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Suicidal Behavior and Associated Factors among Prisoners in Jimma Town Correctional Institution South, West Ethiopia, 2017

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Abstract

Introduction: Suicidal behavior is the act of intentionally causing one's own death. Being in correctional institution is continues to be associated with an under-recognized risk for suicidal behavior. The increased risk of suicidal behavior in correctional institution is because of several factors including prison related, psychiatric disorders and substance use related factors are believed to be associated.

Objective: To assess the prevalence and associated factors of suicidal behavior among prisoners in Jimma town correctional institution; South West Ethiopia 2017.

Methods: An Institutional based cross-sectional study design was employing among 336 prisoners in Jimma town correctional institution in 2017. Systematic random sampling technique was used. A structured pretested SBQ-R questioner was used and the data was collected with face to face interview. Data was entered in to Epi-data version 3.1, and then exported in to SPSS version 21.0 statistical package for analysis. Bivariate and multivariate logistic regressions were carried to examine the association between independent and dependent variables. Adjusted odds ratio at a p-value<0.05 with 95% CI was declared statistically significant.

Results: The overall prevalence of suicidal behaviors was found to be 23.2%. Age group between 25-34 years (AOR=2.47,95% CI: 1.307,4. 655), being unemployed (AOR=2.13, 95% CI: 1.175,3.849), current comorbid depression (AOR=2.13, 95%CI: 1.203,3.762), current poor level of social support (AOR=2.95, 95% CI:1.107,7.882) and history of previous incarceration (AOR=3.04, 95% CI: 1.247,7.418), were associated with suicidal behavior among prisoners in Jimma town correctional institution.

Conclusion and recommendations: In this study suicidal behavior was found to be high among prisoners. Therefore attention should be given to prisoners through prison health services in early screening and treatment particularly for those who are on younger age group, unemployed, prisoners with co morbid depressive disorders, having poor social support and previous incarceration.

Keywords: Suicidal Behavior; Prisoners

Introduction

Statement of the problem

Suicidal behaviors are thoughts or tendencies that put a person at higher risk of committing suicide. Suicidal behaviors are classified into three categories; suicidal ideation, suicide plan or intent and suicide attempts [1,2].

Prisoners are recognized as a population with a high burden of disease from a wide range of physical and mental health problems with death as the ultimate consequence of these health problems. They are also more likely to die prematurely than people who have not been in custody and suicidal behavior in custody is one leading cause of death in prison [3]. An estimated 10 million people are in correctional institutions worldwide and the majority of them lives in low and middle-income countries (LAMIC) [4].

Suicidal behavior is one of single most common cause of death in correctional institutions and death by suicide and suicidal behavior is a crucial concern worldwide [5]. Globally it accounts for 16 deaths per 100,000 citizens each year [6], this makes it the second leading cause of death among individuals aged 10-18 [7]. It is also the third leading cause of death in US correctional institutions and the second in jails. Approximately 400 jail and 200 prisoners commit suicide in state and federal correctional institutions each year [8,9].

In a study conducted at New South Wales Australia correctional institution, the lifetime prevalence of suicidal ideation and attempts were found to be 34% and 21% respectively. The twelve month prevalence of suicidal ideation and attempt were also reported to be 9.1% and 2.5% respectively. There was no gender difference in terms of prevalence of suicidal ideation; however, women were significantly more likely than men to report a lifetime suicide attempt (28.7% vs. 19.9%, p=0.03) [10]. The prevalence of suicidal ideation and attempt in Australia among young prisoners were 16% and 3.6% respectively [11]. Similarly in UK and Dutch the lifetime prevalence of suicide attempts were reported to be 82% and 54% respectively [12].

Kent State University at United States of America reported the lifetime prevalence of suicide ideation among adolescents in Juvenile detention which was reported to be 19.0% and suicide attempt to be 11.9% [13]. In addition suicidal ideation and attempt were tried to be detected in New York state correctional institutions. According to the

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result of this study it was found that 34% of participants expressed as they had suicidal ideation and 64% of them had attempted suicide [14].

In Ethiopia, like other developing countries, suicidal behavior are common but little attention is being given to this problem as well as its negative psychological outcome which may increase chance of completing suicide. However, to the best of my knowledge there is no study showing the suicidal behavior squeal among prisoners. Therefore, this study assessed the prevalence and associated factors of suicidal behavior among prisoners in Jimma town correctional institution, South West Ethiopia.

Methods

Study setting and period

Institution based cross-sectional study design was used at Jimma zone prison, correctional institution, south-western Ethiopia from June 1-29, 2017.

Study population

All prisoners during data collection period were included in the study. Those prisoners who were critically sick during data collection and unable to communicate (unable to speak and unable to hear) were excluded from the study.

Sample size determination

The sample size was calculated by using single population proportion formula by considering the following assumptions; prevalence p=50% because no similar study done in our country among prison population, 95% confidence interval, margin of error 5%, non-response rate 10%. The calculated sample size was 384. Since the population size is less than 10,000(i.e. 1460) we used population correction as follows. Therefore, the final sample size taken was 336.

Sampling technique

A systematic random sampling technique was used to select study participants at prisons during the study period. A sampling frame was created. The sampling interval (K) was calculated by dividing the study population with the final sample size as follow K=N/n, i.e. 1460/336~4. Therefore, we used to draw the actual participant randomly every 4 interval in the sampling frame until the required sample size was reached. The first study subject was selected by lottery method from 1-4. Therefore, participants was selected every 4 interval starting from the first study unit.

Data collection

Data was collected using face to face interview. A structured questionnaire was used which had five sub sections consisting of a socio-demographic questionnaire to assess the prisoners' background information, the Oslo 3-items social support scale which was used to measure the strength of social support, depression was assessed using BDI, PTSD Check List – Civilian Version (PCL-C) was used to determine presence or absence of PTSD and the psychosis screening questionnaire (PSQ) was used to determine the presence or absence of psychotic symptoms. The questionnaire was translated to local languages Amharic and Afan Oromo and back to English by independent person to check for consistency and understandability of the tool and the questionnaire was pretested one week prior to the actual data collection on 5% in Agaro prison center for clarity of questioners, based on this some modification were done. Six data collectors and two supervisors who have psychiatry background were selected from the different institution and were given training for two days.

Operational definition and definition of terms

Suicidal behavior: prisoners who are found to have 7 or more symptoms from 18 of the SBQ-R are considered as having Suicidal behavior. In addition from question number one it was classified in to having suicidal ideation, plan/intent and attempt for discussion purpose [15].

Suicidal ideation: It is defined as, if the respondent answers to the question have you ever thought/ brief passing thought about committing suicide? If yes, the patient has suicidal ideation [15].

Suicidal plan/intent: It is defined as, if the respondent answers to the question have you had plan at least once to kill yourself? If yes, the patient has suicidal plan /intent [15].

Suicidal attempt: is defined as if the respondent answers for the question have you ever attempted to kill yourself? If yes, the patient has suicidal attempt [15].

Social support: current support at time when difficulties and critical conditions like financial, social and psychological factors in prison assessed by Oslo-3 scales which has total of 14 scores and classified into three broad categories [16].

Depression: Current depressions were assessed by BDI has 21 items and every item has 0-3 scores with global score of 0-63. Participants who score 14 and more considered as depressed while a participants who score 13 or lower are not depressed [17].

Life time substance use: use of at least one specific substance for non-medical purpose with in their life time (Alcohol, nicotine, Khat, cannabis use and other) was assessed by Yes/No answers of respondents.

Post-traumatic stress disorder (PTSD): refers to those prisoners with score of 44 and above of PTSD Check List – Civilian Version [18].

Psychosis: Assessed by endorsement of at least one psychotic symptom in PSQ from hypomania, thought interference, paranoia, perceptual abnormalities and hallucinations [19].

Data processing, analysis and interpretation

The entire questionnaire was checked for completeness. The data were entered in to Epi-data then exported to SPSS 21 version statistical software for analysis. Socio-demographic characteristics of respondents were analyzed by descriptive statistics (percentage, median and standard deviations). Bivariate analysis was undertaken to identify candidate variables for the final multiple logistic regression model and variables with p-value less than 0.25 were taken as eligible for the final model. Finally multiple logistic regression analysis was conducted and significance was declared at p-value<0.05 with 95% confidence interval. Adjusted odds ratio was used to interpret significantly associated variables. Results were presented in the form of table, figures, chart using frequency and description along with them.

Ethical consideration

Ethical clearance was obtained from Jimma University, ethical review board. Moreover, the purpose and the objectives of the study were explained to the respective officials of Institute of Health and Medical sciences, Jimma University. Written informed consent was obtained from prison respondents who were participating in the study. Each respondent was informed about the objective of the study.

Anyone who was not willing to participate in the study was not forced to participate and they were interviewed in separate room to keep their privacy. They were also informed that all data obtained from them would keep confidentiality by using code instead of any personal identifier and is meant only for the purpose of study. Communications with prison clinic and administrator for those p*articipants who scored* 7 and above from 18 *on* SBQ-R *were* made for further evaluation and intervention as well as referral to Jimma University specialized hospital.

Results

Socio-demographic characteristics of respondents

From the total of 336 participants 332 respondents completed the interview which yields a response rate of 98.8%. The majority (n=311, 93.4%), of the respondents were male, the median age of respondents were found to be 26 years, with an inter-quartile range of 12 years. 189 (56.95%) of the respondents were Muslim, followed by Orthodox accounting for (n=110, 31.1). Most of the respondents (n=213, 65.7%) were Oromo followed by Amhara (n=51, 15.4%). Majority of the respondents (n=180, 54.2%) were single. About (n=217, 65.4%) of the respondents live in urban areas. Among the respondents (n=176, 53%) have completed primary school and (n=178, 53.6%) were employed before their incarceration (Table 1).

Suicidal behavior among prisoners in Jimma town correctional institution

The overall prevalence of suicidal behavior was 23.2% (n=77), while the lifetime prevalence of suicidal ideation, intent and attempt was 16.6% (13% 21.4%), 11.4% (8.4%-15%), 9.3% (6%-13%) with their 95% CI respectively. In addition the prevalence of all suicidal ideation in the past one year (12 months) was 84 (25.2%). Of them 36 (10.8%) of the respondents has once, 40 (12%) had two and above times suicidal ideation. Among suicidal threat 16.3% (n=54) of respondents told to other people as they were going to commit suicide, out of these, 11.1% (n=37) communicated their suicidal threat to others once and 5.1% (n=17) twice and above. The likelihood of suicidal behavior in the future was reported only by 1.5% (n=5) of respondents. Prevalence of suicidal ideation and attempt after their imprisonment was 11% and 6% respectively.

Variables	Categories	Frequency	Percentage
Sex	Male	311	93.7
	Female	21	6.3
Age in year	16-24	143	43.1
	25-34	109	32.8
	35-44	51	15.4
	45-54	10	3
	>=55	19	5.7
Marital status	Single	180	54.2
	Married	132	39.8
	Divorced/separated/widowed	20	6
Ethnicity	Oromo	213	65.7
	Amhara	51	15.4
	Dawuro	49	14.8
	Other	19	5.7
Religion	Muslim	189	56.9
	Orthodox	110	33.1
	Protestant/Catholic	33	9.9
Childhood Residence	Urban	216	65.1
	Rural	116	34.9
Educational level	Not education	47	14.2
	Primary	176	53
	Secondary	81	24.4
	Tertiary	28	8.4
Occupational status before imprisonment	Employed status	178	53.6
	Unemployed status	154	46.4
Note: Other Ethnicity includes (yem, Gurage, and Tigre)			

Table 1: Socio-demographic characteristics of prisoners in Jimma town correctional institution, South West Ethiopia 2017 (n=332).

Methods and places of suicide attempt among prisoners in correctional institution

Among 31 suicide attempters, 3.9% (n=13) were try to attempted at home followed by toilet 3.6% (n=12). The most frequent means/methods used for suicide attempt were hanging in 4.8% (n=16) followed by poison 2.4% (n=8) of respondents. 4.2% (n=14) of suicidal attempts were aborted by involvement of friends. Out of those who attempted suicide, 4.2% (n=14) reported as they felt guilty after attempting.

Prison related characteristics of respondents in Jimma town correctional institution

The study revealed that twenty eight (8.4%) of participants had history of previous incarceration, 5.7% (n=19) were incarcerated one times in the past before the current incarceration, of them 89.8% (n=298) are sentenced prisoners. Of respondents 43.4% (n=144) were charged of robbery in criminal type. Of respondents 27.4% (n=91) were stayed less than 4 month in prison and the median time spent in prison was 10 months with an inter-quartile range of 20 months. 63.3% (n=210) not accepted the criminal they were charged in, 50.6% (168), of the participants had poor social support.

Substance use among prisoners in Jimma town correctional institution

Regarding lifetime substance use one hundred and 51.2% (n=77) of the respondents had history of substance use at least once in their life, among them the majority of the respondents 45.2% (n=150) use Khat followed by alcohol use 21.7% (72), 16.9% (n=56) of participants use tobacco products and 5.7% (n=19) of the participants use cannabis in their life time.

Clinical factors among prisoners in Jimma town correctional institution

Among the total prisoners, 41.9%, 31% and 24% of them has comorbid depression PTSD and psychosis respectively. The study also revealed that 17.2% (n=57) of respondents has family with mental illness among them 17.5% (n=28) has history of previous mental illness. About 17.5% (n=53) was reported has physical illness. Also, 6.3% (n=21) has previous psychiatric hospitalization. Only 5.4% (n=18) has family history of suicidal attempt and 2.7% (n=9) has family history of committed suicide.

Factors associated with suicidal behavior among prisoners

Bivariate and multivariate analysis of suicidal behavior and associated factors: On bivariate analysis age group between 25 and 34, being unemployed, urban residence, separated divorced and widowed marital status, having previous incarceration, poor social support, having history of previous mental illness, family history of suicidal attempt, comorbid depression, alcohol use, cigarette use and

post traumatic disorder were found to be candidates for multivariate analysis (Table 2). These factors were entered into multivariate logistic regression for further analysis in order to control confounding effects. However, significant association was not observed between suicidal behavior and study variables like educational status, sex and single cell confinement and others were excluded from further analysis. Multivariate analysis showed that age group between 25 and 34, being unemployment, having previous incarceration, poor social support and having comorbid depression were significantly associated with suicidal behavior (Tables 3-6).

Discussion

Suicidal behavior predict a long-standing consequence for the psychological trauma for children, friends and relatives and the loss of economic productivity for the nation [20]. The underlying reason for assessing suicidal behavior in prison is to ensure that treatment plans and evaluations focus on prisoners risk factors. Hence this institutional based cross sectional study was conducted to assess suicidal behavior and associated factors among prisoners.

In this study, the prevalence and predictors of suicidal behaviors were assessed. In addition the methods and places of suicide attempt as well as supports for aborted suicidal attempt were also explored. Accordingly, the overall prevalence of suicidal behavior was found to be 23.2%. While, the lifetime prevalence of suicidal ideation, intent and attempts were 16.6%, 11.4%, 9.3% respectively.

The prevalence of suicide ideation among prisoners in this study was similar with other studies done at Northern Russia (16.9%), Great Britain (14.9%), Australia (16%), Colombia (14.9%) and Kent State (19%) [11,13,21-23]. However, the current study finding for suicidal ideation among prisoners was lower than a study conducted in New South Wales Australia (34%) [10], Pakistan 22% [5], New York state (34%)[14], Chicago (53.7%) [9] and Flemish Belgium (44.4%) [24]. These differences could be attributed to the variation in socio-cultural perspectives related to participants who reported their suicidal experience [25]. Another justification may be due to difference in sampling technique and sample size in which New South Wales Australia study applied stratified with sample of 996 who completed a telephone survey, in Pakistan 415 male inmates, in Flemish Belgium 1,326 prisoners, in New York operates 71 prisoners and in Chicago applied 1,418 female arrestees in awaiting trial.

On the other hand the finding of this study on prevalence of suicide ideation among prisoners is higher than study conducted in Taiwan which was found to be (12.5%) [26]. This difference might be attributed to study subjects studied in which a Taiwan study used only male prisoners, sampling technique which were stratified with sample size of 535 and measurement tool which was Brief Symptom Rating Scale (BSRS-5).

Variables		Suicidal behavior		COR (95% CI)	p-value
		Yes	No		
Age	16-24	25	118	Reference	
	25-34	42	67	2.959(1.659,5.278)	<0.001
	35-44	5	46	0.513(0.185,1.421)	0.199
	45-54	2	8	1.180(.236,5.894)	0.840
	>=55	3	16	0.885(0.240,3.268)	0.885
PTSD	Presence	21	39	2.077(1.132,3.809)	0.018
	Absence	56	216	Reference	
Social support	Poor	53	115	3.533(1.421,8.785)	0.007
	Moderate	18	94	1.468(0.546, 3.947)	0.451
	Strong	6	46	Reference	
Depression	Presence	46	93	2.585(1.534,4.356)	<0.001
	Absence	31	162	Reference	
Marital status	Married	25	107	Reference	
	Single	44	136	1.385(0.797, 2.406)	0.248
	Divorced/separated/widowed	8	12	2.853(1.055, 7.717)	0.039
Occupation	Employed	30	148	Reference	
	Unemployed	47	107	2.167(1.287,3.649)	0.004
Residence	Urban	55	161	1.460(0.837,2.545)	0.183
	Rural	22	94	Reference	
Previous incarceration	Yes	15	11	5.367(2.348,12.264)	<0.001
	No	62	244	Reference	
Previous mental illness	Yes	11	17	2.333(1.042,5.224)	0.039
	No	66	238	Reference	
Family history of suicidal attempt	Yes	9	9	3.618(1.382-9.469)	0.009
	No	68	246	Reference	
Alcohol use	Yes	21	51	1.500(.833, 2.700)	0.176
	No	56	204	Reference	
Cigarette use	Yes	20	36	2.135(1.149-3.966)	0.016
	No	57	219	Reference	

Table 2: Bivariate analysis of factors associated with suicidal behavior in Jimma town correctional institution, South West Ethiopia 2017 (n=332).

Variables		Suicidal behavior		AOR (95 CI %)	p-value
		Yes (%)	No (%)		
Age	16-24	25	118	Reference	
	25-34	42	67	2.467(1.307,4.655)	0.005**
	35-44	5	46	0.550(0.190,1.595)	0.271
	45-54	2	8	1.958(0.363,10.545)	0.434
	>=55	3	16	0.878(0.222,3.481)	0.854
Occupation	Employed	30	148	2.127(1.175,3.849)	0.013*
	Unemployed	47	107	Reference	
Depression	Presence	46	93	2.128(1.203,3.762)	0.009**
	Absence	31	162	Reference	
Previous incarceration	Yes	15	11	3.042(1.247,7.418)	0.014*
	No	62	244	Reference	
Social support	Poor	53	115	2.954(1.107,7.882)	0.031*
	Moderate	18	94	1.530(.537,4.357)	0.426
	Strong	6	46	Reference	
Note: α=0.05, * P-value<0.05, **P-value<0.01, ***P-value<0.001					

Table 3: Multivariate analysis of factors associated with suicidal behavior in Jimma town correctional institution, South West Ethiopia 2017 (n=332).

Variables	Categories	Frequency	Percentage
Previous incarceration	Yes	26	7.8
	No	306	92.2
Number of previous incarceration	Once	16	4.8
	Twice and above	10	3.0
Type of current criminality	Robbery	144	43.4
	Murderer	100	30.1
	Corruption	22	6.6
	Rape	34	10.2
	Other	32	9.6
Duration of stay in prison (in months)	<4	91	27.4
	5-10	84	25.3
	11-24	77	23.2
	>25	80	24.1
Court's decision	Sentence	298	89.8
	Remand	27	8.1
	Life long	7	2.1
Total duration of sentenced (in months)	<18	98	29.5
	18-48	78	23.5
	>48	81	24.4
Single cell confinement	Yes	26	7.8
	No	75	22.6
Acceptance of confinement	Yes	121	36.4
	No	211	63.6
Social support	Poor support	168	50.6
	Moderate support	112	33.7
	Strong support	52	15.7
Note: Others includes (fighting, stealing)			

Table 4: Prison related characteristics of respondents in Jimma town correctional institution, South West Ethiopia 2017(n=332).

Regarding attempters the study also revealed magnitude of suicide attempt among prisoners, this result was in line with other studies conducted at Italy (12.8%) [27] and Kent State (11.9%) [13]. However, the rate is lower than other studies conducted in UK [28] and Dutch was found to be (82%) and (54%) respectively [12], New York 64% [14], New South Wales Australia (21%) [10], Northern Russia (17.6%) [21] and Flemish Belgium (21.8%) [24]. These differences could be attributed to the variation in sampling technique in which New South Wales Australia applied stratified sampling technique with sample of 996 prisoners who completed a telephone survey, a Russian study used 271 incarcerated male juvenile delinquents, in New York operates only 71 prisoners and in Flemish Belgium 1,326 prisoners were studied and it might be due to difference in measurement tool since Russian study used K-SADS-PL. It might be also due to socio cultural difference of the study populations which may contribute for the discrepancy [25].

Whereas the current finding on prevalence of suicidal attempt were higher than a study conducted in Taiwan among HIV-infected male inmates i.e. (4.1%) [26], in Australia young prisoners (3.6%) [11] and in Great Britain (4.4%) [22]. This difference might be attributed to difference in study subjects in which Taiwan study used only male prisoners and great British used female prisoners and sampling

Variables		Suicidal behaviour		COR (95CI %)	p-value
		Yes	No		
Age	16-24	25	118	Reference	
	25-34	42	67	2.959(1.659,5.278)	<0.001
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	Single	44	136	1.385(0.797, 2.406)	0.248
	Divorced/separated /widowed	8	12	2.853(1.055, 7.717)	0.039
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Previous mental illness	Yes	11	17	2.333(1.042,5.224)	0.039
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Family history of suicidal attempt	Yes	9	9	3.618(1.382-9.469)	0.009
	No	68	246	Reference	
Alcohol use	Yes	21	51	1.500(.833, 2.700)	0.176
	No	56	204	Reference	
Cigarette use	Yes	20	36	2.135(1.149-3.966)	0.016
	No	57	219	Reference	

Table 5: Bivariate analysis of factors associated with suicidal behaviour in Jimma town correctional institution, South West Ethiopia 2017 (n=332).

Variables		Suicidal behaviour		AOR (95CI %)	p-value
		Yes (%)	No (%)		
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	35-44	5	46	0.550(0.190,1.595)	0.271
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	No	62	244	Reference	
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	Moderate	18	94	1.530(0.537,4.357)	0.426
	Strong	6	46	Reference	
Note: α=0.05, * P-value<0.05, **P-value<0.01, ***P-value<0.001					

Table 6: Multivariate analysis of factors associated with suicidal behaviour in Jimma town correctional institution, South West Ethiopia 2017 (n=332).

technique which was stratified sampling with 535 inmates. It might be also due to difference in study design in which great British study applied case control study, variation in sample size which was 535 inmates and measurement tool which was Brief Symptom Rating Scale (BSRS-5) in a study conducted at Taiwan. In addition this variation could also be attributed to the difference in socio-cultural perspectives related to participants who reported their suicidal experience [25]. In addition it may also be due to difference in health service delivery in

correctional institutions and habits regarding regular visit of prisoners.

Regarding suicidal plan the current study result is lower than a study done at Flemish prison reported (30.2%) [24]. The variation may be due to difference in which Flemish study used 1326 prisoners and tool difference.

The finding of this study is higher than studies conducted among in the general population in a rural adult population in Butajira which reported suicidal attempts to be (3.2%) [29]. This may be due to the obvious fact that our study was conducted in a prison in contrary to the above mentioned community based studies in Butajira Ethiopia, because being imprisoned is itself a stressful event for even healthy inmates and are at increased risk for suicide since it deprives the person of important resources [30].

Whereas the finding of current study on suicide ideation is lower than another study conducted among high school student in Addis Ababa which reported (14.3%) [31], and a study conducted among adult psychiatry outpatient clinic at Gondar which reported (64.8%) [32]. Prevalence of suicidal attempt was also lower than in 10 year follow up cohort study conducted at Butajira on patients with severe mental disorders which reported at least one suicide attempt during the 10-year period to be (20.2%) [33] and a study conducted at Gondar among adult psychiatry outpatient clinic which reported suicidal attempt at least once after the onset of the current mental illness to be (19.2%) [32]. The variation might be due to difference in study population who are in different stressors which may contribute for suicidal attempt. There are evidences that showed people living with mental illness are at higher risk of suicidal ideation and attempt compared to the general population [34,35].

The prevalence of suicidal behavior in this study was lower than a study conducted at Jimma University Teaching and Specialized Hospital among people with mental illness which reported (28.6%) suicidal ideation, attempt and plan 21.8%, 16.9% and 16.1% respectively [36]. This variation might be due to difference in study population in which a study at Jimma University Teaching and Specialized Hospital conducted among mentally ill patients whose judgments might be impaired due to the illness which contributes for their suicidal behavior [34].

Factors associated with suicidal behavior among prisoners

Regarding associated factors, in this study, those who are in age group between 25 and 34 were 2.47 times more likely to have suicidal behavior when compared to those who are above 55 years old. This is supported by finding of various studies in different settings New South Wales, Greece and US [10,37,38]. This may be due to the fact that late adolescent and younger adulthood is a developmental stage with much struggle to support self, psychological conflict between rejecting families ideology influenced by peer pressure and being confused to get out to their own self-identity which could inducing a lot of distress to their life that could contribute for higher rate of suicidal behavior [34].

Those prisoners who had no employment status were 2.13 times more likely to have suicidal behavior as compared to those who had employment status. The possible reason could be the higher the person's social status; the greater the risk of suicide, but a drop in social status also increases the risk. The suicide rates increase during economic recessions [34]. This is supported by other similar studies conducted in different countries like Chicago, Great Britain and Los Angeles [9,22,39].

Those who had co-morbid depression were 2.13 times more likely to have suicidal behavior as compared to prisoners who has no depression. This was in line with a study done at New south Wales Australia (AOR=3.06) [10]. This was also supported by studies done at British and Taiwan prisons [26,40]. This could be due to the fact that depressed individual have neurotransmitter disturbance in the brain which may contribute for hopelessness, guilty, worthlessness, and this intern leads to suicidal behavior [34]. It may also be due to the fact that incarceration imposes additional stress which adversely influences their mental health and potentially exacerbating existing psychopathology [30].

Poor social supports were also associated with suicidal behavior. Those prisoners who had poor social support were 2.95 times more likely to have suicidal behavior than those who have strong social support. This might be due to prisoners come into prison with major social disadvantages, which predispose to increased rates of mental illness and suicidal behavior. These social disadvantages are exacerbated by the prison environment, which intern leads to increase suicidal behavior [41]. This might be also due to the fact that minimal friends inside or outside correctional facility, weak family support, and limited external contact are known to be major stressors for prisoners which contributed for suicidal tendencies among incarcerated individuals [30]. This is supported by other similar studies conducted at Great Britain and London [22,40].

The odds of having suicidal behavior among those who had previous incarceration were 3.04 times higher as compared to those who did not have incarceration before. This is supported by other similar studies conducted in different countries at Dutch and Australia [12,42]. This may be due to the fact that with repeated imprisonment they faced for loneliness, loss of a spouse and being deprived the important resources, this are the strongest and most reliable predictors of suicidal behavior [43].

Conclusion

This study reveals that a substantial number of people live in prison have suicidal behavior. The rates of suicidal behavior in people at prison is found to be much higher when compared with the rate from the general population, which shows as it is a significant public health issue. Being in age group between 24 and 35, being unemployed, poor social support, having history of co morbid depression and having history of previous incarceration were positively associated with suicidal behavior among prisoners.

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