



# Depression among female inmates in central prison of Kathmandu, Nepal

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## ABSTRACT

Depression is a common and serious medical illness that negatively affects how you feel the way you think and how you act. Studies shows that nearly 1/4<sup>th</sup> of the prisoners released each year suffer from depression but don't receive treatment while incarcerated. The main objective of the study was to find out the level of depression among the female inmates in Central Prison of Kathmandu, Nepal and its associated factors. The cross-sectional descriptive analytical study design along with case study was used among 92 respondents who were selected by random sampling. Data collection was carried out using the semi structured socio demographic performa and Beck Depression Inventory. The data analysis was done by using SPSS version 20. Descriptive statistics and inferential statistics i.e. chi square test was calculated. The study revealed that 55 (59.8%) respondents were without any characteristics attitude of depression and 37 (40.1%) respondents had symptoms of depression. According to the result, those 37 respondents with certain symptoms of depression, 2(2.2%), 10(20.7%) and 16(17.4%) were mild, moderate and severe respectively in accordance with the Beck Depression Inventory. No association was found between the level of depression and socio demographic characteristics, imprisonment characteristics and substance use characteristics of the prisoners. Regarding the knowledge of their right to mental health very little 8(8.69%) had the knowledge but in contrast 78 (84.78%) had knowledge regarding the rights to physical health of the prisoners. The study found that the prisoners had higher level of depression. Based on these findings, it can be suggested that the new strategies and the regular mental health check up in the prison should be sought to prevent depression in the prison. Similarly it is of great urgency to concentrate on mental health issue i.e. depression in prison.

**Keywords:** Depression, Beck Depression Inventory, Socio-Demographic Performa

## INTRODUCTION

More than 700 thousand women and girls are held in penal institutions throughout the world either as pre-trial detainees/remand prisoners or having been convicted and sentenced.<sup>1</sup> Among these individuals, the United States comprises the highest female prison population more than 200 thousand. The female prison population of South Asia is approximately 26 thousand. India has the largest female prisoners 17834 and that of Bhutan is 47 which

is lowest in South Asia. Nepal has approximately 1250 female prisoners.<sup>2</sup>

Nepal had approximately 20,000 prisoner as of the start of 2018, whom 18,082 (88%) were males & 1,323 (6.43%) were females and 1069 (5.40%) were foreign. The official capacity of the prison system in Nepal is 6416; hence, the prisons of Nepal are overcrowded. Approximately 331 (25.01%) of the female inmates were residing in the central prison of Kathmandu Nepal.<sup>3</sup>

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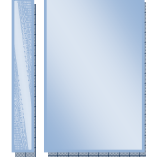
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The health of prisoners has been a neglected issue. There are more than 10 million individuals in prison at any given time with more than 30 million circulating through each year and prisoners have high rates of psychiatric disorders. In some countries there are more people with severe mental illness in prisons than psychiatric hospitals. Surveys have estimated that around one in seven prisoners are diagnosed with psychosis or clinical depression.<sup>4</sup> Overcrowding in prisons is a growing challenge for prison management in the country. There are 74 prisons housing over 18,000 inmates in 72 districts against their capacity of 10,000 inmates.<sup>5</sup>

Study conducted in southern Ethiopia, revealed that there is high prevalence of Depression in Hawassa central correctional institution prisoners (56.4%).<sup>6</sup> Study carried out in the Jhumka Prison of eastern Nepal indicated that 35.3% of the inmates had symptoms of depression.<sup>7</sup>

The aim of the study was to find out the status of depression of the female inmates in the central prison in relation to the self-developed socio-demographic questionnaire, that measures the profile of the inmates.

## MATERIAL AND METHODS

### Study Design and Setting

A cross-sectional research design with quantitative methods were used for the study in Jagannath Dewal (known as Central Prison) prison of Kathmandu Nepal from January 2018 to April 2018. The prison is situated in Kathmandu, the capital of Nepal and is the largest prison in Nepal with the ideal capacity of 1500 prisoners.<sup>3</sup>

### Sample Size and Sampling

Simple random sampling method was used to select the sample of the study. In a similar study done in Peshawar Pakistan, a total of n=140 female prisoners approached for the study. 64(59.6%) prisoners were with the symptoms of depression.<sup>8</sup>

Now using the formula of sample calculation

$$n = z^2 \times P(1-P) / d^2$$

Where,

n= sample size

P=prevalence of previous similar study=59.6%=60 assumed

z=confidence level=95%

d=precision (corresponding of effect size) = 0.1

For P=0.2, the best precision would be 0.04 and when P increases to 0.6, the precision could increase up to 0.1 (or more), yields to 92 samples. The investigators should notice to the appropriate precision according to assumed P. The wrong precision yields to wrong sample size (too small or too large).

Mathematically,

$$n = 1.96 \times 1.96 \times 0.6(1-0.6) / (0.1)^2$$

$$= 3.84 \times 0.6 \times 0.4 / 0.01$$

$$= 92.16$$

$$= 92$$

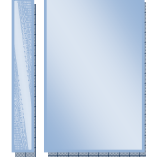
### Data Collection

Data collection was done by the corresponding authors taking the consent from the respective department under the observation of the security personal via face to face interview using self-developed semi-structured questionnaire to determine the socio-demographic characteristics, personal ill habits and history of the family and substance use status. The covariates were chosen based upon the prior studies. Privacy was maintained well during the time of interview. The validated and culturally validated tool was administered for assessing the level of depression. A coding system was developed to maintain the privacy of data.

A semi structured socio demographic performa was administered for the collection of social, demographic details of the participants. Beck Depression Inventory was used to find out the depression of the participants.

### Beck Depression Inventory (BDI)

The Beck Depression Inventory (BDI) is one of the most popular scales not only as one of the most widely used self-report instruments for evaluating the severity of depression, but also for screening for depression in clinical practice and general population of adolescents as well as adults<sup>3</sup>. BDI is the validated and widely adopted tool in the context of Nepal. Hence the translated version i.e. Nepali version of



BDI was used as the screening tool to measure the level of depression of the subject.

### Operational Definitions

The variables in the study were generated and categorized on the basis of the available literature. On generating the variable the comparison was made with different literatures of different studies. The socio demographic characteristics comprised age, religion, marital status, educational status, number of children (if any), family type (nuclear or joint), and occupation involved prior to detention and monthly income. Similarly individual characteristics habit of smoking and drug usage were also accounted along with the family history of drug usage. The duration of stay on the prison and the offense type were accounted as the contextual factors. The offense of 11 sub-categories (rape, absconding and fleeing from prison, human trafficking and transportation, transaction of narcotic drugs, smuggling of imports and exports of goods, corruption, case related to espionage, case relating to protected wildlife, relating to archeological goods, murder and theft) according to the law of Nepal was only taken<sup>5</sup>. Other contextual characteristics were duration of prison stay (3-6 months, 7-12 months, 13-24 months and 25 months and above).

### Statistical Analysis

Analysis of the data was done by using the Statistical Package in Social Science (SPSS) version 20. SPSS is software that is widely used for the analysis and interpretation of the research raw data. Tabulation was made for the presentation of data, percentage and frequency was used as the measures of descriptive statistics and chi square test was monitored to find out the relation between the independent and dependent variables. Calculated probability (P value) was at 95% confidence level.

### Ethical Considerations

Letter of acceptance was taken from the Department of Prison Management, Ministry of Home Affairs, Kalikasthan, Kathmandu Nepal. Written approval to conduct study was taken from the Jailor of the

Central Jail of Kathmandu Nepal. Informed consent on understandable language was taken from the participant. Right to reject the participation was provided to the each and every participant. Privacy and the confidentiality were well managed. The purpose of the study was clearly addressed to the participants and the significance of the study and its benefits to the participant was well explained. No professional and technical words and statements were used during the process of data collection and addressing the queries of the participants.

## RESULTS

The total number of female inmates at the time of study was 334. Out of them as per our sample needs 92 prisoners were made prepared to participate in the study. The consented participants were taken from different age groups as per the format of self-developed questionnaire on assessing social, demographic, individual and contextual details of each participant. The non-response rate of the participant was 0%. The youngest participant was 22 years of age and the oldest one was 59 years. The mean age of the participant was 35.57 years (SD 10.60).

### Depression among Inmates

Out of the total 92 (100%) respondents 55 (59.8%) inmates scored below the cut-off value for depression. Remaining 37 (40.2%) were at or above the cut-off value for depression, among them that of mild, moderate and severe depression was respectively 2 (2.2%), 19 (20.7%) and 19(17.4%) (Table 1).

### Suicidal Characteristics among the Inmates

The study shows that only 12 (13%) inmates had suicidal ideation during imprisonment while 4 (4.3%) had ideation before detention. 6 (6.5%) inmates had attempted suicide during imprisonment but only 4 (4.3%) had attempted suicide before imprisonment (Table 2).

Table 1 Type of Depression

S.N	Type of Depression	Frequency	Percentage
1	Normal	55	59.8
2	Mild	2	2.2
3	Moderate	19	20.7
4	Severe	16	17.4
5	Total	100	100

Table 2 Suicidal Characteristics among the Inmates

Suicidal Characteristics	Categories	Frequency (n)	Percentage (%)
Suicidal ideation before detention	Yes	9	9.8
	No	83	90.2
Suicidal ideation in imprisonment	Yes	12	13
	No	80	87
Suicidal attempt before detention	Yes	4	4.3
	No	83	95.7
Suicidal attempt in imprisonment	Yes	6	6.5
	No	86	93.5

### Association of Depression among Inmates and Socio-Demographic Variables

In order to find the association between the socio-demographic characters and depression of the inmates, a bivariate analysis was done. The

relationship between those socio-demographic characteristics, such as, age, religion, marital status, residential areas, education level, occupation and monthly income prior to detention was calculated. (Table 3).

Table 3 Socio demographic Characteristics and its Association with Depression among the Inmates

Socio-demographic Characteristics	Categories	Depression n(%)		95 % CI	p-value
		Present	Absent		
Age Group	<40	23 (37.7)	38 (62.3)	0.238-1.761	0.341
	≥ 40	14 (45.2)	17 (54.8)		
Locality	Urban	15 (48.4)	16 (51.6)	1.564- 1.761	0.94
	Rural	22 (38.1)	39 (63.9)		
Marital Status	Single	14 (46.7)	16 (53.3)	1.576-1.771	0.440
	Married	23 (37.1)	39 (62.9)		
Family Type	Nuclear	17 (36.2)	30 (63.8)	1.385-1.593	0.404
	Joint	20 (54.4)	25 (55.6)		
Number of Children	0	17 (45.9)	20 (54.1)	0.086-1.309	0.733
	1	4 (18.20)	18 (18.8)		
	2	10 (47.6)	11 (52.4)		
Religion	3 and more	6 (50)	6 (50)	1.095-1.252	0.085
	Hindu	27 (35.5)	49 (64.5)		
Educational Status	Others	10 (62.5)	6 (37.5)	1.649-2.068	0.896
	Illiterate	19 (41.3)	27 (58.7)		
	Primary Level	7 (33.3)	14 (66.7)		
	Secondary	7 (41.2)	10 (58.8)		
	Above Sec	4 (50)	4 (50)		

Profession previous to incarceration	Business	6 (23.4)	19 (76)	3.088-3.890	0.125
	Agriculture	7 (83.8)	6 (46.2)		
	Wages	1 (20)	4 (80)		
	Services	0	2 (100)		
	Housewife	18 (51.4)	17 (48.6)		
Salary	Others/Unspecified	5 (41.7)	7 (58.3)	1.767-2.428	0.128
	<5000	26 (52)	24 (48)		
	6000-10000	5 (26.3)	14 (73.7)		
	11000-15000	1 (16.7)	5 (83.3)		
	16000-20000	1 (20)	4 (80)		
	21000-25000	1 (20)	4 (80)		
>25000	3 (42.9)	4 (57.1)			

Significance  $p < 0.05$

#### Depression and Imprisonment Characteristics

No association was found between the depression and type and offence and duration of stay at the prison among the inmates. In this study, inmates who stayed longer in the prison were not likely to be

depressed than those who stayed for short duration, with the values (CI= 0.367-1.750,  $p = 0.601$ ). Similarly, the offence type do not show the significant association with depression (CI= 0.431-1.791,  $p = 0.335$ ). (Table 4)

**Table 4 Association of Depression and imprisonment Characteristics among Inmates**

Imprisonment Characteristics	Categories	Depression n (%)		95 % CI	p-value
		Present	Absent		
Duration of stay at prison	3-6 months	7 (41.2)	10 (58.8)	0.367-1.750	0.601
	7-12 months	8 (36.4)	14 (63.6)		
	13-24 months	7 (29.2)	17 (70.8)		
	25 months and above	15 (51.7)	14 (48.3)		
Type of Offence	Human Trafficking	8 (43.4)	10 (56.6)	0.431-1.791	0.335
	Murder	4 (20)	16 (80)		
	Robbery	3 (50)	3 (50)		
	Racketeering	6 (40)	9 (60)		
	Rape	6 (50)	6 (50)		
	Transactions of illegal drugs	0 (0)	2 (100)		
	Smuggling, imports and exports of narcotic drugs	10 (52.6)	9 (47.4)		

Significance  $p < 0.05$

#### Depression and Substance Use Status of the Inmates and History of Substance Use in the Family

As the population of the non-smoker inmates was high, the level of depression was also high in non-smoker than in the inmates with smoking habit. Similarly no association was found among the inmates with the family history of substance abuse and depression. (Table 5)

#### Knowledge on the Rights to Physical and Mental Health

Very few 8 (8.69%) inmates were aware of their rights to mental health but in contrast inmates with knowledge on their rights to physical health were 78 (84.78%). (Table 6)

**Table 5 Association of Depression and Substance Use Status of the Inmates and History of Substance Use in Family**

Substance usage Characteristics	Categories	Depression n(%)		95 % CI	p-value
		Present	Absent		
Smoking Cigarettes	Non-smokers	25 (41.7)	35 (58.3)	0.662-1.304	0.618
	1-5 cigarettes per day	5 (35.7)	9 (64.3)		
	6-10 cigarettes per day	3 (50)	3 (50)		
	11-15 cigarettes per day	4 (33.3)	8 (66.7)		
Current status of substance use	Yes	6 (46.2)	7 (53.8)	0.296-1.550	0.916
	No	31 (39.2)	48 (60.8)		
Family history of substance use	Yes	5 (50)	5 (50)	0.243-1.956	0.698
	No	32 (39)	50 (61)		

Significance  $p < 0.05$

**Table 6 Knowledge Regarding the Rights to Physical and Mental Health**

Rights Categories	Categories	Frequency (n)	Percentage (%)
Physical Health	Yes	78	84.78
	No	14	15.22
Mental Health	Yes	8	8.69
	No	84	91.31

Significance  $p < 0.05$

## DISCUSSION

Very few studies have been carried out in the prison population in Nepal. On the basis of the information available, on assessing the prevalence of depression and associated factors among the female inmates, in the largest prison of Nepal<sup>3</sup> this is the first study in Nepal. The study revealed that 37(40.2%) of the inmates had symptoms of depression.

In systematic review of 2300 prisoners in western countries the prevalence of depression was 10% among men and 12% among women<sup>9</sup> as well South Africa 10.4%<sup>10</sup>, Iran 29%<sup>11</sup>, and Nigeria 30.8%<sup>12</sup>. The prevalence of mental illness is higher in female prisoner in comparison to the male prisoners (psychotic illness 3.6 men & 3.9 female, major depression 10.2% male & 14.1% female).<sup>13,14</sup> But, among the British women prisoners the incidence was 31.0%<sup>15</sup>, which is not more than in Pakistani<sup>8</sup> and Nepalese women prisoners (our finding).

Suicidal ideation and the attempted suicide rate is more in the prison population. Some of the reasons may be the separation from the family, the guilt of

the crime, violence in the prison, and an inability to cope with the prison environment, which leads to depression, hopelessness and suicidal ideation.<sup>11</sup>

The symptoms of depression has higher prevalence on the inmates with more children which relates with the previous study that symptoms of depression were prevalent among the study sample, and were most powerfully related to having children and infrequent visits.<sup>11</sup>

Prisoners who had poor social support were more likely to develop depression. The possible reason could be that depressed prisoners are likely to suffer in many domains of life and appear less likely to adapt to prison or life thereafter.<sup>12</sup> This research also supports the previous findings on the basis of the occupation prior to incarceration.

The sample of the study was small. Most of the inmates hesitate to participate in the research. It can be said that the people who are depressed would be particularly unlikely to cooperate with such research. Since, the research is of the female inmates it cannot be generalized for the male inmates and other prison

population nationwide. Moreover the research only showed the subclinical depressive status of the prisoners it cannot be accounted as a clinical depression as major depressive disorder. The study has its limitation on making the inferences about the factors associated with it and risks regarding the effects of factors associated with depression, as no prior screening was performed of mental health during the time of imprisonment. Therefore, this research has the limitation over not able to show whether the participants were problematic prior to imprisonment or after the imprisonment. Further studies can be carried out in reference to this research in larger sample.

### CONCLUSION

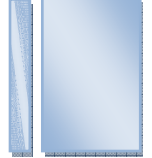
The present study revealed that the prevalence of depression among the female inmates in central prison of Kathmandu, Nepal is high. The depression level is not only dependent on the characteristics of the inmates; it is because depression is higher in the inmates without the habit of smoking also. The casual factor might be the administrative barriers and environment within the prison. The prison is overcrowded due to its low capacity and high numbers of prisoners. Steps should be accounted in management of the prison. Rehabilitation, community reintegration programs and regular check-up of physical and mental health should be taken in action immediately.

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