

## Role of Different Environmental Settings in Depression in Late life

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**Abstract:** With greater longevity, there is a progressive increase in the elderly psychiatric patients. Depression is possibly the most prevalent psychiatric disorder among older adults and also recognized as a serious public health concern in both developed and developing countries. Present study is aimed to establish the comparative profile of prevalence of depression between the elderly of rural and urban West Bengal. It is also aimed to investigate the socio-demographic correlates of geriatric depression in these groups. The study is conducted on middle class Pakistani inhabiting the Salt mines City, Khewra, and few villages in a remote rural setting under the state of Punjab district Jhelum, Pakistan. In both the settings, middle class Pakistanis is the predominant social group. The study sample consists of 205 rural and 176 urban elderly, aged between 65 years and 79 years. Information about depression is obtained following the standard questionnaire namely, "Geriatric Depression Scale" (short form) or "GDS 15". Information on socio-demographic characteristics from the study population has been collected through a pretested questionnaire. Results of the study indicate that both rural males and females experience significantly higher prevalence of depression in comparison to their urban counterparts. The result of logistic regression analysis indicates that the place of residence is the primary predictor for depression. Other predictors of depression are age groups, sex, marital status, level of education, occupation, family size and number of children. It can be inferred from the present study that rural population is in more vulnerable condition than urban elderly in depression prevalence. Place of residence and socio-demographic factors are the important predictors for depression in these study groups.

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### 1. Introduction

Depression is the most predominant psychiatric disorder among the (older) adults and in the developed and developing countries it is also distinguished as a serious public health concern. Dr Jitender Nagpal a psychiatrist from VIMHANS said, "Depression can arise from day-to-day activities. However, MDE is much more serious. This is the feeling of tremendous helplessness, and worthlessness. Planned suicide is highest among those suffering from MDE. Those suffering from MDE don't have the strength to conduct day-to-day chores and become dysfunctional." The Global burden of disease study showed in the year 2020, after ischemic heart disease of global disability adjusted life years (DALYs) depression would be a very important disease to be studied (WHO, 2001 and Wig, 2001). Aging contains many factors, among them depression is considered the most important. One should not consider depression as inconsequential or normal. Among older adults it has been considered a very disturbing factor that might contribute to death (Pulska et al., 1998; Rovner, 1993; Schuckit et al., 1980; Sharma et al., 1998). It has already been revealed by different

community based mental health studies that preponderance of depression differs between 13 to 25 percent in older population (Nandi et al., 1976; Ramachandran et al., 1982). The process of population aging is growing at a faster pace in developing countries but the process is quite slow in developed countries (United Nations, 2002). Number of senior citizens or the persons above the age of 65 years is expected to grow faster from 6.9% to 16.4 percent during the two decades between the years 2000 to 2020 (Kinsella and Phillips, 2005). Out of 580 million older persons 60% belong to developing countries, this number is being considered to increase to 70% of the total older population (WHO, 1999). Amidst a demographic transition with a trend in relation to ageing population India is considered to be an important country (Shah and Prabhakar, 1996). Ageing population in India is estimated to increase at a double pace from 7.7% to 12.30% from 2000 to 2025 and the population of elderly people might become 150 million (Bose and Shankardass, 2000). Whilst among the common mental health issues depression is considered to be a significant mental issue in old age. In Pakistan, rare community-based

studies have not been conducted in Pakistan as well as in Punjab to understand the problem.

Few studies have been conducted in India, which addresses these problems. A cross-sectional study in South India has revealed 21.7 percent of total elderly aged 60 years and above with depressive symptoms (64.0 % were females and 36.0 % were males) and preponderance of cognitive impairment was higher among the depressed individuals (Barua and Kar, 2010). Barua et al. (2007) demonstrated in South India who was in higher standards of living, matriarchal family and a high female literacy rate shows lower prevalence of depression. One more study from north Pakistan, a largest population-based study reports 15.1 percent prevalence of depression with higher prevalence among older population, females, lower socio-economic status (Poongothai et al., 2007). Jhingan et al. (2001) carried out a prospective study among elderly who attended the psychiatry services of a tertiary care by a hospital in India. Jhingan et al. (2001) conducted a prospective study amidst elderly persons in a hospital in India where those persons underwent psychiatry services of tertiary care. They noticed that those who live with their joint family have less depression score than those elderly persons who live alone. In south Pakistan a study was conducted to corroborate the Hindi version of geriatric depression scale (GDS) and to investigate the distribution of depression symptomology and its affiliation with gender, literacy, age, functional impairment and cognitive impairment (Ganguli et al., 1999). For elderly people, depression raises as a mental disorder in late life because of the negligence, abuse, or lack of love towards the parents by their children (Patel and Prince, 2001). They noticed that joint family system and support by family members was not found and conditionally that children were expecting their portion in parent's property. Ill health and poverty have been determined as the risk factors amidst elder people from north Pakistan even when social interaction is considered safe (Rajkumar et al., 2009). Being single, widowed, divorced or separated were important factors for depression among elderly of Surat (Vishal et al., 2010). In past no such study has been investigated among the geriatric population elderly of Saltkake, Bidhannagar municipality and Horkhali, Sutahata block from West Bengal, India. The present study attempts to make a (a) comparative evaluation of depression level among two residential groups (Urban and rural) of Punjab, Pakistan; (b) to examine the effects of socio-demographic correlates of depression in these groups.

## 2. Methodology

**Study Settings:** The study was investigated on middle class Punjabis inhabiting the Salt mines City, Khewra, selected as urban group and few villages in a remote rural setting under the Jhelum district, Punjab constituting rural groups. In both the settings, middle class Punjabis is the predominant group. The study was conducted on about nine blocks from three sectors of the Salt mines City and on the other hand randomly chosen five villages from Jhelum District.

**Study Population:** Mean age of the two study populations combined is  $70.9 \pm 4.9$  years, while for Rural it is  $70.8 \pm 4.7$  years and for Urban it is  $71.0 \pm 5.1$  years. A chi-square test was carried out to determine the difference in the proportion of male and female participants for both, rural and urban groups. Result of the test shows that difference was not statistically significant, i.e. the study sample is almost equally distributed for sex across the groups. Data were collected between 2009 and 2010, simultaneously from both the communities. The study population consists of 176 urban (male:93 and female:83) and 205 rural (male:103 and female:102) participants. Ethics Committee of the Pakistan approved the study. Written informed consent to express willingness to participate in the study was obtained from all elderly individuals after the objectives and methods of the study were explained to them.

**Socio-demographic Measures:** Information on socio-demographic characteristics was collected using a pretested questionnaire. This questionnaire includes information on age, sex, marital status, education, employment status, self income, family income, total number of family members, number of children etc. Data are presented separately for each sex, i.e. male and female. Three educational categories, i.e. non-literate, below graduation and graduate & above on the basis of their educational attainment have been considered. Occupational status of the participants was grouped into four categories, i.e. retired service holder, peasant or labor, house wife and Idler. Self income was categorized as  $< \text{RS } 5000$  and  $\geq \text{RS } 5000$  per month and family earning categorized as  $< \text{RS } 10,000$ ,  $\text{Rs } 10,000 - 30,000$  and  $> \text{RS } 30,000$  per month. Total family size was categorized as  $\leq 2$  members, 3-5 members and  $> 5$  members. Total number of children was subdivided into three groups, i.e.  $\leq 2$  children, 3-4 children and  $\geq 5$  children. Living with children and living without children were the two categories of living arrangement.

**Depression Scale:** "Geriatric Depression Scale" GDS 15 was a standard questionnaire that helped to obtain information about depression (Yesavage et al., 1983). To screen depression GDS in later life, GDS is the most common instrument which has been widely used

(Stiles and McGarrah, 1998). There are few questions that GDS 15 includes:

1. Are you basically satisfied with your life? YES / NO
2. Have you dropped many of your activities and interests? YES / NO
3. Do you feel that your life is empty? YES / NO
4. Do you often get bored? YES / NO
5. Are you in good spirits most of the time? YES / NO
6. Are you afraid that something bad is going to happen to you? YES / NO
7. Do you feel happy most of the time? YES / NO
8. Do you often feel helpless? YES / NO
9. Do you prefer to stay at home, rather than going out and doing new things? YES / NO
10. Do you feel you have more problems with memory than most? YES / NO
11. Do you think it is wonderful to be alive now? YES / NO
12. Do you feel pretty worthless the way you are now? YES / NO
13. Do you feel full of energy? YES / NO
14. Do you feel that your situation is hopeless? YES / NO
15. Do you think that most people are better off than you are? YES / NO

Every item relates to bimodal scale. Depression's score has been classified into two categories (<5 points) as normal and ( $\geq 5$  points) as depression.

#### Reliability Test:

Validity of a test can be challenged if it is not reliable. To measure internal reliability and consistency it is important to compute Cronbach's alpha co-efficient. Internal consistency will always be witnessed in a good scale in which significant contribution will be made by all items to final rating. Traditionally Cronbach's alpha co-efficient measures the reliability level of an instrument. Alpha value of > 0.40 of a psychological scale considered as a good consistency (Tung-Xing, 1985) and value greater > 0.70 conceived a threshold reliability value for general survey studies (Sekaran, 2000). For the present study sample alpha is 0.86.

#### Statistical Analyses

**Descriptive Statistics:** Descriptive statistics was done to understand the trend in the socio-demographic profiles and depressive symptoms by place of residence (urban and rural). Contingency chi square test was done to compare the population distribution by socio-demographic variables and depression variables between residential settings. It was also done to compare the severity of depression by age groups

between sex and residential settings and also by socio-demographic variables. t-test was performed to compare the means of the depression scores and depression variables between urban and rural settings.

**Regression:** Bivariate logistic regression model was utilized to find out the effect of socio-demographic factors on depression occurrence. Logistic regression allowed us to examine which socio-demographic factors affected the odds of having a high score on depression. The covariates in the equation are place of residence, marital status, level of education, occupational status, total number of children, self earning, family earning, family size and living. The analyses of the data were done using the statistical package for Social science version 18.0 and MINITAB.

### 3. Results

**Socio-demographic Characteristics:** The distribution of study participants by socio-demographic variables is presented in Table I. Majority of the urban and rural study participants are ever married, as expected. Again much higher percentage of females irrespective of area of residence has lost their spouse compared to the males. While the educational achievements of urban study participants are higher than the rural participants, males have been shown to have higher educational achievement compared to their female counterparts irrespective of residential status. As expected, an overwhelming majority of the male study participants are retired persons in the urban area while a majority of the female participants are home makers irrespective of area of residence. Irrespective of sex, higher amount of self earning has been recorded in case of urban participants compared to the rural participants. Same trend exists in case of family earning. Family size is remarkably lower in case of urban study participants as expected, compared to their rural counterparts. While overwhelming majority of urban participants has two or less surviving children, rural participants do have five or more surviving children. Finally, the living arrangement of the study elderly showed that while in case of urban study participants about fifty percent or more are living without children, around ninety percent of the rural study participants are living with one or more of their children.

**Depression Scores:** Table II shows mean, standard deviation of depression score and results of t-test and ANOVA. In all the age groups, rural study participants have been showing significantly higher mean values compared to their urban counterparts irrespective of sex. Figure 1 shows the correlation of depression with age. Only rural female are showing a true positive correlation of depression with age.

**Table I Demographic and socio-economic variables: rural and urban participants**

Variables	Rural (n = 205)	Urban (n = 176)	Total	$\chi^2$
<b>Age group</b>				
65-69	87 (42.4)	74 (42.0)	161 (42.3)	.01
70-74	66 (32.2)	57 (32.4)	123 (32.3)	
75-79	52 (25.4)	45 (25.6)	97 (25.5)	
<b>Sex</b>				
Male	103 (50.2)	93 (52.8)	196 (51.4)	0.3
Female	102 (49.8)	83 (47.2)	185 (48.6)	
<b>Marital status</b>				
Married	128 (62.4)	138 (78.4)	266 (69.8)	17.6**
Unmarried	2 (1.0)	6 (3.4)	8 (2.1)	
Widow/widower	75 (36.6)	32 (18.2)	107 (28.1)	
<b>Level of education</b>				
Non-literate	124 (60.5)	1 (0.6)	125 (32.8)	154.2**
Below graduation	81 (39.5)	18 (10.2)	99 (26.0)	
Graduation and above	0 (0.0)	157 (89.2)	157 (41.2)	
<b>Occupation</b>				
With income	55 (26.8)	124 (70.5)	179 (47.0)	50.1**
Peasant or labor	28 (13.7)	0 (0.0)	28 (7.3)	
Homemaker	79 (38.5)	50 (28.4)	129 (33.9)	
No income	43 (21.0)	2 (1.1)	45 (11.8)	
<b>Self earning</b>				
< RS 5000	194 (94.6)	64 (36.4)	258 (67.7)	147.1**
≥ RS 5000	11 (5.4)	112 (63.3)	123 (32.3)	
<b>Family earning</b>				
< RS 10,000	178 (86.8)	14 (8.0)	192 (50.4)	242.1**
RS 10,000-30,000	22 (10.7)	71 (40.3)	93 (24.4)	
>RS 30,000	5 (2.4)	91 (51.7)	96 (25.2)	
<b>Family size</b>				
≤ 2 members	18 (8.8)	89 (50.6)	107 (28.1)	107.2**
3-5 members	68 (33.2)	62 (35.2)	130 (34.1)	
>5 members	119 (58.0)	25 (14.2)	144 (37.8)	
<b>Number of children</b>				
≤ 2 children	16 (7.8)	163 (92.6)	179 (47.0)	273.4**
3 - 4 children	55 (26.8)	13 (7.4)	68 (17.8)	
≥ 5 children	134 (65.4)	0 (0.0)	134 (35.2)	
<b>Living arrangement</b>				
Staying with children	181 (88.3)	86 (48.9)	267 (70.1)	70.2**
Staying without children	24 (11.7)	90 (51.1)	114 (29.9)	

Values in parentheses are percentages \*p ≤ 0.05, \*\*p ≤ 0.01

**Table II Descriptive statistics for depression, results of t-test and ANOVA**

Age group	Rural (n = 205)		Urban (n = 176)		Total (n=381)		t-value
	Male (n= 103)	Female (n=102)	Male (n=93)	Female (83)	Rural	Urban	Rural-urban
65-69	10.2 ± 4.1	9.5 ± 4.2	6.2 ± 3.9	5.7 ± 3.3	9.8 ± 4.2	5.8 ± 3.5	6.5**
70-74	9.7 ± 3.4	9.7 ± 3.5	4.6 ± 3.1	7.7 ± 7.0	9.7 ± 3.4	5.7 ± 5.1	5.2**
75-79	9.8 ± 3.5	12.4 ± 1.7	5.7 ± 3.7	5.0 ± 2.6	10.6 ± 3.2	5.5 ± 3.5	7.5**
Total	9.9 ± 3.6	10.0 ± 3.8	5.4 ± 3.5	6.1 ± 4.5	10.0 ± 3.7	5.7 ± 4.1	10.7**
F-value	0.2	1.7	4.0*	1.9	1.1	0.1	

Majority of the rural study participants showed depression irrespective of sex (male:88.3%, female:86.3%) than the urban participants (male:50.5%, female:62.7%) (Table III). Sex and age group wise difference in prevalence of depression are not well marked except in case of rural females who are showing a decreasing trend in prevalence of depression with progression of age. However, this trend is reversed if we consider each age group separately and make an estimate on the basis of each age group. In both the sexes, a significant rural-urban difference in prevalence of depression has been found.

**Socio-demographic Correlates of Depression:** The relationship between depression and socio-demographic variables has been presented in Table IV. Table IV demonstrates that the chances of being depressed is higher among the elderly whose ages were between 75-79 years (80.4,  $\chi^2$ - 5.8\*), female sex (50.4  $\chi^2$ - 1.3), marital status of unmarried/widow/widower (83.5,  $\chi^2$ - 9.2\*\*), non-literate (88.8,  $\chi^2$ - 43.5\*\*), unemployed or no income recently (91.1,  $\chi^2$ -18.6\*\*), self earning of <RS 5000 (81.0,  $\chi^2$ - 26.2\*\*), monthly family income of <RS 10,000 (85.4,  $\chi^2$ - 31.3\*\*), family size of > 5 members (90.3,  $\chi^2$ - 43.9\*\*), total number of children of  $\geq$  5 children (84.0,  $\chi^2$ -21.2\*\*) and staying without children (78.3,  $\chi^2$ -12.8\*\*).

**Table III: Prevalence of depression by age groups, sex and place of residence**

	Depression						Male-female $\chi^2$
	Male			Female			
	Normal	Depression	$\chi^2$	Normal	Depression	$\chi^2$	
<b>Rural</b>							
65-69	7 (6.8)	27 (26.2)	5.3	13 (12.7)	40 (39.2)	11.0**	0.2
70-74	4 (3.9)	30 (29.1)		1 (1.0)	31 (30.4)		
75-79	1 (1.0)	34 (33.0)		0 (0.0)	17 (16.7)		
<b>Total</b>	12 (11.7)	91 (88.3)		14 (13.7)	88 (86.3)		
<b>Urban</b>							
65-69	11 (11.8)	12 (12.9)	0.9	22 (26.5)	29 (34.9)	1.9	2.6
70-74	20 (21.5)	16 (17.2)		6 (7.2)	15 (18.1)		
75-79	15 (16.1)	19 (20.4)		3 (3.6)	8 (9.6)		
<b>Total</b>	46 (49.5)	47 (50.5)		31 (37.3)	52 (62.7)		
<b>Urban-rural <math>\chi^2</math></b>	33.5**			13.9**			46.3**

Result of bivariate logistic regression models tested for prevalence of depression with socio-demographic covariates presented in Table V. Odd ratio in favour of reporting depression among male study participants are age groups, marital status, education, occupation, family size and number of children; and for female participants are age groups, marital status, level of education, family earning, number of children and living arrangement. Idler (OR = 0.90) from rural population and homemaker (OR = 0.83) from urban population are more likely to report depression. Staying without their children is more likely to appear depressed for both urban and rural participants.

**Table IV: Depression and socio-demographic variables**

Variables	Normal	Depression	$\chi^2$
<b>Age group</b>			
65-69	53 (32.9)	108 (67.1)	5.8*
70-74	31 (25.2)	92 (74.8)	
75-79	19 (19.6)	78 (80.4)	
<b>Sex</b>			
Male	58 (56.3)	138 (49.6)	1.3
Female	45 (43.7)	140 (50.4)	
<b>Marital status</b>			
Married	84 (31.6)	182 (68.4)	9.2**
Unmarried/widow/widower	19 (16.5)	96 (83.5)	
<b>Level of education</b>			
Non-literate	14 (11.2)	111 (88.8)	43.5**
Below graduation	19 (19.2)	80 (80.8)	
Graduation and above	70 (44.6)	87 (55.4)	
<b>Occupation</b>			
Retired service holder	65 (36.3)	114 (63.7)	18.6**
Peasant or labor	4 (14.3)	24 (85.7)	
Homemaker	30 (23.3)	99 (76.7)	
Idler	4 (8.9)	41 (91.1)	
<b>Self earning</b>			

< RS 5000	49 (19.0)	209 (81.0)	26.2**
≥ RS 5000	54 (43.9)	69 (56.1)	
<b>Family earning</b>			
< RS 10,000	28 (14.6)	164 (85.4)	31.3**
RS 10,000-30,000	34 (36.6)	59 (63.4)	
>RS 30,000	41 (42.7)	55 (57.3)	
<b>Family size</b>			
≤ 2 members	76 (42.7)	102 (57.3)	43.9**
3-5 members	14 (20.6)	54 (79.4)	
>5 members	13 (9.7)	121 (90.3)	
<b>Number of children</b>			
≤ 2 children	45 (42.1)	62 (57.9)	21.2**
3 - 4 children	35 (26.9)	95 (73.1)	
≥ 5 children	23 (16.0)	121 (84.0)	
<b>Living arrangement</b>			
Staying with children	45 (39.5)	69 (60.5)	12.8**
Staying without children	58 (21.7)	209 (78.3)	

**Table V: Univariate logistic regression model showing association of socio-demographic variables with depression (odd ratio and 95% CI)**

Variables	Male OR (95% CI)	Female OR (95% CI)	Rural OR (95% CI)	Urban OR (95% CI)	Total OR (95% CI)
<b>Age group</b>					
65-69	1	1	1	1	1
70-74	0.43 (0.16-1.13)	0.19 (0.05-0.81)	0.05 (0.01-0.47)	0.60 (0.25-1.48)	0.35 (0.17-0.73)
75-79	0.58 (0.24-1.39)	0.56 (0.11-2.78)	0.17 (0.02-1.66)	0.77 (0.33-1.83)	0.65 (0.31-1.33)
<b>Sex</b>					
Male			1	1	1
Female			0.88 (0.11-6.87)	0.56 (0.22-1.43)	0.57 (0.25-1.32)
<b>Zone</b>					
Rural	1	1			1
Urban	1.40 (0.06-31.91)	3.03 (0.43-21.27)			2.05 (0.46-9.25)
<b>Marital status</b>					
Married	1	1	1	1	1
Unmarried/widow/widower	0.43 (0.14-1.36)	0.89 (0.36-2.17)	0.39 (0.11-1.44)	0.62 (0.26-1.45)	0.61 (0.32-1.17)
<b>Level of education</b>					
Non-literate	1	1	1	1	1
Below graduation	0.62 (0.03-12.54)	1.41 (0.22-8.82)	1.69 (0.62-4.56)	0.00 (0.00-3.51)	0.86 (0.20-3.79)
Graduation and above	0.73 (0.05-10.49)	0.78 (0.20-3.0)	-	1.08 (0.31-3.72)	0.76 (0.24-2.40)
<b>Occupation</b>					
Retired service holder	1	1	1	1	1
Peasant or labor	0.48 (0.11-2.15)	1.06 (0.39-2.93)	0.55 (0.10-3.12)	-	0.44 (0.12-1.58)
Homemaker	-	24.01 (0.00-6.01)	0.76 (0.13-4.58)	0.83 (0.04-18.13)	0.65 (0.14-3.07)
Idler	0.46 (0.09-2.37)	-	0.90 (0.07-11.23)	0.79 (0.04-17.88)	0.41 (0.10-1.70)
<b>Self earning</b>					
< RS 5000	1	1	1	1	1
≥ RS 5000	1.15 (0.34-3.86)	1.58 (0.49-5.07)	0.79 (0.08-7.43)	1.15 (0.41-3.22)	1.35 (0.61-2.99)
<b>Family earning</b>					
< RS 10,000	1	1	1	1	1
RS 10,000-30,000	1.30 (0.24-6.93)	0.92 (0.25-3.35)	3.53 (0.35-35.26)	0.87 (0.24-3.11)	1.12 (0.42-2.98)
>RS 30,000	1.30 (0.53-3.21)	0.73 (0.26-2.01)	2.19 (0.16-30.93)	0.93 (0.46-1.85)	1.03 (0.54-1.97)
<b>Family size</b>					
≤ 2 members	1	1	1	1	1
3-5 members	0.17 (0.03-0.92)	1.96 (0.38-10.09)	0.06 (0.00-1.04)	1.03 (0.28-3.85)	0.44 (0.15-1.28)
>5 members	0.86 (0.31-2.39)	1.01 (0.38-2.64)	0.40 (0.14-1.18)	1.89 (0.69-5.15)	0.85 (0.44-1.68)
<b>Number of children</b>					
≤ 2 children	1	1	1	1	1
3 - 4 children	0.18 (0.03-0.94)	0.86 (0.16-4.69)	0.63 (0.09-4.58)	0.42 (0.10-1.79)	0.43 (0.14-1.34)
≥ 5 children	0.61 (0.14-2.67)	0.42 (0.12-1.43)	0.39 (0.14-1.06)	-	0.51 (0.21-1.25)
<b>Living arrangement</b>					
Staying with children	1	1	1	1	1
Staying without children	2.81 (0.69-11.5)	0.65 (0.14-2.96)	6.91 (0.49-97.64)	1.44 (0.50-4.16)	1.63 (0.64-4.12)

#### 4. Conclusion

The bulk of the world's aging population resides in the developing countries, yet little is known about the distribution of, and risk factors for depression in these populations. In the present study, a higher proportion of rural elderly is found to be depressed in comparison to their urban counterparts. It has been noted that the similarities and differences in risk factors between different populations may help to narrow the search for etiologic clues. It is well established by our study that rural and urban elderly differ significantly in depression prevalence. Our study also conforms to the existing literature that place of residence is an important indicator of depression (Crowell et al., 1986; Chiu et al., 2005, Bruce et al., 2007). The findings of the present study do not corroborate with certain other studies conducted across different parts of southern and northern India in both urban and rural communities (e.g. Ramachandran et al., 1982; Vishal et al., 2010; Tiwari and Srivastava, 1998; Tiwari, 2000; Barua and Kar, 2010). These studies show relatively lower prevalence of depression among the study communities, compared with the ones considered in the present study. Interestingly, in the rural communities of Punjab, an increasing trend of prevalence of depression is noticed, through decades. While Nandi et al. (1976) found a prevalence of depression to be 22% among the rural community in Punjab, it increased to 52% during 1990s (Nandi et al., 1997). And again, the prevalence of depression is observed to be much higher, i.e. 87% in one of the rural Punjab communities by the present study. According to Taqui et al. (2007) female sex, a low level of education, loss of spouse, unemployment were the factors related to depression which is in concordance with the present study. The findings of the present study demonstrated a strong association between depression and being female gender, lack of literacy, loss or absence of spouse. These categories showed higher percentage (>80%) of depressed individuals. The relation of depression and female gender is corroborative with other studies (Woo et al., 1994). Earlier studies (Barua et al. 2007, Ramachandran et al.1982, Kennedy et al.1989, Pennix et al., 1999) demonstrated higher level of depression with low economic status, and illiteracy which is also consistent with present study. The present study did not find any positive correlation between depression and age except in case of rural females. This finding is corroborative with study conducted by Blazer et al. (1991). Some other studies from Indian community showed higher prevalence of depression with increasing age (Barua et al., 2007; Rajkumar et al., 2009). The present study clearly demonstrated that urban elderly population of Salt

Lake City experienced relatively lower prevalence of depression, irrespective of gender owing to better socio-demographic profiles compared to their rural counterparts.

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