



Suicides among prison inmates in Sri Lanka: prevalence and associated factors of suicidal behavior

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DOI: <https://doi.org/10.54448/mdnt22207>

Received: 02-19-2022; Revised: 04-12-2022; Accepted: 04-19-2022; Published: 05-04-2022; MedNEXT-id: e22207

Abstract

Introduction: The suicidal rates in prison institutions are five times higher compared to the general population. Studies has found out that psychological distress among prison inmates has significant association with the suicidal behaviour. **Aim:** The objective of this study was to determine the prevalence and associated factors of suicidal behaviour. **Methods:** An institutional based cross-sectional analytical study was carried out among 1730 study participants selected using multistage stratified cluster sampling in island-wide prison institutions. The prevalence of suicidal behaviour was assessed using the validated SBQ-R. Associated factors of suicidal behaviour was determined by multivariate analysis. Results: According to the SBQ-R the prevalence of suicidal behaviour among prison inmates was 22.7% (95% CI 20.7% – 24.7%). There was a significant association between psychological distress and suicidal behaviour among study participants identified in the multivariate analysis (AOR=1.58, 95% CI 1.20-2.10). Younger age (AOR=2.09, 95% CI 1.33-3.30), female sex (AOR=1.31, 95% CI 1.00-1.71), number of court cases (AOR=1.97, 95% CI 1.50-2.59), feeling of missing the family (AOR=0.52, 95% CI 0.35-0.76), violence at home during childhood (AOR=1.82, 95% CI 1.35-2.44), being neglected during childhood (AOR=1.61, 95% CI 1.11-2.33), witness a suicide (AOR=1.37, 95% CI 1.05-1.78), serious financial issue (AOR=1.35, 95% CI 1.05-1.74) recent change in prison (AOR= 0.73, 95% CI 0.56-0.94) and stigmatized for being imprisoned (AOR=1.82, 95% CI 1.37-2.42) were significantly associated with suicidal behaviour in multivariate analysis. **Conclusion:** A structured screening programme to identify suicidal behaviour among prison inmates should be conducted with improved mental health facilities within prison

institutions. A mandatory mental health module should be carried out for all prison inmates focusing on coping strategies on psychological distress and mental health promotion.

Keywords: Prison inmates. Suicidal behavior. Psychological distress. Mental health. Associated factors.

Introduction

Suicide is a major public health problem in Sri Lanka as well as around the world. Approximately one million people die around the world per year, while 3263 people died due to suicides in Sri Lanka in 2017 [1]. According to the World Health Organization, suicide is projected to become a major global disease burden. In general, suicidal behaviors include suicidal ideation, planning, gesture, and attempt [2]. A thought of harming or killing her/himself is known as suicidal ideation [3].

A major cause of suicidal behavior is having a mental disorder. Out of people who committed suicide, 90% of them had a mental disorder at the time of the attempt. Depression, which is the main part of psychological distress, is the main contributor to suicidal behavior. Suicidal behavior is also caused by incarceration, previous suicidal attempts, and substance abuse [4]. In predicting a suicide attempt, suicidal ideation is an important factor. Out of the people who have attempted suicide, 80% had expressed suicidal ideation in the month before the attempt [5]. Therefore, it is important to identify the suicidal ideation to prevent a complete suicide or a suicide attempt, only a few studies had been conducted in this regard. Worldwide one of the most common causes of death in prisons is suicide.

The rates are much higher than those of the general population. The main reason for this is the level of psychological distress (anxiety and depression) among the prisoners is high compared to the general population [6]. In England and Wales for the year 2005, 78 self-inflicted deaths in prisons were recorded and it is a rate of 102.6 per 100000, which is much higher than the 10-12 per 100000 at the community level [7]. A study carried out in the state prison of New York revealed that among the suicides, 95% had a history of substance abuse and 70% had symptoms of agitation or anxiety before the suicide. The main causes that led to anxiety were inmate to inmate conflict (50%), recent disciplinary action (42%), fear (42%), and physical illness (42%) [8]. The other main reasons for suicides within prisons include overcrowding and other environmental factors such as privacy, food, and sanitation.

According to the prison statistics, 168 deaths had been recorded within the prisons in Sri Lanka for the year 2020 though the cause of death has not been published. The death rate was 6.5 per 1000 daily average population [9]. It is evitable according to the global literature that most of these deaths are due to suicides within prisons. Even though it is a widely known fact that suicidal behavior is an issue in the Sri Lankan prison setting as well, no published research was found on the prevalence of this, correlates, or implications. From time to time media had reported several incidents of suicides that occurred inside the prison institutions, which were not published by the Department of Prison, Sri Lanka. Still, it could be an underreporting of the situation. The suicide rate in the Sri Lankan community in the year 2018 (15.14 per 100,000) [1] was well above the global rate of suicides (10.5 per 100,000) [10].

Thus, this study aimed to determine the prevalence of suicidal behavior and its associated factors among prison inmates in Sri Lanka.

Methods

Study Design

This study followed a prospective observational cross-sectional model, following the rules of clinical research of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology), available at: <https://www.strobe-statement.org/>.

Sample Size/Participants and Questionnaire

This study was conducted in 22 selected prison institutions in Sri Lanka. These included closed prisons, remand prisons, work camps, open prison camps, and facilities for youthful offenders and drug abuser

inmates. Multi-stage probability proportionate to size stratified cluster sampling method was used to recruit 1730 prison inmates.

The interviewer administration technique was used to gather the data. The prevalence of suicidal behavior was assessed using the validated Suicidal Behaviour Questionnaire-Revised tool. The socio-demographic data and the associated factors for suicidal behavior were gathered using a validated questionnaire developed by the principal investigator by the Delphi technique. Data were collected by the principal investigator and two other graduates in Sociology.

Statistical Analysis

Data were analyzed using the SPSS statistical software version 22.0. A binary logistic regression model was carried out to identify the associated factors of suicidal behavior.

Ethical Approval

The ethical clearance was obtained from the ethical committee at the Medical Faculty of the University of Colombo, Sri Lanka. Administrative permission to conduct the study was sought from the Commissioner-General of Prison in Sri Lanka.

Results and Discussion

The response rate of the prison inmates was 98.7%. The sociodemographic characteristics of the prison inmates are shown in **Table 1**. Among the prison inmates, 43.2% were between 35-and 45 yrs of age, and a majority (93.3%) were males. The majority were Sinhalese (84.5%), Buddhist (76.5%), and studied up to Ordinary Level Examination (70%).

Table 1. Socio-demographic factors of prison inmates.

Socio-demographic characteristics	Total	
	No	%
Age in completed years		
15-34 yrs	707	41.4
35-54 yrs	738	43.2
55+ yrs	263	15.4
Sex		
Male	1593	93.3
Female	115	6.7
Highest educational qualification		
No schooling	87	5.1
Up to O/L	1195	70.0
Up to A/L	397	23.2
Other	29	1.7

The total score of seven (7) or more was the cutoff value for suicidal behavior in the validated SBQ-R tool. According to the SBQ-R, the prevalence of suicidal behavior among prison inmates was 22.7% (95% CI

20.7% – 24.7%). Prevalence of suicidal behavior by the type, sex of the prison inmate, type of the prison by the duration of stay in the prison is depicted in **Table 2**.

Table 2. Prevalence of suicidal behavior among different types of prison inmates.

Characteristic	Prevalence	95% Confidence Interval	Total
Type of the prisoner			
Convicted	20.7%	18.2 %- 23.4 %	938
Un-Convicted	25.1%	22.1 %- 28.2 %	770
Sex of the prisoner			
Male	22.1%	20.1 %- 24.2 %	1,593
Female	30.4%	22.6 %- 39.3 %	115
Type of the prison			
Closed Prisons	24.1%	21.2 %- 27.3 %	755
Remand Prisons	22.5%	19.7 %- 25.5 %	788
Work camp	14.0%	6.5 %- 25.5 %	50
Open Prison Camp	12.7%	5.9 %- 23.4 %	55
School of youthful offender	40.0%	9.4 %- 79.1 %	5
Rehabilitation camp	22.2%	12 %- 35.8 %	45
Drug rehabilitation center	20.0%	4.4 %- 50.3 %	10
Duration of stay in the prison			
< 5 years	22.4%	20.3 %- 24.6 %	1,440
5+ years	23.9%	19.1 %- 29.2 %	268
Total	22.7%	20.7 %- 24.7 %	1,708

Un-convicted (25.1%), female (30.4%) prison inmates, prison inmates at schools of youthful offenders (40.0%), and prison inmates who stayed in the prison for more than 5 years (23.9%) had a higher prevalence of suicidal behavior compared to other prison inmates. The binary logistic regression model identified the following factors as the statistically significant factors associated with suicidal behavior among prison inmates (**Table 3**).

Being a female in sex (OR= 2.09), age less than 45 years (OR=1.31), having more number of court cases (OR=1.97), having psychological distress (OR=1.58), feeling of missing the family (OR=0.52), experiencing violence at home during childhood (OR=1.82), neglected by the family members during childhood (OR=1.61), witness a suicide (OR=1.37), experiencing a serious financial problem (OR=1.35), a recent change of prison institution (OR=0.73) and being stigmatized for imprisonment (OR=1.82) were the significant associated factors of suicidal behavior among prison inmates.

The apparent prevalence of suicidal behavior in the current study was almost similar to the prevalence of 23.2% observed in a study conducted in Ethiopia using the SBQ-R among prison inmates [11]. This similarity of

findings could be due to adopting the cross-sectional study design and using the SBQ-R to assess suicidal behavior in both studies.

A study conducted in Belgium among prison inmates using the Paykel suicidal scale relieved the prevalence of lifetime suicidal ideation, suicide planning, and suicide attempt to be 44.4%, 30.2%, and 21.8%, respectively [12].

The prevalence of suicidal ideation and suicidal planning during the last 6 months was 10% and 6 % respectively among juvenile offenders in a study conducted in Chicago using the Diagnostic Interview Schedule for Children [13]. In another study conducted among prison inmates in Australia, it was found that the prevalence of suicidal ideation in the past 12 months was 27.9%, the prevalence of lifetime suicidal ideation was 63.7% and the prevalence of lifetime suicidal attempts was 54.4% [14]. The lifetime prevalence of self-harm was 65.78% among female prisoners in Pakistan [15], while the lifetime prevalence of suicidal ideation among HIV-infected prison inmates in Taiwan was 12.5% [16]. All the above studies have individually assessed the prevalence of suicidal ideation, suicidal attempts, and suicidal intent or suicidal planning. The current study which used the SBQ-R has covered all the

Table 3. Associated factors were found to be significant in the binary logistic regression for suicidal behavior among prison inmates.

Variable	β	S.E	Wald	Sig	AOR	95% CI	
						Upper	Lower
Sex	.741	.232	10.214	.001	2.099	1.332	3.306
Male*							
Female							
Age	.270	.137	3.899	.048	1.310	1.002	1.711
Less than 45 years							
More than 45 years*							
Number of court cases	.682	.138	24.441	.000	1.977	1.509	2.591
No other cases*							
Having other cases							
Psychological distress	.463	.142	10.591	.001	1.589	1.202	2.100
Yes							
No*							
Feeling of missing the family	-.654	.196	11.142	.001	.520	.354	.763
Yes							
No*							
Violence at home during childhood	.600	.150	16.014	.000	1.821	1.358	2.443
Yes							
No*							
Neglected by the family members during childhood	.477	.188	6.414	.011	1.612	1.114	2.332
Yes							
No*							
Witness a suicide	.316	.133	5.666	.017	1.372	1.057	1.781
Yes							
No*							
Serious financial problem	.302	.129	5.459	.019	1.353	1.050	1.744
Yes							
No*							
Change in prison recently	-.310	.131	5.569	.018	.734	.567	.949
Yes							
No*							
Stigmatized for being imprisoned	.603	.144	17.540	.000	1.828	1.378	2.424
Yes							
No*							
Constant	-2.140	.253	71.372	.000	.118		

above aspects in measuring suicidal behavior in a collective manner. Due to this factor, the above findings could not be directly compared with the findings of the current study.

Considering the associations of the suicidal behavior, the current study revealed that the female sex was significantly associated with suicidal behavior in multivariate analysis (AOR=2.09). This could be due to that females are more psychologically distressed compared to the males in the current study. This finding was supported by a study conducted among prison inmates in the United Kingdom and Wales where females had a risk of engaging in suicidal attempts (OR=1.91) [17]. The current study finding was further strengthened by the study conducted among prison inmates in Belgium where sex had a statistically significant association with suicidal ideation ($P < 0.01$)

[18]. The age of the study participants was significantly associated with suicidal behavior in the current study (AOR=1.31). Participants aged less than 45 years were having a higher chance of getting suicidal behavior. Fewer responsibilities and less attachment to the families of that age could have led to this finding. A study conducted in West Ethiopia among prison inmates had a finding that the age group of 25-34 years was significantly associated with suicidal behavior (OR=1.30) [11].

In the current study, having more than one court case was significantly associated with suicidal behavior (AOR=1.97). Having more than one court case would affect the social status, financial status, and distress levels of a person which could bring about this finding. Psychological distress was significantly associated with suicidal behavior (AOR=1.58) in the current study. This

finding was supported by the study conducted among 1326 prison inmates in Belgium, where recent suicidal ideation was significantly associated with psychological distress (OR=5.6), lifetime suicidal ideation was significantly associated with psychological distress (OR=3.4) and lifetime suicidal attempt was significantly associated with psychological distress (OR=2.5) [12].

A study conducted among 136 Belgian female prison inmates found that severe psychological distress was significantly associated with suicidal ideation (OR=3.14) [19]. The study conducted among HIV-infected prison inmates in Taiwan found that serious (OR=25.75), moderate (OR=6.03), and mild (OR=5.41) psychological distress was significantly associated with suicidal behavior [16].

Violence at home during childhood (AOR=1.82) and being neglected by family members during childhood (AOR= 1.61) were significantly associated with suicidal behavior in the current study. This finding was supported by a study conducted among prison inmates in Italy, where the association between childhood trauma events with suicidal ideation was significant (OR=1.25) [20]. Witnessing a suicide was significantly associated with suicidal behavior in the current study (AOR=1.37) and the study conducted among Belgian prison inmates supported this finding that the exposure to suicidal behavior was a significant association with suicidal ideation (OR=2.05) [12].

Having a serious financial issue was significantly associated with suicidal behavior in the multivariate analysis of the current study (AOR=1.35). As financial hardship is a very sensitive issue in the Sri Lankan culture this finding had become significant. There was a significant association between recent changes in the prison with suicidal behavior in the current study (AOR=0.73). This could be due to the fact that the new environment could change the mindset of a person. Stigmatized for being in prison was a significant association with suicidal behavior in the current study (AOR=1.82). Stigmatization is a very sensitive issue in the Sri Lankan society, and therefore people will be severely distressed by stigmatization.

Conclusion

This study reveals that a substantial number (22.7%) of people who live in prison have suicidal behavior. The rates of suicidal behavior in people in prison are found to be much higher when compared with the rate of the general population, which shows as it is a significant public health issue. There was a significant association between psychological distress and suicidal behavior among study participants aged less than 45 years, female sex, having more than one court case,

feeling of missing the family, violence at home during childhood, being neglected during childhood, witnessing a suicide, having a serious financial issue, a recent change in prison and being stigmatized for getting imprisoned were positively associated with suicidal behavior among prisoners. There should be a structured screening program to screen prison inmates for suicidal behavior as well as psychological distress. Mental health services should be upgraded to treat the positives and to upgrade the mental health of the other prison inmates. Proper training should be given to improve the coping strategies of the prison inmates and it should make mandatory for all the prison inmates to follow a mental health module following admission to the prison.

Acknowledgement

Not applicable.

Ethical approval

The ethical clearance was obtained from the ethical committee at the Medical Faculty of the University of Colombo, Sri Lanka. Administrative permission to conduct the study was sought from the Commissioner-General of Prison in Sri Lanka.

Data sharing statement

No additional data are available.

Conflict of interest

The authors declare no conflict of interest.

Funding

Not applicable.

Author's contribution

- ✓ Amila Suranga: Conceptualization, Methodology, Formal analysis, Writing -Original Draft, Writing - Review & Editing;
- ✓ Janaki Vidanapathirana: Conceptualization, Methodology, Writing -Review & Editing.

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