

How well is the “Mental well-being” of Prison Inmates? An Exploratory Study from a Prison of Western UP

Huma Khan, Alok Gupta¹, Abhinav Pandey², Amit Kumar², Deepak Charan³, Nipun Agrawal², Rajendra P. Singh²

Associate Professor, Department of Community Medicine, Autonomous State Medical College, Pilibhit, Departments of ²Community Medicine and ³Psychiatry, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, Uttar Pradesh, ¹Department of Community Medicine, Station Health Organisation, Dehradun, Ministry of Defence, Dehradun, Uttarakhand, India

Abstract

Background: Prison inmates experience significantly higher rates of mental health illness compared to the general population, making their mental health an important public health issue. This study aimed to assess the status of mental illness, focusing on anxiety and depression in a central prison of western UP. **Material and Methods:** A cross-sectional study was conducted between August 2022 and January 2024 among 300 inmates. Data were collected using a semi-structured interview schedule including the Hamilton Anxiety Rating Scale (HAM-A), and the Hamilton Depression Rating Scale (HDRS). Stratified sampling with proportional allocation was used to select inmates based on their offenses. Chi-square test and logistic regression were applied to assess the relationships between mental illness, sociodemographic characteristics, and the nature of crime. **Results:** The study found that 59% of inmates were diagnosed with mental illness, 49% experienced anxiety, 37% exhibited depression, and 27.6% had both anxiety and depression. The average HAM-A score was 7.35 ± 5.70 , and the mean depression score was 6.98 ± 5.75 . Inmates aged 31–50 had significantly higher adjusted odds of mental illness (AOR: 3.19 and 3.16). OBC caste (AOR: 3.80) and upper-class status (AOR: 3.85) were also linked to higher risk, while illiteracy had lower odds (AOR: 0.39). A significant association ($\chi^2 = 6.771$, $P = 0.009$) between crime type and mental illness, with nonviolent offenders showing a higher prevalence of mental illness (73.02%) compared to violent offenders (54.85%). **Conclusion:** The high prevalence of mental illness, particularly among prison inmates involved in nonviolent crimes, underscores the need for targeted mental health interventions in prisons to support rehabilitation and reintegration.

Keywords: Anxiety, depression, Hamilton anxiety rating scale (HAM-A), Hamilton depression rating scale (HDRS), mental illness, prison inmates

INTRODUCTION

Prisons basically are institutions that serve a dual purpose of housing convicted individual and performing their rehabilitation.^[1] The health and welfare of prison inmates, especially their mental health, is a critical public health issue that extends beyond the prison walls, impacting the broader community. The provision of quality healthcare for prisoners requires collaboration between correctional facilities and health services.^[2] However, prison inmates, particularly those from lower socioeconomic backgrounds, often experience higher rates of morbidity, mortality, and mental health disorders due to limited access to appropriate care and resources.^[3] Globally, much of the research on inmate health comes from developed countries, yet issues related to the care and treatment of prisoners are universal. There are several long-standing worries

concerning the custody and treatment of prisoners, including the fact that certain nations execute mentally ill inmates.^[4] The care, resources, and knowledge that are lacking cause the prisoners' health to worsen even more.

It is essential to recognize that every individual, regardless of their circumstances, has a basic human right to attain the finest possible state of physical and mental health, inclusive and unhindered.^[5] Mental health problems are disproportionately

Address for correspondence: Dr. Amit Kumar,
Department of Community Medicine, Shri Ram Murti Smarak Institute of
Medical Sciences, Bareilly, Uttar Pradesh, India.
E-mail: dramitkumar9393@gmail.com

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high among prisoners, with studies indicating that inmates are three times more likely to suffer from mental illness compared to the general population.^[6] Prisoners with mental illnesses are routinely subjected to assault, abuse, and extortion by other convicts, as well as neglect and mistreatment by prison staff.^[7] In India, psychiatric morbidity is significantly higher in prisoners than in the general population, yet most Indian prisons have insufficient treatment facilities and almost non-existent services.^[8] The health issues faced by inmates are not only impacted by the conditions they come from but also by the challenging prison setting in which they are imprisoned now. In this context, the present study was conducted to identify the mental health illnesses with an emphasis on anxiety and depression of individuals from a segment of our society who are incarcerated behind the high walls of prison in the district of Bareilly.

MATERIAL AND METHODS

The present cross-sectional study was conducted in the central prison of Bareilly district, Uttar Pradesh, over a period from 1 August 2022 to 31 January 2024. This duration was selected to allow adequate time for data collection while ensuring compliance with necessary prison protocols and administrative permissions. The study population included all inmates in the selected prison facility.

The study frame consisted of a total of 1,370 inmates, who were stratified into six categories based on the nature of their offense: Murder and related offenses ($n = 635$), Sexual offenses ($n = 290$), Theft ($n = 252$), Dowry-related offenses ($n = 83$), Robbery ($n = 73$), and Financial crimes ($n = 37$). The study unit comprised individual prison inmates selected from each offense category, allowing for stratified representation and analysis based on the type of crime.

Inclusion criteria

1. Inmates >18 years of age who gave written informed consent to participate in study.
2. Inmates staying in the facility for more than 6 months.

Exclusion criteria

1. Severe psychiatric illness limiting the communications.

Sampling methodology

Sample size: Based on the prevalence of morbidity among prison inmates in a study conducted by Kumar SD *et al.*,^[9] that is, 63.67% the required minimum sample size has been calculated by using Cochran's formula

where,

n = minimum sample size;

z = level of confidence according to the normal standard distribution that corresponds to the 95% confidence interval ($z = 1.96$);

p = prevalence rate of morbidity of prisoners (63.67%);

q = (1- p)

d = desired degree of accuracy (6%).

Substituting these values into the equation

$$n = \frac{4pq}{d^2}$$

$$n = 4 \times 63.67 \times 36.33 / (6)^2$$

$$n = 257$$

Therefore, the sample size came out to be 257.

Taking 10% more for non-respondents, the size came out to be 283, rounding it up to the 300 sample.

A room with adequate privacy and safety including a chair and a table was made available by prison authorities to interview and examine the prison inmates.

Sampling Technique: Stratified Sampling with proportional allocation.

The sampling weight for each prison inmate, based on their index offense, was calculated to achieve the required total sample size of 300. After applying stratified sampling with proportional allocation, the sample size for each offense included 139 for Murder and related offenses, 64 for sexual offenses, 55 for theft, 18 for dowry, 16 for robbery, and 8 for financial crimes. Then, the required number of inmates from each category was chosen from respective lists by simple random sampling.

Permission for the study was obtained from the prison authorities. Before enrollment, participants were informed of the study's purpose, and written consent was obtained. Before proceeding, assurance was given that any sensitive or confidential information would be appropriately anonymized and safeguarded.

Data collection was conducted from the study participants through a predesigned, pretested semi-structured interview schedule, which incorporated the Hamilton Depression Rating Scale^[10] and the Hamilton Anxiety scale.^[11] The 17-item Hamilton Depression Rating Scale (HDRS) assesses depression severity, with a total score range of 0 to 52. Scores of 0–7 were considered normal, 8–17 indicate mild depression, 18–24 moderate, and >25 severe depression. The Hamilton Anxiety Rating Scale (HAM-A) is a clinician-rated tool comprising 14 items, each scored from 0 (not present) to 4 (very severe), with a total score range of 0 to 56. Anxiety severity is classified as mild (<17), moderate (18–24), and severe (25–30). The data was subsequently entered into MS-EXCEL 2020 and analyzed using SPSS (Statistical Package for Social Sciences), version 25.

RESULTS

The sociodemographic characteristics of the 300 prison inmates in the study indicated that the majority were from rural areas 250 (83.33%) and belonged to lower socioeconomic backgrounds 151 (50.2%). Most inmates were over 60 years old

104 (34.7%). 169 (56.33%) were married and 105 (35%) were illiterate. Before imprisonment, a majority were employed in agriculture 128 (42.67%). Most of the prison inmates came from nuclear families 202 (67.33%) and were Hindu 184 (61.33%), with 173 (57.67%) belonging to the OBC caste.

The study revealed that most prison inmates were incarcerated for violent crimes, with 139 (46.30%) for murder and related offenses, and 64 (21.30%) for sexual offenses. Theft was the most common nonviolent crime, representing 55 (18.30%) of prison inmates [Table 1].

Mental health status of prison inmates, based on a sample of 300 individuals, showed that 59% of the inmates have been diagnosed with a mental illness, while 41% do not present any such diagnosis.

Further distribution of prison inmates based on anxiety status and depression status showed that 51% of the inmate's experience anxiety, while 49% do not, whereas 37% of the population was diagnosed with depression, while 63% did not exhibit depressive symptoms. Table 2 breaks down the severity of anxiety and depression among the population using the Hamilton Anxiety Rating Scale (HAM-A) and Hamilton Depression Scale (HRDS), revealing that 51% of inmates exhibit normal anxiety levels, 39.67% have mild anxiety, and 9.33% present with moderate anxiety. No inmates were classified as experiencing severe anxiety. It also revealed that 62.67% of inmates fall within the normal range, 27.67% experience mild depression, 9.33% suffer from moderate

depression, and 0.33% are categorized with severe depression. The mean HAM-A score for the population was 7.35 ± 5.70 , indicating a relatively low overall anxiety level, and a mean depression score of 6.98 ± 5.75 suggests a generally low to moderate level of depression among the prison population.

The association of sociodemographic characteristics with mental illness revealed that prison inmates aged 31–40 and 41–50 had significantly higher odds of mental illness after adjustment, with adjusted OR values of 3.19 and 3.16, respectively. Rural residents had higher crude odds of mental illness (Crude OR = 2.53), OBC caste inmates showed a higher adjusted risk (AOR = 3.80), and illiterates had significantly lower odds (AOR = 0.39) compared to graduates. Occupation before imprisonment revealed that unskilled, skilled, and unemployed inmates had significantly lower adjusted odds, contrasting with their high crude odds, possibly due to overlapping socioeconomic factors. Upper-class inmates showed a higher adjusted risk (AOR = 3.85) compared to lower-class inmates [Table 3].

A statistically significant association ($\chi^2 = 6.771$, $P = 0.009$) between the nature of the crime and mental illness status among 300 inmates concluded that those imprisoned for violent crimes, 130 (54.85%), had a mental illness. Conversely, among those convicted of nonviolent offenses, 46 (73.02%) had mental illness compared to 17 (26.98%) without mental illness [Table 4].

DISCUSSION

Out of 300 prison inmates, 104 (34.70%) were over 60 years of age, and 46 (15.30%) were in the 50- to 60-year age group. Bhattarai P *et al.*^[12] conducted study in the Central prison of Nepal reported the age distribution of prison inmates, where 9.9% were from the age group 51 and above. A similar age distribution was reported by Nilsson A^[13] where 10% of the prison inmates in the study were aged 45–72 years. In contrast, the results of Kumar SD *et al.*'s^[9] reported age distribution of prison inmates, where 24% belonged to the age group 50 years and above. The place of residence before imprisonment among prison inmates in the current study was predominantly rural, with 250 (83.33%) prison inmates out of 300. This was similar to the results of Kumar SD *et al.*^[9] study reported that 282 (94%) of prison inmates in the central prison of Gulbarga originated from rural areas. The results from the current study revealed that 98 (32.67%) prison inmates were from a joint family and 202 (67.33%) were from a nuclear family. Ayirolimeethal A *et al.*^[14] discovered similar results that 45.7% prison inmates belonged to a joint family, while 54.3% belonged to a nuclear family, whereas Kumar SD *et al.*^[9]

In the current study, out of 300 prison inmates, 151 (50.20%) belonged to the Lower Class, 80 (26.70%) belonged to the Lower Middle Class followed by 29 (9.70%) prison inmates from the Upper Middle Class, and 17 (5.70%) from the Upper Class. Similar results were reported by Mullick M *et al.*^[15] where 88.60% of prisoners were from the lower economic class.

Table 1: Distribution of prison inmates based on the nature of crime in current imprisonment (n=300)

Nature of crime in current imprisonment	Number (n=300)	Percentage (%)
Violent		
Murder and related	139	46.30
Sexual offense	64	21.30
Dowry	18	6.00
Robbery	16	5.40
Nonviolent		
Financial	8	2.70
Theft	55	18.30
Total	300	100

Table 2: Distribution of prison inmates based on status of anxiety and depression

Status	Anxiety status n (%)	Depression status n (%)
Normal	153 (51)	188 (62.67)
Mild	119 (39.67)	83 (27.67)
Moderate	28 (9.33)	28 (9.33)
Severe	0 (0)	1 (0.3)
Total	300 (100)	300 (100)
Mean depression score (HRDS) ^[10] :-	6.98±5.75	
Mean anxiety score (HAM-A) ^[11] :-	7.35±5.70	

Table 3: Association between sociodemographic characteristics of prison inmates and their Mental Illness status

Sociodemographic characteristics	Mental illness		Crude OR [95%CI]	#Adjusted OR [95%CI]
	Yes (n=176)	No (n=124)		
Age group				
21–30	15 (8.52%)	09 (7.26%)	0.50 (0.19–1.28) **	0.90 (0.21–3.86)
31–40	20 (11.36%)	28 (22.58%)	0.21 (0.10–0.44) **	3.19 (1.32–7.74)**
41–50	35 (19.89%)	43 (34.68%)	0.24 (0.12–0.46) **	3.16 (1.36–7.33)**
51–60	26 (14.77%)	20 (16.13%)	0.39 (0.18–0.81) **	2.32 (0.83–5.93)
>60	80 (45.45%)	24 (19.35%)	1	1
Place of residence before imprisonment				
Rural	155 (88.07%)	95 (76.61%)	2.53 (1.21–4.17)**	0.51 (0.20–1.26)
Urban	21 (11.93%)	29 (23.39%)	1	1
Marital status				
Married	95 (53.98%)	74 (59.68%)	0.65 (0.37–1.51)	1.32 (0.61–2.85)
Unmarried	32 (18.18%)	25 (20.16%)	0.24 (0.32–1.33)	1.49 (0.55–4.04)
Widowed/divorced	49 (27.84%)	25 (20.16%)	1	1
Religion				
Hindu	104 (59.09%)	80 (64.52%)	0.45 (0.17–1.21)	2.34 (0.59–9.24)
Muslim	55 (31.25%)	38 (30.65%)	0.52 (0.18–1.45)	0.86 (0.20–3.61)
Sikh	17 (9.66%)	06 (4.84%)	1	1
Caste				
ST	04 (2.27%)	03 (2.42%)	0.844 (0.17–4.19)**	1.25 (0.12–12.65)
SC	54 (30.68%)	17 (13.71%)	2.01 (0.91–4.44)**	0.77 (0.23–2.49)
OBC	88 (50.00%)	85 (68.55%)	0.65 (0.34–1.25)**	3.80 (1.34–10.79)**
General	30 (17.05%)	19 (15.32%)	1	1
Type of family				
Joint	57 (32.39%)	41 (33.06%)	0.97 (0.59–1.58)	0.90 (0.48–1.72)
Nuclear	119 (67.61%)	83 (66.94%)	1	1
Education status				
Illiterate	67 (38.07%)	38 (30.65%)	2.01 (0.92–4.30)**	0.39 (0.15–0.91)**
Up to 8	39 (22.16%)	11 (8.87%)	0.54 (0.32–0.93)**	0.68 (0.32–1.44)
9 to 12	62 (35.23%)	64 (51.61%)	0.412 (0.15–1.11)**	1.57 (0.36–6.77)
Graduate and above	08 (4.55%)	11 (8.87%)	1	1
Occupation before imprisonment				
Unemployed	02 (1.14%)	21 (16.94%)	12.60 (2.35–67.31)**	0.10 (0.1–0.72)**
Skilled labor	12 (6.82%)	10 (8.06%)	21 (4.76–92.54)**	0.06 (0.01–0.32)**
Unskilled Labor	120 (68.18%)	60 (48.39%)	13.36 (2.92–61.12)**	0.06 (0.01–0.38)**
Business/Service	42 (23.86%)	33 (26.61%)	1	1
Socioeconomic status				
Upper class	02 (1.14%)	15 (12.10%)	0.083 (0.02–0.38)**	3.85 (1.0–14.86)**
Upper middle class	22 (12.50%)	07 (5.65%)	1.96 (0.78–4.87)**	0.28 (0.07–1.06)**
Middle class	14 (7.95%)	09 (7.26%)	0.97 (0.39–2.38)	0.63 (0.22–1.81)
Lower middle class	45 (25.57%)	35 (28.23%)	0.80 (0.46–1.39)**	1.51 (0.73–3.12)
Lower class	93 (52.84%)	58 (46.77%)	1	1

#Outcome of Logistic Regression. **P<0.05

Table 4: Association between nature of crime in current imprisonment with Mental Illness status

Nature of crime in current imprisonment	Mental illness		Test of significance
	Yes	No	
Violent (n=237)	130 (54.85%)	107 (45.15%)	$\chi^2=6.771$
Nonviolent (n=63)	46 (73.02%)	17 (26.98%)	Df=1, P=0.009

The current study involving 300 prison inmates found that 176 (58.67%) had a mental illness. This distribution aligns

closely with the findings of Ayirolimeethal A *et al.*^[14] resulted in 68.6% of prison inmates having mental illness, whereas a study conducted by Binswanger IA *et al.*^[16] found a markedly lower 6.2% of mental illness in prison inmates. This contrast in findings could be due to the fact that they have conducted their study on participants who had been freed from prisons and who had successfully reintegrated into society, and thus their study has reported lower rates of mental illness.

The average score of the anxiety (HAM-A) scale for the prison inmates in the current study was 7.35 ± 5.70 . In contrast, a

higher mean score of anxiety (HAM-A) of 13.3 ± 6.4 was reported in a study by Lekka NP *et al.*^[17] Cultural differences owing to geographical variation in the perception and identification of symptoms of anxiety, as well as variations in availability to mental health care facilities and support systems, might have also contributed to differences in anxiety levels observed between the two studies.

A mean depression score of 6.98 ± 5.75 has been found in the current study, contrary to the findings of the study by Hurley W *et al.*,^[18] which reports a higher average depression score of 13.3 ± 6.4 . In the current study, 188 (62.67%) prison inmates were reported as not having depression, 83 (27.67%) having mild depression, 28 (9.33%) having moderate depression, and 1 (0.33%) having severe depression. In contrast, Kundu A *et al.*^[5] reported 2.8% of patients with moderate depression and 46.5% with mild depression. These differences in depression scores may be influenced by differences in sample characteristics, where the current study involved only male prison inmates, while Hurley *et al.*^[18] included both male and female prison inmates.

The study revealed that prison inmates with mental illness are more likely to be older, from rural areas, less educated, unskilled laborers, and from lower socioeconomic classes, highlighting the significant impact of sociodemographic factors on mental health. Comparatively, Baidawi S *et al.*^[19] research showed that older prisoners experience significantly higher distress levels than the general population, with older female inmates and those with a history of mental illness being particularly vulnerable ($P = 0.002$). Both studies emphasize the need for targeted mental health interventions for older, less privileged inmates, addressing gender disparities and socioeconomic barriers to care.

Out of 300 prison inmates, 176 (58.66%) had mental illness. In the violent crime category, 130 (57.85%) prisons had mental illness, while in the nonviolent crime category, 46 (73.02%) had mental illness. The association between mental illness and the nature of crime was found to be statistically significant ($P < 0.05$). In contrast, a study by Ayirolimeethal A *et al.*^[14] reported 8% prison inmates who had mental illness were imprisoned for violent crimes. This difference could have been due to the fact that Ayirolimeethal A *et al.*^[14] included both male and female inmates who had been convicted along with undertrial prison inmates.

The high percentage of mental illness highlighted the necessity of integrated addiction and mental health treatment programs to aid in the rehabilitation and reintegration of prisoners into society. Policymakers and healthcare professionals can create evidence-based interventions to support the general well-being and rehabilitation of incarcerated individuals by understanding the complex relationships that exist between demographic traits, socioeconomic status, and health outcomes.

CONCLUSION

The study revealed a high prevalence of mental illness among prison inmates, particularly those who were older, from rural areas, less educated, unskilled, and from lower socioeconomic backgrounds. Depression and anxiety were also strongly associated with nonviolent crimes. These findings highlighted the need for targeted mental health interventions, especially for vulnerable groups, to support rehabilitation and reduce recidivism.

Ethical clearance

The study was conducted after getting an ethical clearance certificate from the institute's ethics committee. (Ref. No: SRMS IMS/ECC/2022/105, dated: 01/12/2022).

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Conflicts of interest

There are no conflicts of interest.

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