Sociodemographic Pattern of Depression in Urban Settlement of Karachi, Pakistan

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ABSTRACT

Introduction: Depression is a global issue prevalent among developing countries like Pakistan as compared to developed countries. We conducted a study to assess the prevalence and identify the significant predictors of depression in an elite urban settlement in Karachi, Pakistan.

Materials and Methods: This cross-sectional study was done in the elitist residential area of Karachi; Defence Housing Authority (DHA). Four hundred and twenty three participants were included by going to their residences. Self-administered questionnaires were handed out after taking informed consent. Level of depression was assessed by Patient Health Questionnaire (PHQ-9). Data were entered and analysed in Predictive Analytical Software v. 18.0.

Results: The mean and median total score of the scale were 5.9 ± 5.4 and 4 (7) respectively with minimum score 0 and maximum 27. In this sequence, 139 (32.86%) respondents were identified to be depressed. It was found that females were slight more depressed than males (p = 0.063). Regression Model identified only gender and marital status as significant predictors of depression. Having a female gender increased 0.658 times chance of being depressed (p = 0.047). Unmarried person had 0.296 times more likely to be depressed (p = 0.019). Boredom was considered as significant factor of depression by the participants (p< 0.0001). Odds ratio signified depression occurred 0.310 times more if one was bored.

Discussion: Depression should be considered as a major public health issue for the city. Public awareness should be done in all parts of the city in an attempt to reduce depression especially among the female gender.

Keywords: Developing country, Elite Settlement, Females, Significant predictors

INTRODUCTION

Defined as a neurological disorder affecting one's state of thoughts, emotions and daily routine activities, depression affects an estimate 121 million people globally according to the World Health Organization [1,2]. Life events, medical treatment like beta blockers, neurological and physiological disorders are among the numerous causes of depression among the general population [3]. In 2000, depression had been positioned at fourth amongst the global burden of diseases and is predicted to rise to second rank in both genders by 2020 [2]. It is estimated that 10-44% of the people living in developing countries are affected by depression disorders and almost 50.8 million are undergoing depression [4].

A population of 18 million people and being the 9th most populated country in the world, Pakistan has an estimate of only 1 psychiatrist for every 10000 people and 1 psychiatrist for 4 million children suffering from psychiatric conditions [5,6]. In comparison to other developing countries, Pakistan has the highest depression rate accounting for abundant reasons like economic issues, insecurity, political uncertainty, unemployment, stressful working conditions, gender discrimination and disruption of the social settings [7,8].

The prevalence of depression continues to rise due to no appropriate governmental policy on mental illnesses [6]. The situation is further aggravated by the social taboo on seeing a psychiatrist with majority people opting for faith healers and alternative medications that complicate the illness [8].

Karachi is among the world's largest multiethnic cities with an estimated 21 million people [9,10]. Being the financial and commercial hub of Pakistan, Gadit et al., reported a 47% prevalence of depression among the people of Karachi, Pakistan [11,12]. Such a high prevalence makes it a very alarming situation where inhabitants of Karachi contribute to 42% of the total GDP of Pakistan [13]. Their mental well-being is extremely important for the economic prosperity of the country.

Keeping this issue in mind, our study's main aim was to assess the prevalence of depression and to identify the significant predictors among the urban population of Karachi. Through the study, our secondary objective was to create awareness about depression and factors associated with it in order to reduce the prevalence of this global disease and hence improve the general quality of life.

MATERIALS AND METHODS

This cross-sectional, retrospective study was carried out after the approval from Institutional Review and Ethical Board Committee of Dow University of Health Sciences. All subjects' information was kept confidential and a written informed consent was obtained from each participant. Data was collected during a three month period from May 2013-July 2013.

With help from the City Government Karachi records, different residential areas of Karachi were identified. These residential areas were then further divided by the tax records and payments of Federal Board of Revenue (FBR) Pakistan in identification for the elitist residential area of Karachi. In accordance with the highest individual tax payments received by the FBR from these selected residential areas in 2013, Defence Housing Authority (DHA) was identified as the elitist residential area of Karachi. DHA is spread over 8852 acres and provides housing to millions of residents [14]. DHA is further split by the local governing body, Defence Housing Authority Board, into 8 phases. Using further help from the local tax records of the Defence Housing Authority Board, Phase 6 was selected as the most elite and highest socioeconomic area in DHA. A map of DHA indicated that there are a total of 1692 residential houses in Phase 6 varying from a minimum of 600 square yards to a maximum of 3000 square yards. Using bottle technique, a bottle was rotated at the center .The investigators' team proceeded towards every fourth household in whichever direction the bottle pointed. Cars were used to transport the investigators throughout the Phase 6 area.

Houses with no residents or presence of only servants like chauffeurs and security guards, unemployed residents and participant ages above 65 or below 18 were excluded from the study. Inclusion criterion was based on residents being present at the time of data collection, participants being in between ages 18-65 and being employed. A total sample population of 423 households was thus randomly collected with margin of error 2.5% and 95% Confidence Interval.

Data was collected by three investigators who were also co-authors of the study. Data was collected during the timings of 6-10 pm as office timings usually ended by 5pm and residents reached home then. Due to the existing security instability in city, some residents refused to talk to the researchers considering them strangers. In such situations, the next house was immediately approached to participate in the study. Out of the 423 households, only one participant was randomly selected among the total number of inhabitants of the house eligible to participate in the study. After explaining the purpose of the study, each participant was asked to fill the consent form. The questionnaire was self-administered with investigators helping the participant in case of any difficulty. The participants were also screened for depression free-of-cost as an incentive.

The questionnaire was divided into three units. The first unit inquired about the demographic variables while the second part was a Patient Health Questionnaire (PHQ-9) that assessed how often the participants had been bothered by some specific problems over the last two weeks. Responses to the nine problems are constructed on a 3-point scale from–

- 0=Not at all
- 1=several days
- 2=more than half the days
- 3=nearly every day

The total score for each participant was calculated by adding up the score of each problem. Total score indicated the severity of depression with:

- 1-4=minimal depression
- 5-9=mild depression
- 10-14=moderate depression
- 15-19=moderately severe depression
- 20-27=severe depression

Third unit of questionnaire dealt with factors that could be a cause of any of the problems mentioned in the first unit. This unit consisted of two parts. First part inquired factors through an open-ended question while the second part listed all the possible factors like loss of loved one, boredom or political instability.

The data was entered and analysed using SPSS v. 16.0.Cronbach's alpha value was computed to check the reliability of the PHQ questionnaire which came out to be 82.7% for the depression scale indicating high reliability on questionnaire with high consistency in response. Univariate descriptive analyses were presented in terms of frequencies (percentages) for categorical variables. For symmetric continuous variables, mean ± standard deviation was provided. If any continuous variable is skewed then median (inter-quartile range) were mentioned. The skewness of continuous variable was checked by Shapiro-Wilk's test. Bivariate inference was done using chi-square test to observe the association between demographic characteristics and psychiatric effect questions on status of depression. Crude odds ratio was computed for each two by two categorical variables. Gamma co-efficient was reported for variables with more than two categories. T-test was performed to see whether there was any difference in symmetric continuous variables with different status of depression. Mann-Whitney test was run checking the same difference if continuous variable was skewed.

Multivariate analysis was assessed while running logistic regression model. Variables having p values at-least 0.1 in bivariate analysis were included in these models. Forward Likelihood Ratio method was used while taking probability of entry = 0.05 and probability of stay = 0.10. Odds ratio with 95% confidence interval was computed to evaluate the effect of demographic factors on status of depression.

P-value less than 0.05 were considered to have significant effect of related objective of the performed analysis.

RESULTS

A total of 423 participants were interviewed in this study. Out of the total number of participants 219 (51.8%) were male while 204 (48.2%) were females. One hundred sixty nine (40%) of the participants were married while (47%) 202 lived in a nuclear family. Participants possessed mean age of 42.73 ± 12.25 years and median age was 42 (21) years. The mean duration of marriage was 18.05 ± 12.15 years with median duration was 19.5 (19) years. Weight and Height of the participants were 68.28 ± 12.63 KG and 5.59 ± 0.323 ft respectively.

All the continuous variables i.e. age, duration of marriage, number of children, height, weight and total scores were found to be skewed as the p-values of Shapiro-Wilk's test for related variables were less than 0.05. The value of Cronbach's alpha for the depression scale was 82.7% indicating high reliability on questionnaire with high consistency in responses. One hundred thirty two (31.2%) participants acknowledged that they felt little interest while doing things several days. Thirty nine (9.2%) participants felt the same nearly every day. More than half the days, 40 (9.5%) participants felt hopeless. Each 1 out of 8 participants reported having trouble in falling asleep every day. One hundred thirty nine (32.9%) participants felt tired for several days. Forty five (10.6%) people reported poor appetite more than half the days. Eighty Six (20%) participants felt bad about themselves. This feeling was experienced nearly every day by 26 (6.1%) of the respondents. Around 130 (31%) participants encountered trouble in concentration on things at different span of time. Three hundred ten (73.3%) did not move or speak slowly that people could have noticed. 330 (78%) participants never thought that they would better off dead or hurt themselves in any way. The mean and median total score of the scale were 5.9 ± 5.4 and 4 (7) respectively with minimum score was 0 and maximum was 27.

		Not at all	Several Days	More than half the days	Nearly every day
Little interest or pleasure in doing things	Frequency	207	132	45	39
	Percentage	48.9	31.2	10.6	9.2
Feeling down, depressed or hopeless	Frequency	217	134	40	32
	Percentage	51.3	31.7	9.5	7.6
Trouble falling/staying asleep, sleeping too much	Frequency	199	126	45	53
	Percentage	47.0	29.8	10.6	12.5
Feeling Tired or having little energy	Frequency	176	139	57	51
	Percentage	41.6	32.9	13.5	12.1
Poor appetite or overeating	Frequency	229	107	45	42
	Percentage	54.1	25.3	10.6	9.9
Feeling bad about yourself	Frequency	277	86	34	26
	Percentage	65.5	20.3	8.0	6.1
Trouble concentrating on things	Frequency	293	74	31	25
	Percentage	69.3	17.5	7.3	5.9
Moving or speaking so slowly that other people could have noticed, or the opposite	Frequency	310	65	31	17
	Percentage	73.3	15.4	7.3	4.0
Thoughts that you would be better off dead or of hurting yourself in some way	Frequency	330	54	20	19
	Percentage	78.0	12.8	4.7	4.5

[Table/Fig-1]: Opinions of participants on depression scale

In this sequence, 139 (32.86%) respondents were identified to be depressed [Table/Fig-1].

Jotting down the effect of demographic characteristics on depression levels, it was found that females (n=76) were slightly more depressed than males (n=63) (p = 0.063). Only one quarter (n = 43) of the married people were depressed. However, higher proportion of depression was found in single survivors (n=87) (p = 0.012). Gamma co-efficient for the same was 0.284 (p = 0.003) indicating persons without life partner were more prone to be depressed. Income and family type had not any effect on level of depression (p> 0.10). Similarly, weight, height, number of children and duration of marriage also did not affect level of depression. Young people were more depressed than elder ones. {Mean ±SD: 29.83 ± 14.03 v/s 33.18 ± 13.96 and Median (IQR): 23 (17) v/s 27.5 (21)}. Regression Model identified only gender and marital status as significant predictors of depression. Having a female gender increased 0.658 times chance of being depressed (p = 0.047). Single person had 0.296 times more likely to be depressed (p = 0.019). Nevertheless, if person got divorced or widowed, he/she would be 0.516 times more prone to get depressed as compare to his/her during married life (p = 0.190) [Table/Fig-2].

When asking about causes of being depressed, a large proportion (n = 276) did not agree that loss of a love and unsuccessful love affair can cause depression. Though, the proportion of this acknowledgement was found to be less in depressive participants (p <0.001). Similar results were reported on quest of whether emotional harm by other person, any physical injury, chronic illnesses and adverse effect of medication can cause depression. Three hundred sixty three (86%) participants stated that depression was not caused due to difficulty in matching social class standards. A ratio of 3:2 was observed between depressed and non-depressed participants stating that such difficulty caused depression (p < 0.001). Similar ratio and result was found when asked that no meaningful achievement can also cause depression (p < 0.001). Boredom was considered as significant factor of depression by the participants (p < 0.0001). Odds ratio signified depression occurred 0.310 times more if one was bored. Political instability had insignificant effect on depression (n=39) (p=0.229) [Table/Fig-3].

			Participants		p-value	OR	95% Confidence Interval		Gamma	p-value
			Normal	Depressed			Lower	Upper		
Gender*	Male	Frequency	156	63	0.063	1.470	0.978	2.210	0.190	0.063
		Percentage	71.2%	28.8%						
	Female	Frequency	128	76						
		Percentage	62.7%	37.3%						
Marital Status*	Married	Frequency	126	43	0.012				0.284	0.003
		Percentage	74.6%	25.4%						
	Single	Frequency	150	87						
		Percentage	63.3%	36.7%						
	Widowed/Divorced	Frequency	8	9						
		Percentage	47.1%	52.9%						
Income	<30000	Frequency	60	21	0.130				0.201	0.038
		Percentage	74.1%	25.9%						
	30000-100000	Frequency	50	19						
		Percentage	72.5%	27.5%						
	>100000	Frequency	174	99						
		Percentage	63.7%	36.3%						
#Family Type	Joint	Frequency	134	58	0.462	1.172	0.767	1.792	0.079	0.462
		Percentage	69.8%	30.2%						
	Nuclear	Frequency	134	68						
		Percentage	66.3%	33.7%						
Level of Education	Matric (O-levels)	Frequency	21	8	0.022				-0.191	0.017
		Percentage	72.4%	27.6%						
	Inter/A-level	Frequency	46	38						
		Percentage	54.8%	45.2%						
	Undergraduate	Frequency	110	56						
		Percentage	66.2%	33.8%						
	Postgarduate	Frequency	107	37						
		Percentage	74.3%	25.7%						
Little Interest or Pleasure in doing things	Not at all	Frequency	186	21	0.0001				0.783	0.0001
		Percentage	89.9%	10.1%						
	Several Days	Frequency	79	53						
		Percentage	59.8%	40.2%						
	More than half the days	Frequency	11	34						
		Percentage	24.4%	75.6%						
	Nearly every day	Frequency	8	31						
		Percentage	20.5%	79.5%						

[Table/Fig-2]: Association of Demographic Factors with Depression
* Multivariate Logistic Regression Model using Forward Likelihood Ratio test assessed Gender and Marital Status as most significant predictors
# Some people not answering this question on the questionnaire at their own discretion as mentioned in the consent form due to personal autonomy

			Participants		p-value	OR	95% Confidence Interval		Gamma	p-value
			Normal	Depressed			Lower	Upper		
#How difficult have these problems made it for you to do work, take care of things at home, or get along with people	Not difficult at all	Frequency	141	18	0.0001				0.761	0.0001
		Percentage	88.7%	11.3%						
	Somewhat difficult	Frequency	95	74						
		Percentage	56.2%	43.8%						
	Very difficult	Frequency	10	27						
		Percentage	27.0%	73.0%						
	Extremely difficult	Frequency	1	14						
		Percentage	6.7%	93.3%						
Loss of a loved one	Yes	Frequency	50	51	0.0001	0.369	0.233	0.584	0.093	0.0001
		Percentage	49.5%	50.5%						
	No	Frequency	234	88						
		Percentage	72.7%	27.3%						
Emotional Harm by another person	Yes	Frequency	47	66	0.0001	0.219	0.139	0.346	-0.640	0.0001
		Percentage	41.6%	58.4%						
	No	Frequency	237	73						
		Percentage	76.5%	23.5%						
A physical injury	Yes	Frequency	21	33	0.0001	0.256	0.142	0.464	-0.592	0.0001
		Percentage	38.9%	61.1%						
	No	Frequency	263	106						
		Percentage	71.3%	28.7%						
Chronic Illnesses	Yes	Frequency	27	37	0.0001	0.290	0.168	0.500	-0.551	0.0001
		Percentage	42.2%	57.8%						
	No	Frequency	257	102						
		Percentage	71.6%	28.4%						
Adverse effects of medication	Yes	Frequency	27	29	0.001	0.398	0.225	0.704	-0.430	0.003
		Percentage	48.2%	51.8%						
	No	Frequency	257	110						
		Percentage	70.0%	30.0%						
Unsuccessful Love affair	Yes	Frequency	31	29	0.006	0.465	0.267	0.808	-0.365	0.011
		Percentage	51.7%	48.3%						
	No	Frequency	253	110						
		Percentage	69.7%	30.3%						
Difficulty in matching with the social class standards	Yes	Frequency	24	36	0.0001	0.264	0.150	0.465	-0.582	0.0001
		Percentage	40.0%	60.0%						
	No	Frequency	260	103						
		Percentage	71.6%	28.4%						
Boredom	Yes	Frequency	74	74	0.0001	0.310	0.202	0.474	-0.527	0.0001
		Percentage	50.0%	50.0%						
	No	Frequency	210	65						
		Percentage	76.4%	23.6%						
No meaningful application of achievements	Yes	Frequency	38	58	0.0001	0.216	0.133	0.349	-0.645	0.0001
		Percentage	39.6%	60.4%						
	No	Frequency	246	81						
		Percentage	75.2%	24.8%						
Political Instability	Yes	Frequency	65	39	0.229	0.753	0.474	1.197	-0.141	0.240
		Percentage	62.5%	37.5%						
	No	Frequency	220	99						
		Percentage	68.9%	31.1%						

[Table/Fig-3]: Opinions About Causes of Depression by Participants
#Some people not answering this question on the questionnaire at their own discretion as mentioned in the consent form due to personal autonomy

DISCUSSION

Depression is becoming a common global issue especially in developing countries with accountance for 6% of the mental illnesses in Pakistan according to the national database of the government [15]. Our study however reported an overall prevalence rate of 30% among the elite working class of Karachi. Despite absence of sufficient number of researches pertaining to depression in Pakistan, Muhammad's (2007) study reported an overall prevalence of 46% depression in Pakistan [16,17]. Regional variation of depression in three major cities namely Lahore being at highest rate of 53.4% followed by Quetta at 43.9% and Karachi at 35.7% was also identified [16]. Similarly, Gadit (1998) and Hussain's (2000) study also reported

a prevalence of 47% and 44.4% depression respectively among the general population [12,18]. Compared to these previous studies, our figures are slightly less but are constant to the average range of depression found in most developing countries of 10-44% as well as Mirza's study's results of 34% depression in Pakistan [4,19]. All these studies are in no way coherent to the official statistics of the Government of Pakistan.

The rate of depression among females is almost double in contrast to males in many developed countries [20]. Both Mumford and Niaz conducted studies in rural areas of Pakistan, where 66% and 72% women respectively had depression in comparison to 25% and 44% of men respectively [21,22]. This double ratio between females and

males was also identified by Naqvi's study conducted in both rural and urban areas [23]. Our study also reported similar findings with the female gender being more depressed in comparison to males.

Marriage, along with gender, was another major factor for depression among the elite working population of Karachi. Widowed and divorced individuals were subjected to more depression followed by single individuals. Married couples were found to be least depressed. Ali's study conducted among women of a semi-urban community of Karachi also reported married women as being less depressed over single or widowed/divorced women [24]. The scenario is analogous even for the rural areas of Pakistan as well [25]. This predictor is not limited to developing countries but to developed countries as well where Sbarra's very recent study pointed marriage as significant predictor for depression [26]. This according to our data, marital status and gender were the most significant predictors of depression by Multivariate Logistic Regression Model using Forward likelihood ratio test.

However, our study dismissed family type as a significant predictor for depression with almost equal numbers of people being depressed in both joint and nuclear family types. This is contradictory to Ali's cross-sectional study carried out in semi-urban community of Karachi only which considered nuclear family system; a risk factor [24]. A research in Rawalpindi also concluded that joint households had more grief and distress as compared to nuclear families [22]. This is again conflicting with our data which provided insignificant p-value for family type and hence proving family type is not associated with depression in Karachi. The results may vary due to the socio-economic factor of populations being studied in the studies with our study focusing on elite population mainly.

Different opinions about causes of depression were also studied on our participants via a depression scale. Majorly boredom, especially among women, was very common. Niaz's study conducted in an affluent urban population also mentioned boredom as significant factor for depression [21].

LIMITATIONS OF THE STUDY

There are a number of limitations to this study that need to be contemplated. Firstly, the study was limited to a certain socio-economic class only rather than different classes. This may have affected the outcome of many predictors. Secondly, our study did not include any information regarding mental illness of any individual participating in this study with altered mental health status being a sole reason of depression in some cases.

CONCLUSION

It is concluded that depression brings a huge impact on the general population. More studies need to be conducted in Pakistan, particularly in urban areas to identify this issue. There should be community based campaigns piloted for public awareness especially in female gender that suffer more from depression. The number of psychiatric resource centers should also be increased and a fear of social taboo be erased from the general population so that depression is treated as a proper illness like in developed country. The government should develop a national policy to implement this important and rising public health issue.

REFERENCES

[1] Medline Plus (2012). *Depression* [online]. Available from: http://www.nlm.nih.gov/medlineplus/depression.html[Accessed 20th August 2013]
[2] Desjarlais R. World Health Report. World Health Organization, Geneva. 2001.
[3] Murray ED, *et al*. (2012) *Depression and Psychosis in Neurological Practice*. In: Neurology in Clinical Practice. 6th Edition.
[4] W.H.O. *Mental Health Report: New Understanding, New Hope*. World Health Report, Geneva, Switzerland. 2001.
[5] Government of Pakistan (2011). *POPULATION*- Pakistan Bureau of Statistics [online]. Available from: http://www.pbs.gov.pk/sites/default/files/other/yearbook2011/Population/16-1.pdf[Accessed 20th August 2013]
[6] Qasim, M. Mental health most neglected field in Pakistan. *The News* [online]. 9 October. Available from: http://www.thenews.com.pk/Todays-News-6-136490-Mental-health-most-neglected-field-in-Pakistan
[7] Khalily MT, et al. Violence, psychological trauma and possible post-traumatic interventions in Pakistani society. *Australasian Journal of Disaster and Trauma Studies*. 2011;1:1–9.
[8] Khalily MT. Developing an integrated approach to the mental health issues in Pakistan. *Journal of Interprofessional Care*. 2010;24(2): 168–72.
[9] Mubbashar MH. Development of mental services in Pakistan. *International Psychiatry*. 2003;1:11–4.
[10] City Mayor Statistics (2009). *The largest cities in the world and their mayors* [online]. Available from: http://www.citymayors.com/statistics/largest-cities-mayors-comments.html [Accessed 20th July 2013]
[11] Gadit AAM, et al. Mental health morbidity pattern in Pakistan. *J Coll Phys Surg Pk*. 1999;9;362–65.
[12] Khan AS. Sindh Population surges by 81.5%, households by 83.9%. *The News*.12 April [online]. Available from:http://www.thenews.com.pk/Todays-News-13-13637-Sindh-population-surges-by-81.5-pc,-households-by-83.9-pc [Accessed 20th July 2013]
[13] Gadit A, et al. Mental Health Morbidity: An experience in a community psychiatric clinic. *J Coll Phys Surg Pk*. 1998;8(6):262–64.
[14] Anon. Karachi contributes rs 16 billion to gdp a day. *The Nation*. 9 April [Online]. Available from: http://www.nation.com.pk/pakistan-news-newspaper-daily-english-online/business/09-Apr-2012/karachi-contributes-rs-16-billion-to-gdp-a-day[Accessed 20th July 2013]
[15] DHA Karachi (2012). *DHA information* [online]. Available from: http://www.dhakarachi.org/about_us.asp [Accessed 20thAugust 2013]
[16] Gadit A, et al. State of Mental Health in Pakistan: service, education and research, Hamdard Foundation, Karachi. *Pakistan*. 2002;36–58.
[17] Muhammad AAG, et al. Prevalence of Depression among Households in Three Capital Cities of Pakistan: Need to Revise the Mental Health Policy. *PLoS ONE*. 2007;2(2):e209.
[18] Prasla M. Adolescence depression in Pakistan:new horizon for research. *J Pak Med Stud*. 2012;2(4):160-61.
[19] Husain N, et al. Depression and social stress in Pakistan. *Psychological Medicine*. 2000;30:395–402.
[20] Mirza I, et al. Risk factors, prevalence, and treatment of anxiety and depressive disorders in Pakistan: a systematic review. *BMJ*. 2004; 328:794.
[21] Angold A, et al. Puberty and depression: the roles of age, pubertal status and pubertal timing. *Psychol Med*. 1998;28(1):51-61.
[22] Niaz U, et al. A cross-sectional study of the frequency of psychiatric morbidity in affluent urban population of Karachi. *Pak J Med Sci*. 2004;20:337-44.
[23] Mumford DB, et al. Stress and psychiatric disorder in urban Rawalpindi: Community survey. *Br J Psychiatry*. 2000:177:557-62.
[24] Naqvi H. Depression in Pakistan: An epidemiolgical critique. *JPPS*. 2007;4:1-10
[25] Ali BS, Rahbar MH, Naeem S, Tareen AL, Gul A, Samad L. Prevalence of and factors associated with anxiety and depression among women in a lower middle class semi-urban community of Karachi, Pakistan. *J Pak Med Assoc*. 2002;52(11):513-17.
[26] Luni FK, Ansari B, Jawad A, Dawson A, Baig SM. Prevalence of depression and anxiety in a village in Sindh. *J Ayub Med Coll Abbottabad*. 2009;21(2):68-72.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.