Original Article

Social environment and depression among pregnant women in rural areas of Sind, Pakistan

Aysha Zahidie,[1] Ambreen Kazi,[2] Zafar Fatmi,[3] Muhammad Tufail Bhatti,[4] Sayeda Dureshahwar[5]

Department of Community Health Sciences, Aga Khan University, Karachi,[1-3]

Department of Community Medicine, Iqra University, Hyderabad,[4] Public Health School, Government of Sind,[5] Pakistan.

Abstract

Objective: To evaluate the relative power of social relations and social conditions in predicting depression using (CES-D scale) among rural pregnant women belonging to Sind, Pakistan.

Methods: The study was conducted from January 2004 tp December 2004. Both qualitative and quantitative methods were employed. During quantitative phase a total of 375 rural pregnant women were inquired about social conditions, social relations and pregnancy related concerns through a questionnaire based form. Variables were given scores when it applied to a situation of a pregnant woman. Concurrently, in a blind set-up, translated and validated Depression Scale (CES-D) was administered. In multivariate linear regression analysis, relation between scores of social relations and social condition variables with scores of CES-D scale were analyzed.

Results: Prevalence of depression among rural pregnant women is high (62%).Social conditions as compared to social relations are more important determinants for depression among rural pregnant women.

Conclusion: There is a high prevalence of depression in rural areas.

Keywords: Social conditions, Pregnancy, Depression Scale (CES-D), Multivariate linear regression analysis, Sind, Pakistan (JPMA 61: 1183; 2011).

Introduction

All over the world 150 million people suffer from depression at any point in time and nearly 1 million commit suicide every year.[1] Gender differences are also well recognized in mental health. Global studies suggest that although women live longer, they do not necessarily live better or healthier lives. It is accepted that besides their specific disorders (premenstrual syndrome or PMS and postpartum depression etc.), women are also at higher risk for developing anxieties, depressions and eating disorders.[2] Research has shown that just for depressive

disorders, women account for 41.9% of cases as compared to 29.3% cases among men.

Diseases of women that are due to their gender specific roles and responsibilities actually result from cultural and social factors prevailing in the environment. Pressure generated because of women's multiple roles, gender discrimination and associated factors of poverty, hunger, malnutrition and domestic violence combine to account for women's poor mental health.[2,3] World Health Organization has put special emphasis on research need regarding gender related factors for diseases disproportionately affecting women in developing countries.[3]

Studies also suggest that rural women are more at risk of depression than their urban sisters and rural male counterparts. This trend is quite prevalent in developing countries as well.[4] Rural life style and women gender appear specifically associated with the risk of depression and a significant number of women suffer from depression during pregnancy.[5,6]

South Asian women particularly face conditions which may lead to poor mental health. Antenatal depression among South Asian rural women was found to be 16-33%.[7] Violence by the husband, lack of support from in-laws and family preference for a male child are strongly associated factors for depression among pregnant women in the entire South Asian region.[7,8]

Indeed, social problems are a major cause of anxiety and depression in Pakistan and have an overall prevalence of 34%.[9,10] Studies conducted in rural areas of Pakistan suggest high prevalence of depression among rural women and show clear association between woman's poor mental health ,family dynamics and her social support system along with the experiences from early childhood environment.[9-11] Moreover, depression is contributing significant DALY's in the country and its high social and financial cost to families and societies is critically considerable. While health budget is <1% of GNP, even scarce amount is allocated to mental health.

Depression and other mental disorders during pregnancy are associated with preterm labour and low birth weight (LBW) that are major causes of infant mortality and long term adverse health complications for children. Children of depressed mothers are at higher risk for school failure and depressive disorders in their future lives. Therefore, successful identification and treatment of maternal depression may provide an opportunity for primary prevention of this global public health concern.[12] A significantly positive relationship is has also been observed between high maternal self-esteem and improved pregnancy outcomes.[13]

Furthermore, as mental health status is shaped by local context and processes, underlying socio-cultural perspectives may shape patterns of psychiatric disorders. Therefore, it is important to study contextual frameworks for various regions that determine mental health status of local people. Factors like family setup, social support and social status are considered to influence mental health. Social and family support is considered a buffer against depression, whereas family conflicts and economical concerns are found to enhance depression.[14-16]

Hence it is important to identify the risk factors of mental illness and develop interventions accordingly. A similar study was conducted by the same researchers to identify the socio-cultural factors for depression among pregnant women belonging to urban areas of Pakistan. A separate study was designed to determine the prevalence of depression and identify the contextual risk factors and the relative importance of these risk factors in causing depression among rural pregnant women of Sind.

Methodology

Study Sites:

The study was conducted from January 2004 to December 2004. Sind is the second largest province of Pakistan. According to Population Census 1998, population of Sind was 30,440, 000, with 14,840 thousands living in urban areas and 15,600 thousands living in rural areas.[17]

The study had two phases: Qualitative (Phase-I) during which social environmental determinants were identified and Quantitative (Phase-II) during which rural pregnant women were interviewed based on identified themes during Phase I.

To represent rural areas samples were taken from Dadu (included for Phase 1 only) and Khairpur and Hyderabad districts (included for both phase I and II). According to 1998 census Dadu, Khairpur and Hyderabad, had a population of 1,689,000, 1,547,000 and 2,892,000, respectively. These areas of Sind though developed but portray the rural culture; therefore the study sites were classified as rural areas. Both public and private institutes and communities were approached for conducting interviews with pregnant women. Permission was obtained from the administration prior to interviews.

Phase 1 - Qualitative Phase:

Interviews with pregnant women:

Phase I was conducted with the purpose of identifying the determinants of depression in context to the socio cultural environment of the pregnant women. A total of 86 qualitative interviews were conducted with rural pregnant women. The interview guideline was based on

broad areas comprising of daily problems, life events and pregnancy related hassles. Sample size was based on sampling to redundancy i.e. interviews were stopped when no new determinants were being identified. All determinants were formulated into questions after review by a panel of experts (included social workers, psychologists, psychiatrists and gynaecologists). Community based interviews were conducted with the help of local NGOs working in that area. Interviews were conducted by female investigators in the local language (Sindhi). Written consent was taken from pregnant women and her husband (when requested by women) after explaining the purpose of the study. Details of socio-demographic profile of pregnant women are given in Table-1. These sites were purposely selected to include socio-economically and culturally diverse population in order to capture a wide range of determinants. Consideration was also given to include pregnant women of all parities and trimesters.

Phase II- Quantitative Phase:

During quantitative phase a total of rural 375 women were included in the study. Female sociologists and health workers underwent one week training for conducting the interviews. Questionnaire was based on findings from phase I of the study and included three major themes: social conditions, social relations and pregnancy related concerns. Each theme further comprised of multiple categories. Each category further comprised of number of determinants. Social condition categories included socioeconomic status, illness, work, life events and environmental conditions, while social relations categories were husband, in-laws, children and parents. Simultaneously, categories for the theme of pregnancy related concerns were dependency, physical changes, sign and symptoms and unborn baby. On an average each interview lasted for 45 minutes. The refusal rate was <1%.

In order to determine the relative power of social environmental determinants, each determinant was assigned a score of "+1" if it was applicable to the pregnant woman during the last one month and "0" if it was not applicable. An index was developed by calculating the total score for each theme and category as in appendix 1. For example, in the husband category for rural women, there were 12 questions; therefore, the possible score for individual pregnant woman in this category would range between 0-12.

Concurrently, in the same group of 375 pregnant women the translated (in Sindhi language accordingly) version of Center for Epidemiological Studies - Depression (CES-D) scale was administered by a separate interviewer (blinded) to determine depression. CES-D is a multi-cultural validated instrument and has been used in many countries including India and Bangladesh for measuring depression among variety of populations including pregnant women (16 -19). CES-D consists of 20 items. Each item has a score of 0-3 range. Therefore, an individual score of women on the CES-D scale may range from 0-60. A cut-off of 16 and above has been recommended to diagnose depressive disorders. Below this level, the scale determines the depressive symptoms.

Data was analyzed with identifier numbers by a separate person to maintain confidentiality. Life histories taken in in-depth interviews were kept anonymous even when they were analyzed. Counseling was provided to those women who were diagnosed as depressed by the psychologist or they were referred for further assessment and treatment.

The study was funded by the Aga Khan University Research Grant Council and was initiated after approval from the Aga Khan University Ethical Review Committee.

Analysis Plan:

Through qualitative analysis identified determinants were grouped into themes of: social relations, social conditions and pregnancy related concerns. Within each theme categories were identified based on similar determinants (Table-2). Scores on questionnaire were not meant to make any diagnostic label for mental disorders for pregnant women rather these scores were analyzed as a continuous variable.

Univariate linear regression between scores of major themes and categories and total CES-D scale scores were conducted to look at the association between the determinants and depression (Table-3). In addition, association between age, education and total CES-D scores were also determined. Finally, two separate multivariate analysis models were developed to determine independent effect of the identified determinants with total CES-D scores: with major themes and categories, separately (Table-4).

Results:

Phase I; Qualitative Results:

A total of 86 in-depth interviews were conducted during phase I of the study. The details related to the number of sites included are given in Table-1. The socio demographic profile of pregnant women belonging to phase I and II is given in Table-2. The mean age for pregnant women was 27.3 ± 4.7 years and 35% were educated.

Total number of determinants for rural areas was 86

Table-1: Socio-demographic profile of pregnant women in Phase I and II in rural Sind.

Phase I-Qualitative phase	n = 86 (%)
Mean age in years	25.75±5.35
Educational status of women**	
Illiterate	54 (62.8)
Primary (1-5)	10 (11.6)
Secondary (6-10)	8 (10.3)
Graduation (11-14)	13 (15.1)
Professional	1 (0.11)
Gravida	
Primi gravida (first pregnancy)	28 (32.5)
Multi-gravida (2-4 pregnancy)	30 (34.7)
Grand-multigravida (5th or more pregnancy)	28 (32.8)
Trimester of pregnancy	
1st (1-3 months)	14(16.2)
2nd (4-6 months)	21(24.3)
3rd (7-9 months)	51 (59.5)
PHASE II- Quantitative phase	n = 376 (%)
Mean age in years	26.87±5.62
Education	
Illiterate	215 (57.2)
Primary (1-5)	66 (17.5)
Secondary (6-10)	53 (14.0)
Graduation (11-14)	41 (10.9)
Professional	13 (0.34)
Trimester of pregnancy**	
1st (1-3 months)	24 (6.4)
2nd (4-6 months)	97 (26.1)
3rd (7-9 months)	251 (66.7)
Gravida	
Primi gravida (first pregnancy)	97 (25.9)
Multi-gravida (2 onwards pregnancy)	277 (74.1)
History of abortion	0.56±1.08

and the number of determinants under each of the theme: social relations, social conditions and pregnancy related concerns were (17, 47 and 22 respectively) (Table-3).

Social Relations:

In the theme of social relations, rural women were found quite sensitive for their relationship with all near and dear ones. The relation that affected them the most was of the husband. They had concern of lack of caring attitude from husbands. They also felt that age difference between husband and wife affected possibility of plausible relationship between them. Interestingly, rural women were also gravely concerned with large family size and they correlated it with lesser chances of good child upbringing. Rural pregnant women were also compassionate for the wellbeing of their parents.

Social Conditions:

Theme for Social conditions identified several determinants for depression. The categories included illness, economy, life events, work, physical environment and social problems. Rural women had concern for health care. In life events category, marital issues were mentioned as life events by majority of rural women. Change of environment after marriage was a concern. There were also concerns related to "watta satta marriage system" (A tribal custom of bride exchange prevalent in various communities in Pakistan, involves the simultaneous marriage of a groom to bride but in exchange the brides brother has to essentially marry the grooms sister. In case if one couple is not happy or marriage is broken then there is a pressure to break the other one also or there is negative effect on the life of the other couple)and arguments/ fights over property and inheritance. Rural pregnant women also had concern for transport and access.

Table-2: Descriptive statistics of total, categories and subcategories of social environmental determinants among pregnant women in rural Sind.

No	Determinants1	No. of determinants	Mean	SD	Range
	Total determinants	86	19.08	13.18	0 - 58
	Themes				
1	Social relations	17	2.15	3.07	0 - 18
2	Social conditions	47	9.19	7.21	0 - 31
3	Pregnancy related concerns	22	7.79	4.53	0 - 18
	Categories				
1.1	Parents	4	0.65	0.94	0 - 4
1.2	Husband	12	1.19	2.00	0 - 10
1.3	In-laws	6	0.61	0.97	0 - 6
1.4	Children	1	0.25	0.43	0 - 1
2.1	Illness	7	1.74	1.61	0 - 7
2.2	Economy	8	2.49	2.52	0 - 8
2.3	Life events	8	1.04	1.41	0 - 8
2.4	Household work	3	0.78	0.97	0 - 3
2.5	Social environment	10	2.14	1.70	0 - 8
3.1	Pregnancy symptoms	9	4.11	2.33	0 - 9
3.2	Pregnancy related concerns	9	2.74	2.06	0 - 9
3.3	Dependency due to pregnancy	1	0.36	0.48	0 - 1
3.4	Concerns of unborn baby	2	0.57	0.66	0 - 2

Table-3: Univariate linear regression analysis between categories and major themes of social environmental determinants and CES-D among pregnant women in rural Sind.

	Rural Areas			
Themes	**B**	**Beta**	**95% CI**	**P value**
Social relations	1.70	0.44	1.35, 2.05	<0.0001
Social conditions	0.93	0.57	0.79, 1.07	<0.0001
Pregnancy Related concerns	1.36	0.52	1.13, 1.58	<0.0001
Categories	**B**	**Beta**	**95% CI**	**P value**
Age (years)	0.49	0.23	0.28, 0.69	<0.0001
Education of women (years)	-0.55	-0.24	-0.78, -0.32	<0.0001
Gestational age (weeks)	-0.23	-0.03	-0.84, 0.37	0.45
Number of alive children	1.42	0.27	0.91, 1.93	<0.0001
Abortion	1.84	0.17	0.75, 2.93	<0.0001
Gravida	1.11	0.30	0.76, 1.47	<0.0001
Husband	2.42	0.42	1.88, 2.97	<0.0001
In-laws	3.69	0.36	2.71, 4.67	<0.0001
Children	7.17	0.26	4.48, 9.86	<0.0001
Parents	4.64	0.37	3.45, 5.83	<0.0001
Illness	3.22	0.44	2.56, 3.88	<0.0001
Economy	2.07	0.44	1.65, 2.50	<0.0001
Life Event	2.75	0.33	1.95, 3.56	<0.0001
Work related	5.58	0.46	4.49, 6.69	<0.0001
Social environment	4.61	0.37	3.42, 5.81	<0.0001
Social problems	3.09	0.45	2.47, 3.72	<0.01
Symptom	2.54	0.50	2.10, 2.99	<0.0001
Pregnancy related concerns	2.19	0.38	1.65, 2.73	<0.0001
Unborn baby	5.40	0.30	3.68, 7.13	<0.0001

Table-4: Multivariate linear regression models between categories and major themes of social environmental determinants and CES-D among pregnant women in rural areas of Sind.

	Rural Areas			
Model for themes**	**B**	**Beta**	**95% CI**	**P value**
Social relations	0.27	0.07	0.18,0.72	0.24
Pregnancy problems	0.63	0.24	0.33, 0.93	<0.0001
Social Condition	0.57	0.35	0.33, 0.81	<0.0001
Model for categories*	**B**	**Beta**	**95% CI**	**P value**
Age	0.23	0.11	0.04,0.41	0.01
Education of women	0.02	0.01	-.20,0.24	0.83
Husband	0.83	0.14	0.20, 1.46	0.01
In-laws	0.13	0.01	-1.11,-1.39	0.82
Children	0.30	0.05	-0.96,1.60	0.64
Parents	1.50	0.68	0.14,2.85	0.03
Illness	0.18	0.02	-0.66, 1.03	0.67
Economy	0.41	0.08	-1.0, 0.92	0.11
Life events	0.33	-0.04	-1.18, 0.51	0.43
Work related	-1.12	0.09	-0.23, 2.49	0.10
Socio environmental circumstances	-0.34	0.75	-1.80, 1.14	0.65
Social issues	0.42	0.42	0.41, 1.29	0.33
Pregnancy symptoms	1.20	0.23	0.64, 1.76	1.20
Changes during pregnancy	3.08	0.12	0.68, 5.48	0.01
Dependency due to pregnancy	3.04	1.21	0.65,5.4	0.01
Unborn	0.12	0.007	-1.79,2.05	0.89

*Adjusted R2 for categories for rural pregnant women=38%.
**Adjusted R2 for themes for rural pregnant women =35%.

Pregnancy Related Concerns:

Theme for pregnancy related concerns included categories related to worries about pregnancy linked changes and sign and symptoms, concerns about wellbeing of unborn and fear of dependency. Receiving proper ante and post natal health care was the major concern mentioned by the rural pregnant women.

Phase II:

A total of 376 quantitative interviews were conducted. Socio demographic profile for phase II is mentioned in Table-2. Women belonging to all trimesters and parity were included in the study. Prevalence of depression among pregnant women was 60.0% (229/375) for rural areas. The mean depression scores on CES-D were 11.68 ± 20.98.

Univariate analysis found social relations, social conditions and pregnancy hassles significantly associated with depression scores for rural pregnant women (Table-2). Analysis found that for each unit increase in social relations, conditions and pregnancy hassles there was 0.44, 0.57 and 0.52 increase in depression scores. Apart from categories, variables such as education, abortion history, gravidity, age and number of live children were significantly associated with depression scores among rural pregnant women.

Multivariate model for themes and categories is given in Table-4. In Multivariate model social conditions and pregnancy hassles were significantly associated with depression. The adjusted R2 for theme was 35%.

Multivariate model for categories related to husband, parents, pregnancy symptoms and dependency during pregnancy were significantly associated with depression scores. Age was significantly associated with depression whereas education was insignificant. The adjusted R2 Model for categories was 38% (Table-3).

Discussion

This is the first study conducted to identify the determinants of depression in the context of social environment in rural areas of Sind, Pakistan. Research has proved that adverse social environment affects mental health.[15,16] Understanding the social environment of women in context to location and socio-cultural circumstances is important. The results of this study support the findings of other researchers all over the world.[17,18]

The fact that women from socioeconomically depressed backgrounds suffer with higher rates of depression justifies to the high prevalence of mental

disorders among rural women. Two competing theories dominate the research about the relationship between mental health disorders and low socioeconomic status .i.e. social selection theory suggests mental illness as an intrinsic trait that negatively affects the ability to gain and maintain good social status resulting in ultimate poverty. Conversely, the social causation theory suggests the conditions associated with growing up and living in poverty produce greater risk for mental health problems. Recent research indicates that the social causation theory better explains the relationship between economic status and depression. The association between lesser economic status and depressive symptoms is prevalent in rural areas, exposing people to the high prevalence of both depression and poverty.[19]

This study emphasizes the importance of three themes of sociocultural environment i.e. social relations, social conditions and pregnancy concerns as determinants of mental health among rural pregnant women. It is a general understanding that women have a submissive role in Pakistan, which has been quoted to be more profound for women belonging to rural areas.[20] In our study rural women were found to be more concerned about the physical infrastructure and the social setup (including in-laws, children and parents) surrounding her. Various studies have also identified social support and family issues as important determinants of mental health in rural settings. The changing role of women based at different stages in life also makes her vulnerable to depression and it was again identified in this study.[21]

If we explore the theme of social conditions, it can be identified that certain old traditions like watta satta system of marriage are still prevalent in our society. They are more common in rural setting as compared to urban and are a cause of continuous stress for married women. Many women in rural areas have also suffered because of disputes over inheritance between families which in many cases continue for generations. Rural women live under continuous threat because of disputes among the two families. Many separations, divorces and break-ups among the family occur because of disputes.[22] Such adverse social environment is a cause of depression for rural women in Pakistan. Apart from blood relations neighbourhood people also play an important role in the social setup of women, especially in rural areas. Interestingly, issues related to neighbourhood attitudes were reported by women in this study. Many studies conducted in West have emphasized importance of neighbourhood characteristics in causing depression.[14]

This study identified pregnancy related concerns as an important stressor for rural women. Sex of the baby was a concern for women as preference for a male child is believed to be more among the rural dwellers. Rural pregnant women have grave concerns for availability of proper health care and delivery services. Many pregnant women suffer from morbidity and mortality because of lack of proper health services in the rural areas of Pakistan.

Pregnancy is an important event in a women's life. Apart from physical changes, women experience change in emotions and at times end up in depression during antenatal period. Ante-partum depression may also lead to post partum depression.

The study has purposefully included women belonging to all trimesters, parity and social class so that stressors can be identified comprehensively for all groups of pregnant women belonging to rural Sind. Though, literature is available suggesting varying levels of depression during different trimesters, our study did not find gestational age to be significantly associated with depression in the study population.[23]

Multivariate model for categories found husband, parents, and pregnancy signs and symptoms and dependency during pregnancy to be significant categories for depression among women associated with depression scores. Age was significantly associated with depression among study women.

This study is limited as its focus was only on social environment of pregnant women. By excluding the theme on pregnancy, more of such studies can be designed to validate this framework on social environment of women in general. Three rural areas of Sind were merged as one group because of more or less similar social environment, culture and infrastructure, however there could have been differences regarding physical environment.

This study supports the findings of other studies which reveal that depression is twice as high in rural areas as compared to urban areas because concept of rural residence as a protective factor and ideal place to live has been proved wrong through this study. Our study supports the work of social scientists in exploring the determinants of depression in context to social environment among pregnant women belonging to rural areas of Pakistan.

The researchers recommend screening for depression, development of interventions to reduce depressive episodes, and further research to study various questions about peri-natal depression.[24] There is strong need for improved mental health services in the vulnerable population of rural women.[25] Prevention and treatment of depression should consider socio-contextual background. Follow up studies are required to observe the affect of depression on pregnancy outcome. Training of doctors,

paramedics and mid wives have found to have beneficial effect on pregnant women and baby, hence training elsewhere should include identification and counseling skills for the common mental disorders so that negative consequences of depression on women and the baby can be avoided.[5]

References

1. The World Health Report: 2001: Mental health: New Understanding, New Hope. World Health Organization 2001. (Online) (Cited 2010 Aug 25). Available from URL: http://www.who.int/whr/2001/en/whr01en.pdf.
2. Douki S, Zineb S B, Nacef F, Halbreich U. Women's mental health in the Muslim world: cultural, religious, and social issues. J Affect Dis 2007; 102: 177-89.
3. Disease Control Priorities in Developing Countries. World Bank & Oxford University Press. 2nd ed. 2006.
4. Ntaganira J, Muula AS, Masaisa F, Dusabeyezu F, Siziya S, Rudatsikira E. Intimate partner violence among pregnant women in Rwanda. BMC Women's Health 2008; 8: 17.
5. Campbell A, Manoff T, Caffery J. Rurality and mental health: an Australian primary care study. Rural and Remote Health 2006; 6: 595.
6. Marcus SM, Flynn HA, Blow FC, Barry KL. Depressive Symptoms among Pregnant Women Screened in Obstetrics Settings. J Womens Health 2003; 12: 373-80.
7. Gausia K, Fisher C, Ali M, Oosthuizen J. Antenatal depression and suicidal ideation among rural Bangladeshi women: a community-based study. Arch Womens Ment Health 2009; 12: 351-8.
8. Chandran M, Tharyan P, Muliyil J ,Abraham S. Post-partum depression in a cohort of women from a rural area of Tamil Nadu, India Incidence and risk factors. Br J Psychiat 2002; 181: 499-504.
9. Mumford DB, Nazir M, Jilani FU, Baig IY. Stress and psychiatric disorder in the Hindu Kush: a community survey of mountain villages in Chitral, Pakistan. Br J Psychiat 1996; 168: 299-307.
10. Dodani S, Zuberi R. Center-based prevalence of anxiety and depression in women of the Northern areas of Pakistan. J Pak Med Assoc 2000; 50: 138-40.
11. Husain N, Chaudhry IB, Afridi MA, Tomenson B, Creed F. Life stress and depression in a tribal area of Pakistan. Br J Psychiat 2007; 190: 36-41.
12. 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: 68-72.
13. Stuart JJ. Psychosocial Determinants of Pregnancy Outcomes among the Amish. Special Studies: Public Health Honors Thesis. SPC 490 Honors Awarded: May 7, 2009 Graduation Date: May 16, 2009.
14. Mair C, Diez Roux AV, Galea S. Are neighborhood characteristics associated with depressive symptoms? A review of evidence. J Epidemiol Community Health 2008; 62: 940-6.
15. Reblin M, Uchino BN. Social and emotional support and its implication for health. Curr Opin Psychiatry 2008; 21: 201-5.
16. Turagabeci AR, Nakamura K, Kizuki M, Takano T. Family structure and health, how companionship acts as a buffer against ill health. Health Qual Life Outcomes 2007; 5: 61.
17. Development Statistics of Sind. Bureau of statistics, Planning and Development Department, Government of Sind Karachi 7500.
18. Husain N, Creed F, Tomenson B. Depression and social stress in Pakistan. Psychol Med 2000; 30: 395-402.
19. Simmons LA, Braun B, Charnigo R, Havens JR, Wright DW. Depression and poverty among rural women: a relationship of social causation or social selection? J Rural Health 2008; 24: 292-8.
20. Husain N, Gater R, Tomenson B, Creed F. Social factors associated with chronic depression among a population based sample of women in rural Pakistan. Soc Psychiatry Psychiat Epidemiol 2004; 39: 618-24.
21. Bramston P, Rogers-Clark C, Hegney D, Bishop J. Gender roles and geographic location as predictors of emotional distress in Australian women. Aust J Rural Health 2000; 8: 154-60.
22. Boyle P, Norman P, Rees P. Changing places: Do changes in the relative deprivation of areas influence limiting long-term illness and mortality among non-migrant people living in non-deprived households? Soc Sci Med 2004; 58: 2459-71.
23. Jokhio AH, Winter HR, Cheng KK. An intervention involving traditional birth attendants and peri natal and maternal mortality in Pakistan. N Eng J Med 2005; 352: 2091-9.
24. Rahman A, Iqbal Z, Harrington R. Life events, social support and depression in childbirth: perspectives from a rural community in the developing world. Psychol Med 2003; 33: 1161-7.
25. Husain N, Gater R, Tomenson B, Creed F. Social factors associated with chronic depression among a population-based sample of women in rural Pakistan. Soc Psychiatry Psychiatr Epidemiol 2004; 39: 618-24.