

A Study of Depression and Its Predictors among Prisoners in Central Prison - KadapaCh. V. N. Saritha¹, D. Sunitha², O. Anwar Basha³, Vishnu Prasad P.⁴, P. Vishalakshi⁵¹Assistant Professor, Department of Psychiatry, Institute of Mental Health-Kadapa²Associate Professor, Department of Psychiatry, Institute of Mental Health-Kadapa³Junior Resident, Department of Psychiatry, Institute of Mental Health-Kadapa⁴Senior Resident, Department of Psychiatry, Institute of Mental Health-Kadapa⁵Assistant Professor, Department of Psychiatry, Institute of Mental health-Kadapa

Received: 25-08-2024 / Revised: 23-09-2024 / Accepted: 26-10-2024

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Conflict of interest: Nil

Abstract:**Background:** Mental illness disproportionately affects the physical, psychological, and social well-being of prisoners worldwide at a far higher rate than the general population. Depression is one of the common mental illnesses. However, in low- and middle-income countries, relatively little research has been undertaken to assess the prevalence and the factors that contribute to depression among prisoners.**Aim:** This paper aims to assess the burden and predictors of depression among prisoners in a central jail in Kadapa.**Method:** This cross-sectional study was conducted among prisoners in central jail of Kadapa. Out of total 550 prisoners, 257 were selected by random sampling method and completed the interview; among them males were 235 and females were 22. The socio-demographic characteristics and PHQ-9 scale were used for data collection. Descriptive and inferential statistics were applied for data analysis.**Result:** In the overall study sample, 27.23% of prisoners were diagnosed with moderate depression, and 22.9% were diagnosed with severe depression. Depression was more among the prisoners with life sentence and in those with first time imprisonment. There was significant association was seen between environment factors like poor nutrition and less social support from family member's adjustment issues with peers with depression. Binary logistic regression showed that higher education, being accused of a crime, and having low social support are all significant predictors of depression in prisoners.**Conclusion:** The study emphasizes the significance of understanding the role of social support in prison and assisting policymakers in developing policies that make it more prisoner-oriented, resulting in increased prisoner mental well-being and health.**Keywords:** Depression, jail, living environment, prisoners, social support.

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Introduction

Mental disorders are one of major public health concern in all countries around the world. An estimated 450 million people are affected worldwide [1]. These disorders are found to be disproportionately more prevalent among the prisoners. Imprisonment has a profound effect on the psychological well-being of the person who is jailed. According to the American Psychological Association, prisoners suffer more from serious mental illness (10-20%) as compared to the general population (5%) (APA,2014) [2].

The prisoners commonly suffer from anxiety disorders, post-traumatic stress disorders, mood disorders or schizophrenia. These mental issues may be either pre-existing or may develop over time after imprisonment [3]. A variety factors may lead to

development of mental disorders like lack of social interaction, a lack of personal space, forced isolation, insecurities about prospects, overcrowding, hostility, lack of access to adequate health services, and soon [4]. A study conducted in one of Nepal's [5] largest prison found that nearly 35% of the prisoners were suffering from depression similar to the findings of studies carried out in the USA [6], Nigeria [7], and Iran [8].

Despite this high incidence, these disorders often go unnoticed by the prisoners or prison staff, leaving the person to suffer in silence. India has the fifth largest prisoner population in the world with 1,330 functioning jails [9]. According to estimates, over 5,73,220 people were imprisoned in Indian jails in 2022 [9]. India has a large pool of qualified

staff in general health care, but the availability of mental health professionals is less. This is creating a lacuna in the availability of mental health services in prison that can increase the risk of recidivism.

The total prison population of Andhra Pradesh is 7254 of which 1988 are convicts and 5123 are undertrial prisoners with 106 jails including 1 open jail. [9] Andhra Pradesh has a smaller number of prisoners than their actual capacity with occupancy rate of 86%. There is a lack of scientific data on the mental health conditions and causes of mental illnesses among the prison inmates in Andhra Pradesh. Many of the studies were done to assess mental morbidities and their causes among the inmates in western jails, and it is questionable whether these results can be applied to other countries, such as Indian detention centres [10]. Suicide is the major complication of depression throughout the world and often leads to the deaths of inmates in prison, with approximately 33% of inmates reporting lifetime attempts of self-harm and approximately 20% contemplating suicide. In addition, depression is attributed to be the main cause of disability among prisoners accounting for 18% of all cases [11]. Despite the severity of the problem, there is a scarcity of studies on prisoners assessing the prevalence of depression in Andhra Pradesh. Thus, this study is conducted for the benefit of both the prison inmates and policymakers to design better policies and interventions and to bring out new reformation in prison for the mental well-being of the prison inmates.

Aims & Objectives

1. To assess the prevalence of depression among prisoners.
2. To identify the predictors associated with depression among prisoners.

Methodology

This is an institutional-based, cross-sectional study carried out in 2024 at one of the central jails of Andhra Pradesh, which has a capacity of 550 inmates, out of which males 510 and females 40. Male and female prisoners aged between 18 and 75 years, who were imprisoned for more than 3 months and were willing to participate in the study were considered for inclusion in the study. The prisoners who were mentally retarded or had a serious medical disorder were excluded from this study.

Sample size and sampling technique: The sample size was calculated using the single proportion formula¹³: $N_i = (z^2 \times p \times q/d^2)$, where N_i =initial required sample size, p = prevalence of depression, which was 16.1%, [14] ' q '=1- p , ' d '= margin error of 5%, and ' z ' was confidence interval taken at 95% (1.96).

$$N_i = (1.96)^2 \times 0.161 (1-0.161) / (0.05)^2$$

$$N_i = 0.5189/0.0025 = 207$$

As the central jail of Andhra Pradesh inhabited a population of 550 inmates ($N = 550$), by using the finite correction formula, we obtained a final sample size of $N_f = 146$

The final samples were selected based on a random sampling method. A list of 550 prisoners was obtained from the prison administration to create a sampling frame for the study. A total of 257 participants gave consent, completed the interview and were included in the study.

Data collection technique: The data were gathered using socio-demographic characteristics such as age, gender, educational status, marital status, and family income, the status of imprisonment and imprisonment characteristics, living conditions inside the jail, family support and social support. Telugu and English versions of the PHQ-9 [14] scale was used to estimate depression among the inmates. Before the start of data collection, the PHQ-9 scale was translated into regional language (Telugu) and then back-translated to the English language to evaluate consistency. To maintain the quality, integrity, and confidentiality of the data, they were collected by the first author itself. It took approximately 15-20 min to collect data from each participant.

Ethical approval was taken from the institutional ethical committee of the Government Medical College, Kadapa and permission was taken from the Jail Superintendent and DIG prisons, Kadapa.

Statistical analysis & tools used: Data collected and entered into Microsoft Excel was imported to SPSS for further analysis. Tables were used to present the data. Descriptive statistics were computed and presented in the form of tables and figures.

Perceived jail environment: The 'perceived jail environment' variable was assessed using the question "How do you rate the environment of jail?" The score ranged between 1 and 5 with 1 meaning very bad and 5 meaning very good jail environment. Overall, the jail environment was categorized as bad (score 1-2), moderate (score 3), and good (score 4-5) for use in the regression analysis.

Quality of food—Quality of food was assessed through the question "How do you rate the quality of food inside the jail?" using a Likert scale of 1-5. A score of 1 denoted very bad and a score of 5 denoted very good quality of food.

Social support—The 'social support' variable was assessed using two questions—"How do you rate the support and help you receive from your family?" and "How do you rate the support and help you receive from your friends inside jail?"

The responses to both questions were recorded using Likert scale ranging from 1 to 5 with 1 as very low support and 5 as very high support. An overall social support construct was calculated by taking the average score of both the social support variables (social support from family members and that from friends inside the jail). The overall construct was categorized into low, moderate, and high social support with scores of 1-2, 2.5-3.5, and 4-5, respectively, for use in the regression analysis.

The depression variable was re-categorized into depressed and not depressed for use in the regression analysis. Depressed consists of moderate, moderately severe, and severe depression as a score above 10 is considered diagnostic for depression; while the not depressed category consisted of minimal and mild depression levels as a score below 9 represents either no depression or sub-threshold depression [14]. Binary logistic regression analysis was used to identify factors associated with depression. An odds ratio with 95% confidence interval and a P value of 0.05 was used to determine the factors associated with depression.

Results

A total of 257 prisoners who met the inclusion criteria and agreed to participate in the study were interviewed, accounting for 46.7% % of the total prisoners.

About 68.9% of participants stated that they had been accused with a crime, while the remainder 31% had been convicted of a crime. Overall, the sample (N = 257) consisted of participants with a mean age of 32.12 (\pm 11.90 SD) years.

Among the participants 102 (38.2%) were single, 142 (53.18%) were married and 23 (8.6%) were divorced. The education qualification among participants <10th class were 110 (42.8%), 10th to graduate 39 (15.17%), post-graduate 6 (2.3%) and 102 (39.68%) were illiterates.

Before being jailed, nearly two-thirds (62.9%) of them lived in rural areas. Around 57.2% of them came from households that had a monthly income of less than Rs. 10,000. The detailed socio-demographic characteristics of the participants are presented in Table 1.

Table 1: Socio demographic characteristics of prisoners

Variable	FREQUENCY (N= 257)	
Age (years) Mean \pm SD	32.12 (\pm 11.90)	
Marital status	Single	102 (38.2)
	Married	142 (53.18)
	Divorced	23 (8.6)
Place of residence	Urban	80 (29.9)
	Rural	168 (62.9)
	Semiurban	19 (7.1)
Educational status	illiterate	102 (39.68)
	<10 th class	110 (42.8)
	10 th – graduate	39 (15.17)
	Post-graduate	6 (2.3)
Family income	Rs. < 5,000	71 (26.5)
	Rs. 5,000-Rs. 9,999	82 (30.7)
	Rs. 10,000-Rs. 14,999	36 (13.4)
	\geq Rs. 15,000	78 (29.2)
Status of imprisonment	Convicted	83 (31)
	Accused	184 (68.9)

The quality of food provided in the prison was rated (frequency chart) as bad by 57.9 % and very bad by 18.3% of the inmates. The majority of the respondents reported easy access to television (80.9%) but inaccessibility to telephones (79.0%). Out of 257 respondents, only 47 (18.2%) mentioned that they practice yoga or other

recreational activities. Three-quarters (75.9%) of the inmates did not report engagement in any type of work that includes physical effort. More than half of the participants (54%) rated the jail environment as bad or very bad (pie chart) [Table 2].

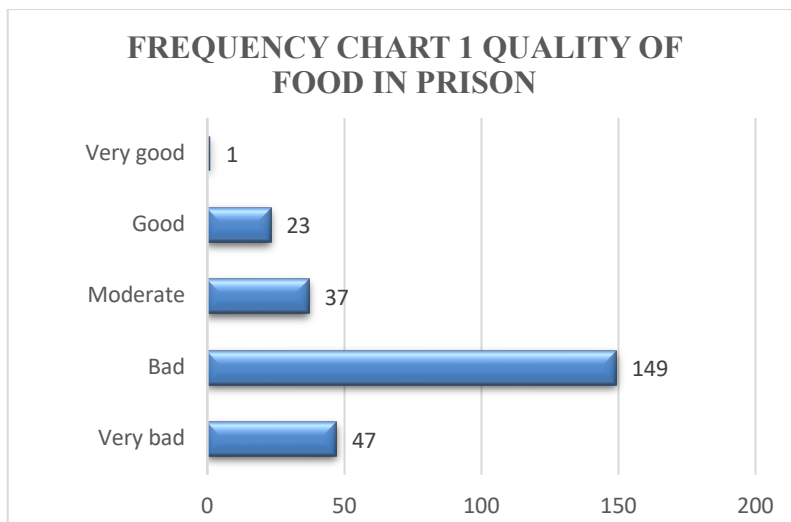


Figure 1: Frequency of Quality of Food in Prison

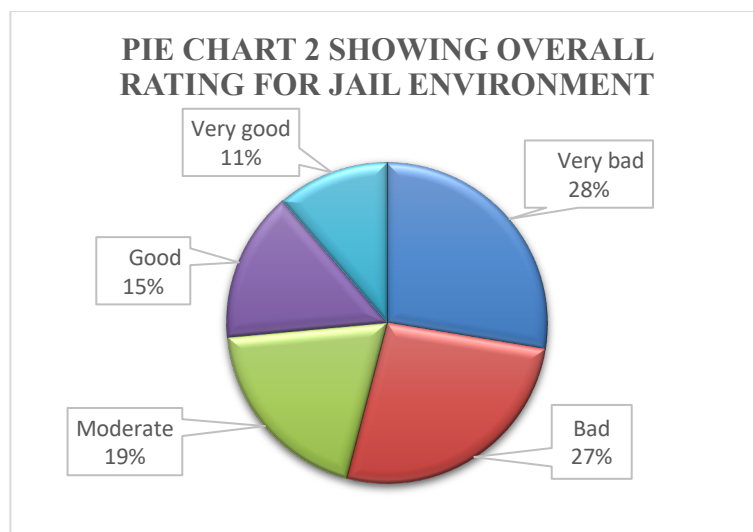


Figure 2: Overall Rating for Jail Environment

Table 2: Environment in Jail (n=257)

Variable		Frequency
Quality of food	Very bad	47 (18.3)
	Bad	149 (57.9)
	Moderate	37 (14.4)
	Good	23 (8.94)
	Very good	1 (0.39)
Accessibility to television	Yes	208(80.9)
	No	49 (19.1)
Accessibility to phone	Yes	54 (21.0)
	No	203 (79.0)
Participation in Yoga/Recreational activities	Yes	47 (18.2)
	No	210 (81.8)
Physical activity	Yes	57 (24.1)
	No	200 (75.9)
Overall rating for jail environment	Very bad	71 (27.6)
	Bad	68 (26.4)
	Moderate	50 (19.4)
	Good	39 (15.2)
	Very good	29 (11.2)

Social support: The majority of the prisoners (55.2%) reported very high levels of social support from their family members, while little more than a third (35%) reported high levels of social support from their friends who were incarcerated in the same jail. Table 3 shows the level of social support the participants received in the jail.

Table 3: support from family member and friends inside the jail

Variable		Number (%)
Support from family members	Very low	15 (5.8)
	Low	31(12.0)
	Moderate	46 (17.8)
	High	23 (8.9)
	Very high	142 (55.2)
Support from friends inside jail	Very low	31 (12.0)
	Low	106 (41.2)
	Moderate	18 (7.0)
	High	12 (4.6)
	Very high	90 (35.0)

Depression: While all jail inhabitants were found to have some level of depression, half of the inmates (50.5%) were identified to have severe or moderately severe depression using the PHQ-9

scale. Another 45.13% of prisoners were categorized to have mild and moderate levels of depression. The characteristic of depression among the inmates is presented in frequency chart: 3.

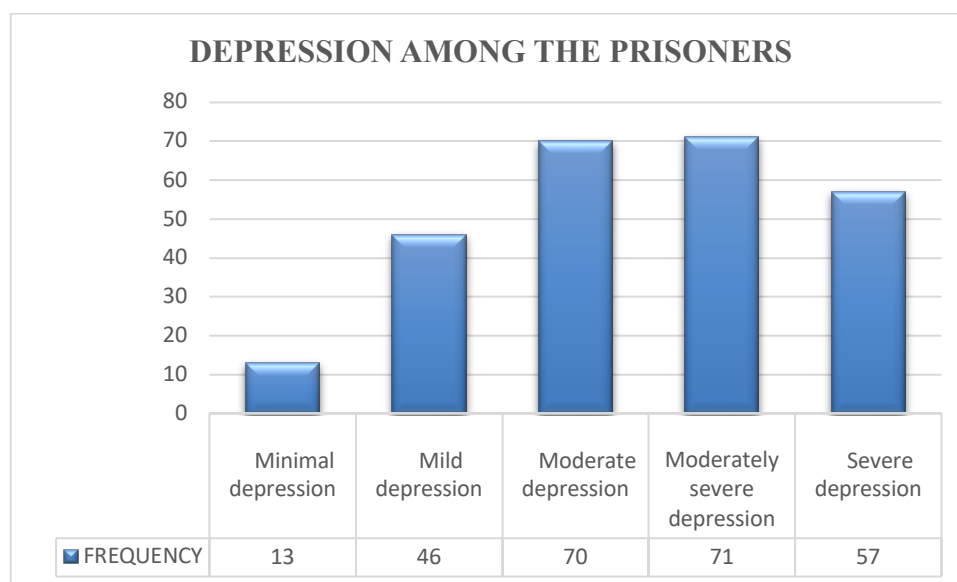


Figure 3: Depression Among The Prisoners

Discussion

In our study, 50.2 % of male prisoners and 45.4% of female prisoners reported severe depression symptoms in central jail in, Kadapa, Andhra Pradesh. This was found to be consistent with a study conducted in the Central Jail of Guwahati which reported a similar 62.5 per 100 male prisoners with depressive symptoms [15]. Comparatively, a lesser prevalence of depression, i.e., 16.2, 16.1, 14, and 12% was reported among prisoners in Central Jails of Amritsar [10], Rajasthan [13] and South India [16,17], respectively. This might be due to the differences in the study period and study settings. The socio-demographic profile revealed that the majority of

the prisoners were young adults, married, and belonging to rural areas. Similar characteristics were reported in the study conducted by Ayiroli-meethal et al. [10], Goyal et al. [13], and Kumar and Daria [18].

A study conducted in Ethiopia found that a large proportion of prisoners had education less than the primary level [19]. This was found to be inconsistent with our study results as 60.27% of prisoners in our study were educated above the primary level. These variations might be due to the geographical, political, and socio-cultural environment of the two countries. We found that a large proportion of inmates had a monthly income below Rs. 10,000, similar to the studies conducted

by Goyal et al. [18] And Ayiroli-meethal et al. [10] this might be due to the loss of livelihood, earning source, and suffering in their business/job. A study conducted by Bonner et al. [20] found that 51% variation in suicide ideation among prisoners could be attributed to low reasons for living, irrational beliefs, jail stress, and loneliness. Consistently, 54.3% of inmates in our study rated the jail environment as unsuitable for living. Hence, it is necessary to evaluate and address the living conditions of jail to ensure the adequate functioning of prisoners. The study's findings revealed a high prevalence of depression among those with higher education. This was discovered to be similar to the findings of Reta et al. [19] in an Ethiopian study. They discovered that participants with a college or university education were five times more likely to suffer from depression than those who were illiterate. In contrast, Abdu et al. [21] found no link between education and depression in their study. Depression among highly educated inmates may be due to their expectations of better treatment in prison or their concerns about the future after their release. Unfulfilled expectations and uncertainty about the future may lead to depression among well-educated inmates. Our study also found that accused prisoners are more likely to get depressed in comparison to those who were convicted criminals.

A systematic review [22] revealed that accused prisoners face depression and suicidal ideation at some point in time. Alexander-Bloch et al. [23] reported that 46% of their 13 accused participants had moderate to severe depression. This could be due to the accusation's negative impact on self-identity, reputation, relationships with family members or relatives, and difficulty adjusting to the jail environment. As a result, figuring out how to best support those who have been wrongfully accused, as well as their families, is critical.

Different studies have shown that depression in prisoners is strongly linked to the social support they receive. According to a study by Abdu et al., [21] prisoners without social support are twice as likely to develop depression as those who do. These results were similar to our findings which show that the odds of depression are four times more in inmates with low social support than in those with social support. Prison in and of itself means a period of increased risk, which can lead to extreme psychosocial distress as the prisoner feels loneliness without social support. Providing social assistance in prisons may prevent the development of psychosocial distress to depressive disorder.

Limitations

Although the study revealed very important factors associated with mental illnesses among prison inmates, it suffers from the limitations of cross-

sectional study designs, such as it does not indicate a strong cause and effect relationship. Also, female inmates were not housed in the prison understudy, so the number of females in this study is zero. Because the research was conducted in just one prison with a limited sample size, the findings cannot be applied to the entire Indian prison population.

Hence, similar studies on a larger scale can be conducted to get a full picture of the problem. Recommendation: Based on our findings, we recommend that both the government and prison managers should try to strengthen social support in each prison and the support for prisoners from family members, peers, and families. More research should be conducted to assess the mental health of prisoners. The following measures can help reduce the prevalence of depression among prisoners such as increasing the number of prison cells, involvement in recreational and religious activities, and fast hearing of trials in court. Furthermore, training on how to cope with a new environment just before imprisonment and release should be provided to develop the coping mechanism of prisoners. Interventional research should be carried out to recognize effective treatment regimens for depression in prison inmates.

Conclusion

This study highlighted that depression level is comparatively high among those inmates who were accused, are well-educated, and have a lack of social support. Routine screening for depression and access to treatment in prison may be critical. The study emphasizes the importance of comprehending the role of social support in prison and assisting policymakers in developing policies to make it more inmate-oriented, resulting in an increase in prisoner mental well-being and health.

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