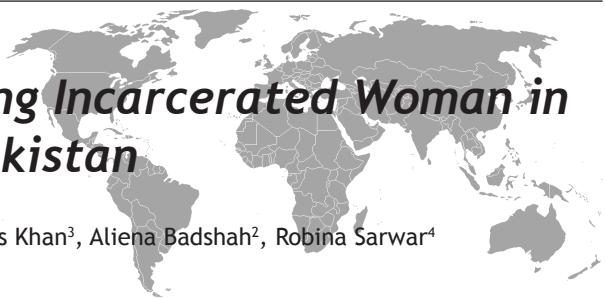


Incidence of Depression among Incarcerated Woman in Central Prison, Peshawar, Pakistan

Tahir Mehmood Khan¹, Hamid Hussain², Ghulam Khan², Abbas Khan³, Alienah Badshah², Robina Sarwar⁴



ABSTRACT

This study aimed to determine the prevalence of depression among women prisoners in Peshawar, Pakistan. This was a cross-sectional study carried out at the female barracks of Central Prison, Peshawar, Pakistan. A total of n=64 female prisoners aged 16-65 years were interviewed. Face-to-face interviews were conducted using the Hamilton Depression Rating Scale (HAMD). Statistical analysis was conducted using Statistical Package for the Social Sciences (SPSS) version 13.0. Odds ratios were also determined. An alpha value of less than 0.05 was considered significant. Out of the 64 female prisoners, 38 (59.4%) were found to be suffering from depression. Of these 38, a total of 73.7% met the criteria for mild depressive episodes, 21.1% for moderate episodes and 5.3% for severe depressive episodes. Middle-aged women (31-40 years) were mainly affected. Depression was more common among urban-dwelling (60.5%) and low-income (64.5%) prisoners. The incidence of depression was also found to be higher among married women. Middle-aged, married women with a low socio-economic status were found to be at a higher risk of depression. In addition, smoking may have had some effect on the mood state of patients.

Key words: depression, Hamilton Depression Rating Scale (HAMD), woman prisoners

Pakistan, Peshaver Merkez Hapishanesindeki Mahkûm Kadınlarda Depresyon İnsidansı

ÖZET

Bu çalışmada Pakistan’ın Peshaver kentindeki kadın mahkûmlardaki depresyon prevalansının saptanması amaçlandı. Bu çalışma Pakistan’ın Peshaver kentinin merkez hapishanesinin kadın bölümünde yapılan kesitsel bir çalışmayıda. Yaşıları 16-65 arasında olan toplam 64 kadın mahkum ile görüşüldü. Hamilton Depresyon Ölçme Skalası (HDÖS) kullanılarak yüz yüze görüşmeler yapıldı. İstatistiksel analizler SPSS 13,0 kullanılarak yapıldı. Aynı zamanda Odds oranları da belirlendi. Alfa değeri<0,05 anlamlı olarak değerlendirildi. Altmış dört kadın mahkûmdan 38 (%59,4)'ünün depresyon yakınıması olduğu tespit edildi. Bu 38 hastanın %73,7'si hafif depresif olay kriterlerini karşıtlarken, %21,1'inde orta olay, %5,3'ünde ağır depresif olay kriterleri mevcuttu. Özellikle orta yaşı (31-40) yaş kadınlar etkilendi. Depresyon ketsel bölgelerden gelenler (%60,5) ve düşük gelirlilerde (%64,5) daha sıkıtı. Depresyon insidansının evli kadınlarda daha yüksek olduğu bulundu. Orta yaş, düşük sosyo-ekonomik durumda olan ve evli kadınların depresyon riskinin daha yüksek olduğu tespit edildi. Ek olarak sigaranın hastaların ruh hali üzerinde bazı etkileri olabilir.

Anahtar kelimeler: Depresyon, Hamilton depresyon ölçme skalası, kadın mahkûmlar

INTRODUCTION

According to the statistics provided by the U.S. Home Department, approximately 8.75 million persons are held in penal institutions across the world. The highest numbers of prisoners are reported in the USA (1.96 million),

followed by China (1.46 million) and Russia (0.92 million) (1). It is estimated that the imprisonment rate in most countries at any given time is about 150 per 100 000 of the general population. Worldwide, the overall prison environment, living conditions and the availability of health facilities are the most important issues relating to penal

¹College of clinical Pharmacy, King Faisal University, ²Department of Community Medicine, Khyber Medical College, Peshawar 25120 Pakistan, ³Department of Pharmacy, University of Peshawar 25120 Pakistan, ⁴Clinical Psychologist, Department of Psychiatry Khyber teaching Hospital Peshawar 25120 Pakistan

Correspondence: Dr. Tahir Mehmood Khan College of clinical Pharmacy, King Faisal University, P.O. 380, Ahsaa 31982 Saudi Arabia

Received: 09.02.2012, Accepted: 27.02.2012

institutions. In other words, it is appropriate to say that the prison environment is one of the main challenges to the overall health of prisoners. In the past the health of prisoners has been a neglected issue, and Smith (2,3) was the first to highlight the need to monitor the mental health of prisoners. Latter, Bluglass (4) reported the incidence of depression among prisoners and criticized the ineffective management of mental disorders among the prison population. The UK Health Advisory Committee raised further concerns for the health of prisoners in 1997 for the Prison Service (5). The main issue raised was the need to provide prisoners with the same health facilities that are available to the public. Fazel and Danesh (6) gave an insight into the incidence of mental disorders among prisoners, reporting that one in seven prisoners suffer from some type of mental or psychiatric disorder (7,8). Current or past drug abuse, unemployment and homelessness are the common risk factors found to be associated with the incidence of psychiatric disorders (9). Overall, the incidence of psychiatric problems was found to be higher among men; according to the findings of Fazel and Danesh (2002) about 50% of male prisoners and one in five women prisoners were diagnosed with some type of mental disorder (5). However, a different study found that women who were remanded in custody were at higher risk; 59% had some incidence of mental disorder and about 11% had psychosis (10).

The situation in Pakistan

Pakistan is the second most populous country in South Asia, with an estimated population of 170 million. In the general population the estimated incidence of mental disorders is about 34% (11). The main risk factors for mental disorders are socio-political instability, economic uncertainty, violence, regional conflict and dislocation for at least the past three decades (12). Overall it is seen that the incidence of depression is higher among women than in men. Financial, interpersonal and family problems are the main factors playing a vital role in the poor mental health of Pakistani women (13,14). Focusing on Pakistani prisoners in particular, most prisons in Pakistan are overcrowded with poor living conditions, and health has always been a neglected issue. A study by Khan et al. (2009) reported a higher incidence of depression among male prisoners, and drug abuse was one of the main issues found to be associated with the incidence of mental disorders (15). However, there have been no studies reporting the overall and mental health of female prisoners in Pakistan. The aim of this study was to assess female

prisoners in a prison in Peshawar for the incidence of depression and to highlight the factors associated with its incidence.

MATERIALS AND METHODS

In May 2008 a cross-sectional study was conducted among the female prisoners at the Central Prison in Peshawar, Pakistan. All the female prisoners were invited to participate; those willing to take part were interviewed face to face using the 17-item Hamilton Depression Rating Scale (HAMD) (16). To test reliability and internal consistency a pilot study was conducted on a group of 10 prisoners. A reliability scale was applied and the internal consistency of the tool was estimated based on Cronbach's alpha statistic (=0.66). For the 17-item questionnaire, the range of possible scores is 0-54. The evaluation for the incidence of depression was conducted on the basis of the score attained by the respondents. Those who scored 0-6 were considered normal. Those with a score of 7-17 were rated to have minor depression, those scoring 18-24 as having moderate depression and those with scores of more than 24 were defined as having severe depression on the Hamilton Depression Scale. Statistical analysis was conducted by using Statistical Package for the Social Sciences (SPSS®) version 13.0. Odds ratios (ORs) were also determined to identify the groups at risk, with a confidence interval of 95%.

RESULTS

A total of n=140 female prisoners were approached for their participation in this study. Of these, n=64 female prisoners were willing to participate, giving a response rate of 47.5%. A total of 26 (40.6%) were normal, while 28 (43.8%) prisoners were found to have mild depression, eight (12.5%) had moderate depression and two (3.1%) had severe depression. Most of the prisoners were middle-aged (defined here as 31-40 years of age), with low socio-economic status. Demographic details of the prisoners are listed in Table 1. In addition, questioning about social history revealed that 39 (60.1%) of the prisoners smoked cigarettes and that four (6.3%) had abused drugs. During the interview it was revealed that somatic symptoms were very frequently reported among the prisoners. About 32 (84.2%) shared that they often had headaches followed by disturbed sleep pat-

Table 1. Demographic Profile of Female Prisoners

<i>Demographics</i>	<i>n (%)</i>
<i>Screening for depression</i>	
Normal	26 (40.6)
Minor depression	28 (43.8)
Moderate depression	8 (12.5)
Severe depression	2 (3.1)
<i>Age</i>	
<30	12 (18.8)
30-40	22 (34.4)
40-50	16 (25.0)
>50	14 (21.9)
<i>Level of Education</i>	
Not-Educated	49 (76.6)
Intermediate education	15 (23.4%)
<i>Monthly Income</i>	
No income	20 (31.3)
< 5000 Pakistani Rupee	31 (48.4)
>5000 to 10000 Pakistani Rupee	13 (20.3)
<i>Marital Status</i>	
Single	11 (17.2)
Married	42 (65.6)
Widowed	11 (17.2)
<i>Number of Children</i>	
No child	11 (17.2)
4-5	25 (39.0)
6-10	28 (43.8)
<i>Duration of Stay at Prison</i>	
6- 12 Months	40 (62.5)
13 - 24 Months	24 (37.5)
<i>Smoking Habit</i>	
Non-Smoker	25 (39.1)
1-5 Cigarettes daily	18 (28.1)
6-10 Cigarettes daily	11 (17.2)
10-15 Cigarettes daily	10 (15.6)
<i>Substance abuse</i>	
Yes	4 (6.3)
No	60 (93.7)
<i>Locality</i>	
Rural	26 (40.6)
Urban	38 (59.4)

Table 2. Frequent symptoms of depression among female prisoner

<i>Symptoms reported</i>	<i>Depression n:38</i>	<i>Without Depression n:26</i>
<i>Sleep Pattern</i>		
Normal	7 (18.4%)	5(19.2%)
Disturbed	31(81.6%)	21(80.8%)
<i>Appetite pattern</i>		
Normal	8(21.1%)	6(23.1%)
Decreased	30 (78.9%)	20(76.9%)
<i>Head Ach</i>		
Yes	32(84.2%)	20(76.9%)
No	6(15.8%)	6(23.1%)
<i>Agitation</i>		
Yes	27(71.1%)	8(30.8%)
No	11(28.9%)	18(69.2%)
<i>Weight Loss</i>		
Yes	26(68.4%)	16(61.5%)
No	12(31.6%)	10(38.5%)
<i>Fatigue and body aches</i>		
Yes	22(57.9%)	6(23.1%)
No	16(42.1%)	20(76.9%)
<i>Suicidal Thoughts</i>		
Yes	6(15.8%)	0
No	32 (84.2%)	26(100.0%)

Note: percentages are calculated for individual column not for row

tern, 31 (81.6%) said that they had experienced changes in appetite and 30 (78.9%) reported agitated behavior (Table 2).

To identify the prisoners at higher risk of depression, odd ratios were calculated. It was revealed that women who were middle-aged (OR 1.31, confidence interval CI 1.02-1.60), married (OR 1.80, CI 1.36-2.23) and with a low socio-economic status (monthly income <5000 rupees; OR 1.71, CI 1.46-1.96) were more likely to suffer from depression in comparison to others (Table 3). Furthermore, female prisoners reporting that they

smoked between one and five cigarettes per day were at a higher risk (OR 1.53, CI 1.20-1.87) in comparison to those smoking more than five cigarettes a day.

DISCUSSION

The general health and quality of life of prisoners is a neglected issue in Pakistan. No efforts are ever made in this regard highlighting the need to examine this issue. In addition, the prison system in Pakistan suffers from administrative, financial and legal problems, of which overcrowding is one of the most crucial. In Pakistan at

Table 3. Incidence of depression and demographic correlates

Demographics	Depression	Without Depression	OR [CI 95%]
<i>Age</i>			
18-30	6	6	0.62 [0.23-1.01]
31-40	14	8	1.31 [1.02-1.60]
41-49	10	6	1.19 [0.84-1.44]
50 and above	8	6	0.88 [0.65-1.11]
<i>Level of Education</i>			
Intermediate education	9	6	1.03 [0.68-1.38]
Not-Educated	29	20	0.96 [0.61-1.31]
<i>Monthly Income</i>			
No income	12	8	1.03 [0.73-1.33]
< 5000 Pakistani Rupee	20	11	1.71 [1.46-1.96]
>5000 to 10000 Pakistani Rupee	6	7	0.56 [0.18-0.94]
<i>Marital Status</i>			
Single	5	6	0.51 [0.6-0.94]
Married	27	15	1.80 [1.36-2.23]
Widowed	6	5	0.78 [0.34-1.22]
<i>Number of Childrens</i>			
1-3	5	5	0.63 [0.19-1.07]
4-5	16	10	1.16 [0.90-1.42]
6-10	17	11	1.10 [0.85-1.36]
<i>Duration of Stay at Prison</i>			
6- 12 Months	24	16	1.07 [0.80-1.34]
13 - 24 Months	14	10	0.93 [0.66-1.20]
<i>Smoking Habit</i>			
Non-Smoker	15	10	1.04 [0.77-1.31]
1-5 Cigarettes daily	12	6	1.53 [1.20-1.87]
6-10 Cigarettes daily	6	5	0.78 [0.35-1.22]
10- 15 Cigarettes daily	5	5	0.63 [0.16-1.10]
<i>Substance abuse</i>			
Yes	2	2	0.66 [-0.38-1.71]
No	36	24	1.50 [0.45-2.54]
<i>Locality</i>			
Rural	15	11	0.88 [0.62-1.15]
Urban	23	15	1.12 [0.86-1.38]

the time of the study there are 97 prisons with an authorized capacity of 41873, but with a prison population of 92,013 (as of 31 December 2008) (17). Furthermore, there are no separate jails for women and most of the prisons are in a deplorable situation. Overall living conditions are the worst, hardly giving someone a proper place to sleep. The majority of prisoners are kept in groups in a cell and are made to sleep on the floor, which is one of the main sources of infectious disease. Particularly for children and women in these jails there is a scarcity of proper health, sanitation, food and medical facilities. Besides, the foundations of the mental health concept for prisoners do not even exist in the Pakistani prison system. This study will be a first step towards drawing the attention of the authorities towards the value of mental health among prisoners in Pakistan.

Overall findings revealed that the incidence of depression in the Central Prison in Peshawar was 59.4%. So far in Pakistan no other studies have been conducted on this topic, so this figure and these findings will act a baseline for future studies to compare between different prison settings in Pakistan. However, our findings can be compared with those from prisons in other countries. The incidence of depression was higher among women prisoners in some other regions. Radloff reported an incidence of 70% among women prisoners at a prison in North Carolina (18), USA. However, among British women prisoners the incidence was 31.0%, which is much lower than in American and Pakistani women prisoners (19). A possibility for this comparatively low incidence may be a better prison environment in the UK and the supply of proper health care services to the prisoners. This is one of the essential factors which might contribute in the incidence of depression among women prisoners in Pakistan. While evaluating the risk factors for the incidence, it was revealed that middle-aged, married women were found to be at a higher risk in comparison to others (Table 3). However, those who smoked between one and five cigarettes a day were more likely to report depression in comparison to non-smokers and those smoking more than five cigarettes a day. Other possible factors that may result in depression could be the number of children and the type of locality in which the prisoners usually live. It was seen that women with four or five children were more likely to suffer from depression. Similarly, the locality of the patient was another demographic factor that could be a possible cause of depression. Prisoners from urban areas were found at a

higher risk of depression compared to those from rural areas. The lower boundary of the confidence intervals for these particular variables (number of children and locality) were less than one (Table 3), and comparison of the lower boundaries for confidence interval may be a possible way to decide the groups at risk.

Limitations

A limited sample size could have been a possible limitation of the study. Furthermore, the current study did not cover the inmate medical history. It might be possible that the prisoners were suffering from medical conditions like hypertension, diabetes mellitus etc. that have induced the depression symptoms among the students. Future studies should address these limitations to draw a better conclusion about the risk factors for depression among prisoners.

In conclusion; middle-aged, married women with a low socio-economic status were found to be at higher risk of depression among women prisoners in Peshawar. Similarly, smoking may be another factor that has some effect on the mood state of patients.

Acknowledgements

We would like to express our gratitude to Rafia Ayaz, Rabia Khan, Saira Waheed, Talia Mansoor, Afshan Munir, Aysha Sarwar, Mohammad Rafiq Khan, Amir Hayat, Mohammad Bilal Fayyaz, Qaiser Khan, Adnan Afridi, Mohammad Sadiq Khan and Afzal Karim, students of 4th Year MBBS, Khyber Medical College, for helping us in interviewing the prisoners and making a difficult task easier for us.

REFERENCES

1. Home Office (2003) *World Prison Population List*, 4th edition. London: Home Office.
2. Smith, R. (1984) The mental health of prisoners. How many mentally abnormal prisoners? *BMJ* 288:308-10.
3. Smith, R. (1984) The mental health of prisoners. The fate of the mentally abnormal in prison. *BMJ* 288:386-8.
4. Bluglass, R. (1988) Mentally disordered prisoners: reports but no improvements. *BMJ* 296:1757-8.
5. Health Advisory Committee for the Prison Service (1997) *The Provision of Mental Health Care in Prisons*. London: Prison Service.
6. Fazel, S. and Danesh, J. (2002) Serious mental disorder in 23000 prisoners: a systematic review of 62 surveys. *Lancet* 359:545-50.
7. Her Majesty's Inspectorate of Prisons (1997) *Young Prisoners: A Thematic Review by HM Chief Inspector of*

- Prisons for England and Wales. London: Home Office.
8. Her Majesty's Inspectorate of Prisons (2000) *Unjust Desserts: A Thematic Review by HM Chief Inspector of Prisons of the Treatment and Conditions for Un-sentenced Prisoners in England and Wales*. London: Home Office
 9. Singleton, N., Meltzer, H. and Gatward, R. (1998) *Psychiatric Morbidity Among Prisoners in England and Wales*. London: Office for National Statistics.
 10. Parsons, S., Walker, L. and Grubin, D. (2001) Prevalence of mental disorder in female remand prisons. *J Forensic Psychiatry* 12:194-202.
 11. Mirza, I. and Jenkins, R. (2004) Risk factors, prevalence, and treatment of anxiety and depressive disorders in Pakistan: systematic review. *BMJ* 328(3):393-7.
 12. Mehmood, S. (2000) *Pakistan: Political Roots and Development 1947-1999*. Oxford: Oxford University Press.
 13. Winkvist, A. and Akhtar, H. (1997) Images of health and health care options among low income women in Punjab, Pakistan. *Soc Sci Med* 45:1483-91.
 14. Tareen, E. (2000) *The perception of social support and the experience of depression in Pakistani women*. PhD thesis. Colchester: University of Essex.
 15. Khan, G.S., Hussain, H., Khan, A., Badshah, A., Sarwar, N. and Khan, T.M. (2009) Incidence of substance abuse among inmate at Peshawar Prison, Pakistan. *HealthMed J* 3(4).
 16. Hamilton Depression Scale. Information and inspiration for overcoming depression. Online. <http://www.all-on-depression-help.com/hamilton-depression-scale.html>.
 17. Minallah, A. (1999) Overcrowded prisons. Seventh ACPF World Conference Crime Prevention & Criminal Justice, 26 November 1999, New Delhi.
 18. Radloff, L.S. (1977) The CES-D Scale: a self-report depression scale for research in the general population. *Appl Psychol Measurement* 1(3):385-401.
 19. Steadman, H.J., Osher, F.C., Robbins, P.C., Case, B. and Samuels, S. (2009) Prevalence of serious mental illness among jail inmates. *Psychiatr Serv* 60(6):761-5.