

Correlation between Factors Associated with Depression and Severity of Depression among Incarcerated Men in Meru, Main Prison

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Abstract

Depression is one of the most prevalent mental disorders globally and it is known to cause impairment in cognitive, social, emotional, and occupational functioning. This study sought to assess the correlation between factors associated with depression and the severity of depression among incarcerated men in Meru, Main Prison. A quasi-experimental research design was adopted with a sample size of 148 inmates selected using a simple random sampling technique. Quantitative data was obtained from the social demographic questionnaire and the BDI-II. The study findings revealed several key correlations related to depression among participants. There was a weak negative correlation between depression severity and participants' age categories ($r = -.020$; $p = 0.05$), indicating that younger participants experienced more severe depression. A strong positive correlation was observed between depression severity and the length of participants' sentences ($r = .183$; $r = 0.01$). Participants' choice of drugs negatively correlated with depression severity ($r = -0.726$; $p = 0.01$), while chronic illness was positively correlated with severe depression ($r = 0.003$; $p = 0.01$). Additionally, feeling socially neglected and lonely in prison showed a strong positive correlation with depression severity ($r = 0.171$; $p = 0.01$), while a negative correlation was found between perceptions of physical, emotional, and verbal abuse in prison and the development of severe depression ($r = -0.120$; $p = 0.05$). The study recommends that prison authorities enhance privacy in lavatories and bathrooms, expand vocational training programs and orientation for inmates, and encourage more frequent family visits for social support.

Keywords: *Factors Associated with Depression, Severity of Depression, Incarcerated Men*

Introduction and Background

Globally, the prevalence rate of depression in prison has been on the rise among the prison population. Studies in various countries have established high prevalence rates of depression among inmates (Bedaso et al., 2020; Fazel et al., 2016; Museve et al., 2020). The high prevalence rate of depression in correctional facilities is worrying because of its impact on the

mental, emotional, and physical well-being of incarcerated individuals. Depression among incarcerated men can lead to impaired rehabilitation due to interference with the individual's ability to participate in rehabilitation programs and activities aimed at curbing recidivism. Further, depression affects the physical health of incarcerated men and when this is combined with limited access to medical care may further compound their suffering. In addition, it may result in aggression and violence among incarcerated men consequently leading to disciplinary problems, and conflict with other inmates or staff.

To this end, Prisons conduct vocational training programs as a rehabilitative measure, however, these programs lack mental wellness aspects that could address depression among incarcerated men. However, these programs are not sufficient to fully transform the offenders because the focal point of these programs is equipping them with skills for self-reliance with little impact on mental wellness, hence a rise in the prevalence of depression and other mental disorders.

There is limited research in this area. While very few measures have been taken to reduce the frequency, particularly among male convicts, many researchers have concentrated on how common depression and other mental diseases are among prisoners. This study sought to assess the correlation between factors associated with depression and the severity of depression among incarcerated men in Meru, Main Prison.

An investigation by Gang et al. (2021) concentrated on the association between Chinese prisoners' substance abuse and gambling histories with PTSD and depression symptoms. To measure exposure to trauma, perceived history of substance abuse and gambling addiction, social support, childhood trauma, PTSD, and depression, a self-administered standardized questionnaire was employed. Records from prisons were used to gather criminal information. To investigate the relationship between PTSD and depressed symptoms, linear regression was used. Of these participants, 78.8% had at least one traumatic incident, 26.7% had drug addictions, 85.5% smoked, 70.8% drank alcohol, and 21.4% had gambling addictions before being imprisoned. Depression and PTSD had prevalence rates of 28.8% and 7.1%, respectively. Except for alcohol use, exposure to trauma was substantially linked to PTSD and depressive symptoms but not to substance addiction or gambling. After correcting for demographics, criminal history, health condition, social support, childhood trauma, and lifelong traumatic distress, perceived pathological alcohol consumption and gambling were found to be strongly linked with PTSD and depressive symptoms.

In Malaysian prisons, Jacob et al. (2022) sought to determine the prevalence of clinical depression and associated variables among senior inmates. The Patient Health Questionnaire 9 (PHQ-9) was used to evaluate clinical depression. 127 (42.2%) of the 301 prisoners who took part in the study had clinical depression. The findings indicated that male gender, aggression, and lower levels of social support from friends were the linked factors.

In Nigerian prisons, Uche and Princewill (2015) investigated the clinical predictors of depression. After screening with the BDI in a two-stage design, 400 convicts were questioned using stratified random sampling and the WHO SCAN's depression section. The significance test was set at $p < 0.05$ and SPSS version 17 was utilized for the analysis. According to the findings, 169 people who used the BDI experienced depression. SCAN showed a prevalence of 25 (6.2%) major depression without psychotic features and 18 (4.5%) major depression with psychotic somatic features. There were also 57 (14.2%) moderate depression with somatic features and 59 (14.8%) light depression with somatic features. Clinical variables of statistical significance included psychiatric history and retroviral status. However, multiple logistic regression analysis showed that psychiatric history was the most effective predictor of depression in the individuals (OR: 0.19, CI=0.08-0.48, $p=0.01$).

In southern Ethiopia's Arba Minch and Jinka City, Abdul Kadir et al. (2022) investigated the incidence of depression and associated factors among inmates. 650 inmates were chosen for a cross-sectional survey in Jinka City and Arba Minch. The study participants were chosen using a straightforward random sampling method. Open data sets were used to acquire the data, which was then exported to SPSS version 25 for analysis. Statistical significance was demonstrated using binary logistic regression analysis with a p -value of 0.05 at the 95% confidence level. This study found that rates of depression among inmates were high. Factors associated with depression include age ≥ 48 years, living in a city, use of smokeless tobacco, lack of physical activity, and lack of income-generating prison jobs.

A study by Muigai (2014) investigated the relationship between alcohol consumption and depression among female prisoners held in Kenya during the past 12 months. The purpose of this study was also to find out whether there is a relationship between alcohol use disorders and depression and crime in the sample. The results showed that many respondents (58%) were aged between 21 and 30 years and had never been married. It was also found that more than half of the respondents had a higher secondary education degree, 82% were employed or self-employed, 66.5% (129) were in prison for non-criminal offenses, especially interest violations,

and 33.5% (65) were in prison. Prison for a crime. 53% (103) were found to be harmful or dependent on alcohol. The study concluded that there was a significant relationship ($p=0.049$) between alcohol consumption and depression.

Methodology

This study used a quasi-experimental research design. This study was carried out at Main, Meru Prison which is a government institution located in the town of Meru, the capital of Meru County, in North Imenti Constituency in Meru County. The target population was 700 incarcerated men at Main Meru Prison (Meru GK Prison, 2023). A sample size of 148 inmates was selected using a simple random sampling technique. Quantitative data was obtained from the social demographic questionnaire and the BDI-II.

Descriptive statistics was used to present the data obtained in the form of tables and graphs. BDI-II score (for both the pre-test and post-test) was used for the test of significance using the dependent (correlated) paired samples t-test to compare the means of the two related groups (pre-test and post-test, that is before and after REBT). Bivariate analysis was used to analyze various variables between groups about baseline, mid-line, and end-line data. One-way ANOVA, Person's chi-squared test, and t-test were used to confirm the baseline equivalence between the control and experimental groups. Further, binary logistic regression was utilized where there were differences to identify effect modifiers and confounders.

Results

The objective of this study was to examine the correlation between factors associated with depression and the severity of depression among the incarcerated men in this study. Pearson correlation statistics was used to examine the direction of the linear relationship between socioeconomic and demographic characteristics and depression. Pearson correlation is a parametric statistic, which measures the strength and direction of linear relationship between pairs of continuous variables. Subsequent tables present evaluations of whether there is statistical evidence of a linear relationship among the pairs of variables in the population correlation coefficient.

Table 1: Correlation of Key Sociodemographic Characteristics and Severity of Depression

	Age	Marital	Children?	Num child	Edu level	Occup/b4 g	Earnin	Depression
Age categories	1							
Marital	.380**	1						
Children?	-.412**	-.675**	1					
Num children	.471**	.565**	-.764**	1				
Education level	-.009	-.029	.071	-.016	1			
occupation b4 arrest	.163**	.113	-.130*	.135*	.082	1		
Earning	.056	.016	-.017	.027	.076	.135*	1	
Severity of depression	-.020*	.065	-.075	.034	.041	-.008	-.012	1

** Correlation is significant at the 0.1 level (2-tailed)

* Correlation is significant at the 0.5 level (1-tailed)

Table 1 presents the Pearson correlation test showing the correlates of key sociodemographic characteristics and severity of depression among the participants. A correlation test that measures the strength of association between two variables and the direction of the relationship examines the value of the correlation coefficient between the severity of depression and participants' age. The test showed a weak negative correlation at 1-tailed between the severity of depression and participants' age categories ($r = -.020$; $p = 0.05$). The negative correlation implies that the two variables move in opposite directions. This means that as the age of participants increases, the severity of depression decreases. That implied that depression becomes severe with younger jailbirds.

However, there was no correlation between the severity of depression and other sociodemographic characteristics in this study. Conversely, this study found a strong positive correlation between participant's age and marital status at 2-tailed ($r = .380$; $p = 0.01$). A strong positive correlation shows that as the participants advance in age, marital status similarly changes. Further, this study found a strong positive correlation between marital status and number of children the participants had ($r = .565$; $p=0.01$). This implied that as the marital status of the participants changes, numbers of participants' children also increase. Also, this study found a weak positive correlation between occupation before the arrest and participants'

earnings before the arrest ($r = .135$; $p = 0.05$). It means that an increase in occupation status likewise increases the level of earnings among the participants.

Table 2: Correlates of Severity of Depression and the Participants' Incarceration Experiences

	Severity of depression	First time to be imprisoned	Sentenced years	The period spent in prison	Medical condition?	Access to medical attention	Enough sleep at night	Troubled being separated	Enough social support in prison
Severity of depression	1								
This first time to be imprisoned	.108	1							
Sentenced years	.183**	.099	1						
The period spent in prison	.019	.028	.313**	1					
Medical condition?	.072	-.110	.111	.103	1				
Access to medical treatment	.092	-.055	.089	.035	.185**	1			
Enough sleep at night	-.050	-.105	-.068	-.081	.066	.195**	1		
Troubled being separated	-.021	.087	.172**	-.002	.002	.026	.010	1	
Enough social support	-.067	-.003	-.050	-.093	.077	.119	.223**	-.009	1

** . Correlation is significant at the 0.01 level (2-tailed).

Table 2 shows the correlation between the severity of depression and the participants' incarceration experiences. The findings from the Pearson correlation indicated a strong correlation between the severity of depression and the years the participants were sentenced ($r = .183$; $r = 0.01$). This was interpreted that the more years the participants were sentenced, the more severe the depression among the participants. Likewise, a strong positive correlation was found between the sentenced years of the participants and the period spent in prison ($r = .313$; $p=0.01$). This means that the longer the period participants have spent in prison, the higher the sentence years. This suggests that participants who were sentenced to longer periods had also spent more years in prison as opposed to those who were sentenced to a lesser period of years. Likewise, this study also found a positive correlation between sentenced years to imprisonment and participants' trouble being separated from their family and friends ($r = .172$; $p = 0.01$). This also implied that the more the sentenced years, the more the participants became troubled about being separated from their family and friends.

Consequently, this study found also a strong positive correlation between having access to medical attention while in prison and having enough sleep at night ($r = .195$; $p = 0.01$). This establishes the fact that an increase in access to medical attention can promote sound sleeping habits and sleep enough while in prison. Also, having enough social support was found to be positively correlated with having enough sleep at night while in prison ($r = .223$; $p = 0.01$). This suggested that social support for incarcerated men promotes peace of mind that guarantees peaceful sleep while in prison.

Table 3: Correlation of Severity of Depression and Participants' Drug Use

	Severity of depression	Drugs of choice	Period of using drugs	History of mental illness	Lack of alcohol /drug stresses	I suffer from a chronic illness
Severity of depression	1					
Drugs of choice	-.726**	1				
Period of using drugs	-.008	-.593**	1			
History of mental illness	.076	-.044	.538**	1		
Lack of alcohol/drug stresses	-.043	-.073	-.013	.637**	1	
I suffer from a chronic illness	.003**	.075	-.046	.071	-.049	1

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3 analyses the correlation between participants' drug use and the severity of depression. As indicated in the Table, the choice of drugs by the participants was found to be negatively correlated with the severity of depression ($r = -.726$; $p = 0.01$). A negative correlation means that the two variables move in opposite directions. This suggested that at lower severity of depression, which is mild depression, the choice of drugs increases. Therefore, drug use was found to be associated with severe depression. In addition, chronic illness was found to be positively correlated with severe depression ($r = .003$; $p = 0.01$). A positive correlation between chronic illness and the severity of depression means that the more chronic the illness, the more severe the depression. The incarcerated men suffering from chronic depression were more likely to develop severe depression while in prison.

There was a strong negative correlation was found between the period of using illicit drugs and the choice of drugs ($r = -.593$; $p = 0.01$). This is interpreted that as the year of using illicit drugs increases the choice of hard drugs also decreases. This suggested that participants seem to lower the highness of drugs as the period of using the drugs increases. Further, this study found a strong positive correlation between having a history of mental illness and a period of using illicit drugs ($r = .538$; $p = 0.01$). This simply means that using illicit drugs among the incarcerated men was as old as the history of mental illness. A linear relationship exists between

mental health conditions and the use of illicit drugs among incarcerated men. Similarly, the results of the Pearson correlation test showed a positive correlation between a history of mental illness and participants having stress because of lack of alcohol use and illicit drugs ($r = .637$; $p = 0.01$). This means the higher the period of mental health condition, the higher the distress associated with the unavailability of alcohol and drugs. This implied that participants could become addicted to substances as the history of mental illness lingers.

Table 4: Correlation of severity of depression and participant's perception of the prison environment

	Severe depression	The prison environment is stressful	Lack of privacy is a stressful matter while in prison	My jail term is long and it is stressing	Separation from my family is stressful.	I have felt socially neglected & lonely ever since I came to prison	Sexual related _abuse while in prison makes me unhappy	Physical, emotional & verbal abuse common in prison
Severe depression	1							
The prison environment is stressful	-.055	1						
Lack of privacy is a stressful matter while in prison	-.037	.454**	1					
My jail term is long and it is stressing	.018	.395**	.315**	1				
Separation from my family is stressful.	-.035	.543**	.566**	.464**	1			
I have felt socially neglected & lonely ever since I came to prison	.171*	.355**	.305**	.383**	.385**	1		
Sexual related _abuse while in prison makes me unhappy	.036	.054	.143*	.131*	.069	.080	1	

Victimization and discrimination of imprisoned men	-0.028	.194**	.118	.266**	.206**	.154*	.199**	1	
Physical, emotional & verbal abuse common in prison	-.120*	.334**	.288**	.213**	.340**	.271**	.085	.221**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 4 presents the results of the Pearson correlation test on the severity of depression and participant's perceptions of the prison environment. As shown in the Table, data showed a strong positive correlation between feeling socially neglected and lonely in prison and the severity of depression ($r = .171$; $p = 0.01$). This means that the more severe the feeling of social neglect and loneliness in prison, the more severe the depression. Social neglect, abandonment, and feelings of loneliness are significantly associated with the severity of depression. The more severe the feelings of loneliness, the more severe the depression. Similarly, this study found a negative correlation between having a perception of physical, emotional, and verbal abuse in prison and developing severe depression ($r = -.120$; $p = 0.05$). This suggested a strong linear relationship between feelings of loneliness, perception of physical, emotional, and verbal abuses, and severity of depression.

Furthermore, results from the Pearson correlation analysis showed a positive correlation between the perception that the prison environment is stressful and the participants' perception that lack of privacy is a stressful matter while in prison ($r = .454$; $p = 0.01$). This suggested that part of what made participants perceive the prison environment as stressful was that there was no privacy while in prison. Also, the perception that prison environments were stressful and perceiving jail term as long and stressful positively correlated ($r = .395$; $p = 0.01$). That means that the higher the intensity of perceiving jail term as long and stressful, the higher the chances that the prison environment will appear stressful. Additionally, the perception that the prison environment was stressful was found to be positively associated with the feeling of separation from family ($r = .543$, $p = 0.01$), and positively associated with feeling socially neglected and lonely while in prison ($r = .355$; $p = 0.01$), also, the perception that prison environment was stressful was positively correlated with experiencing physical, emotional & verbal abuses common in prison ($r = .334$; $p = 0.01$). These findings suggest that the perception of being

separated from the family, the perception of being neglected and abused, and feelings of loneliness are reasons why participants felt that the prison environment was stressful to them.

Moreover, this study found that the perception that lack of privacy is a stressful matter while in prison is positively correlated with the perception that the jail term was long and stressful ($r = .315$; $p = 0.01$), it was also positively associated with feelings that separation from family is stressful ($r = .566$; $p = 0.01$), feeling of socially neglected and lonely ($r = .305$; $p = 0.01$), and physically, emotionally, and verbally abused in prison ($r = .288$; $p = 0.01$). Also, this study found that lack of privacy was a stressing matter while in prison and was positively correlated with sexual-related abuses while in prison ($r = .143$; $p = 0.05$). These findings implied that the intensity of distress level related to lack of privacy while in prison was significantly associated with the intensity of feelings related to long jail term, separation from family, loneliness, abuses, and most especially, it appears that incarcerated men were also experiencing sexual harassment and sexual abuse because they lack privacy while in prison.

Subsequently, results from the Pearson correlation test indicated that feelings of being socially neglected and feeling of loneliness since the participants were sentenced were positively associated with the feeling of being victimized and discriminated against in prison ($r = .154$; $p = 0.05$), and positively correlated with physical, emotional and verbal abuses in prison ($r = .271$; $p = 0.01$). These findings suggested that the feelings of loneliness and neglect increase the feelings of being victimized and discriminated against in prison. It was also positively associated with the perception of being abused physically, emotionally, and verbally. Furthermore, Pearson correlation results in this study showed a positive correlation between the experience of victimization and discrimination of imprisoned men and physical, emotional, and verbal abuses in prison ($r = .221$; $p = 0.01$). This implied that an increase in abuses in the prison increases the perception of victimization and discrimination in the prison.

Discussion

This study found a weak negative correlation between the severity of depression and participants' age categories. This correlates with Tirunch et al. (2022) study. In contrast, Majekodumni (2017) reported that the prevalence of depression was found higher in prisoners who were 30 years and above. The findings revealed a strong correlation between the severity of depression and the years the participants were sentenced. Congruent with these findings, a study by Reta et al., (2020) in Debre Berhan prison in Ethiopia found that there was an

association between depression and those sentenced between 5-10 years. Conversely, results from a study by Alemayu (2019) in Bahir Dar prison in Ethiopia revealed that those serving longer sentences, 5 years and above had higher prevalence and higher severity levels of depression.

The study found a strong positive correlation between feeling socially neglected and lonely in prison and the severity of depression. This corresponds with a study report that stated that depressive symptoms were more found in prisoners who were kept in confinement than those who were not (Kastos et al., 2022). The findings also revealed a negative correlation between having a perception of physical, emotional, and verbal abuse in prison and developing severe depression. This was confirmed by another study that prisoners experience psychological stress and are more prone to depression when the environment is not safe (Lutz et al., 2019).

This study found that the perception that lack of privacy was a stressful matter while in prison is positively correlated with the perception that the jail term is long and stressful. Depression increases due to biological and psychological characteristics that increase with stressful situations, such as a lack of control over their environment (Radeloff et al., 2019). Lack of privacy was also positively associated with feelings that separation from family is stressful. This suggests that staying for so long in prison with a lack of privacy, and feelings of separation from family are interconnected and increase the likelihood of depression among prisoners (Reta et al., 2020). Lack of privacy was also positively correlated with physical, emotional, and verbal abuse in prison. A study in Kenya found that Male prisoners sentenced to 6-10 years had the highest percentage of sexual assault by a fellow prisoner (Makokha, 2019).

Conclusion

The study found a negative correlation at 1-tailed between the severity of depression and participants' age categories, meaning that the severity of depression was prominent among the younger participants.

Lack of privacy was positively correlated with the severity of depression. This study recommends that the prison authorities should consider enhancing privacy especially when it comes to the use of lavatories and bathrooms. The years of sentence were positively correlated with the prevalence of depression. Those who were found to be more depressed were those who were sentenced to between 1 and 5 years. It is therefore recommended that the prison

authorities consider expanding vocational training programs from which the inmates can pick and equally prepare orientation programs for the inmates. Lack of social support and family separation was found to be associated with high depression levels and therefore it is recommended that the prison authorities consider frequent visits from the families of incarcerated individuals. Further, spouse visits for the married should be accorded sufficient time for the incarcerated individual to reconnect with the spouse including conjugal rights.

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