was completed through face-to-face interviews, which may have affected the collected data. Third, the study only focused on male prisoners. Therefore, future studies are recommended to include larger samples and also female prison inmates.

## 5. Conclusion

The results showed that suicidal ideation (SI) and suicide attempt were high among the prisoners of Chaksazi Gawran Prison (CGP) in Sulaimani, the Kurdistan region of Iraq. Suicidal ideation was found to have a significant correlation with sentence duration. Moreover, the prisoners had higher levels of suicide intent, previous suicide attempts, family history of suicide, family history of mental illness, chronic physical illness, and substance use; therefore, they can be referred to as effective factors in suicidal ideation. There was no significant correlation between the prisoner's suicidal ideation and the type of crimes they committed. In this regard, prisons of prisoners are recommended to provide inmates with these risk factors with psychiatric consultation to decrease the rate of suicide attempts in prisons.

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## Tables

**Table 1. Demographic characteristics of case and control groups**

Patient characteristics	Cases N (%)	Controls N (%)	P-value
Mean age ± SD (year)	34.35 ± 10.35	37.87 ± 36.00	0.2
Age range	43	49	
<b>Occupation</b>			<0.001
Unemployed	94 (40.7)	118 (51.1)	
Employed	137 (59.3)	148 (48.9)	
<b>Residency</b>			0.004
Inside city	83 (35.9)	112 (48.5)	
Outside city	148 (64.1)	119 (51.5)	
<b>Total number</b>	231	231	

**Table 2. Beck Scale for Suicide Ideation among case and control groups**

BSSI	Case Group N (%)	Control Group N (%)	P-value
No intent	136 (58.9)	212 (91.8)	<0.001
Low intent	48 (20.8)	11 (4.8)	
Moderate intent	13 (5.6)	6 (2.6)	
High intent	34 (14.7)	2 (0.9)	

**Table 3.** Difference between the cases and controls in terms of the studied variables

	Cases N (%)	Control N (%)	P-value
	Previous suicide attempt		
Yes	43 (18.6)	3 (1.3)	0.0001
No	188 (81.4)	228 (98.7)	
	Family history of suicide		
Yes	32 (13.9)	15 (6.5)	0.007
No	199 (86.1)	216 (93.5)	
	Family history of mental illness		
Yes	44 (19)	17 (7.4)	0.0001
No	187 (81)	214 (92.6)	
	Chronic physical illness		
Yes	34 (14.7)	13 (5.6)	0.001
No	197 (85.3)	218 (94.4)	
Total Number	231	231	

**Table 4. Substance use among the case and control groups**

Substance use	Cases N (%)	Control N (%)	P-value
No	40 (17.3)	167 (72.3)	0.0001
Smoking	74 (32)	53 (22.9)	
Non-Alcohol Substances	7 (3)	0 (0)	
Alcohol	22 (9.5)	8 (3.5)	
Poly-substance	88 (38.1)	3 (1.3)	
Total Number	231	231	

**Table 5. Types of crime and correlation with BSSI**

Type of crime	BSSI	Case group (n=231)	P-value
Traffic	No Intent	86.7%	0.12
	Low	13.3%	
Robbery	No Intent	60.0%	
	Low	23.3%	
	Moderate	6.7%	
	High	10.0%	
Murder	No Intent	53.1%	
	Low	22.2%	
	Moderate	6.2%	
Illegal Substance Use	High	18.5%	
	No Intent	60.2%	
	Low	18.3%	
	Moderate	6.5%	
Others	High	15.1%	
	No Intent	50.0%	
	Low	33.3%	
	High	16.7%	

**Table 6. Years of sentence and correlation with BSSI**

BSSI	Years of sentence (median)	P-value
No intent	5	0.0001
Low intent	5.8	
Moderate intent	5	
High intent	15	