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Original Article:

Postpartum Mental Health among Young Women

Amr MA, Assistant Prof. of Psychiatry, College of Medicine, Mansoura University, Egypt,
Balaha M, Prof. of Obstetrics & Gynecology, College of Medicine, King Faisal University, Al Ahsa, Saudi Arabia,
Al Moghannum M, Consultant Obstetrics and Gynecology, Al Ahsa Maternity Hospital, Saudi Arabia.

Address for Correspondence:
Mostafa Abdel-Monhem Amr,
Assistant professor of Psychiatry,
Mansoura University,
Egypt.
E-mail: mostafapsy@yahoo.com

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Abstract: Background: A number of studies have highlighted the physical health problems associated with adolescent pregnancy in Saudi Arabia , However there were few studies dealing with the postpartum psychiatric disorders .The study aims to determine the prevalence of postpartum psychological distress and to evaluate the associated risk factors in a sample of primigravid young women in Al Ahsa region, Saudi Arabia. **Methods:** We assessed the prevalence of postnatal mental health in 190 young mothers attending the maternity hospital using general health questionnaire. We also assessed the relationship between socio-demographic, psychiatric and obstetric risk factors and the mental health. **Results:** The percent of women with psychological distress was 35.2%. Significant risk of psychological distress was associated with several socio-demographic, psychiatric and obstetric risk factors. Only four items were found to be significant predictors of postpartum psychological distress; low family income, poor husband support, birth of female baby and gestational diabetes. **Conclusions:** These results highlighted importance of screening for psychological distress and its associated risk factors in the implementation of proper perinatal care for the pregnant Saudi adolescents.

Key Words: Teenage pregnancy; Postnatal psychiatric disorders; Risk factors

Introduction:

Teenage pregnancy is defined as pregnancy in women under the age of 20, although in the United States, the term usually refers to girls younger than 18 years. Teenage pregnancy is a worldwide social problem and its incidence shows marked variation amongst developing countries.(1-2) In Saudi Arabia, the birth rate per 1000 females aged 15–19 is 114. The average age at marriage is 14 years, and average age at first pregnancy is 16 years.(3) An increased prevalence of anemia, low-birth-weight (LBW) infants, pregnancy-induced hypertension (PIH) and cesarean section was found in young Saudi pregnant women.(4-7)

The birth of a child especially the first can be a joyous and exciting time, but following childbirth, some women may experience postpartum disorders such as the baby blues, postpartum depression (PPD), birth-related post-traumatic stress disorder, postpartum anxiety and/or panic disorder, postpartum obsessive-compulsive disorder (OCD) or rarely postpartum psychosis (PPP). Postpartum psychiatric disorders have been the subject of an increasing number of publications.(8-10)

The majority of these studies are Western. In developing countries, many studies have examined the occurrence of postpartum psychiatric disorders and the focus was on prenatal and delivery care and on women's medical and obstetrical problems and on the baby's wellbeing.(11-13)

The authors of this study assumed hypothesis that the risk of developing postpartum psychiatric disorders is independent of adverse socio demographic, psychiatric or obstetric risk factors. The aim of this study was to detect the prevalence of postnatal psychological distress in a sample of primigravid teenagers in Al Ahsa region, Eastern Province, Saudi Arabia. Also the study aims to highlight the ability of different risk factors in prediction of postpartum psychological distress.

Methods

This study was conducted at Al Ahsa Maternity hospital, Saudi Arabia Al-Ahsa, Saudi Arabia; which is the largest province in the Eastern region with a population of nearly 1 million with diverse socioeconomic backgrounds.(2) Maternal services are provided by Al-Ahsa Maternity Hospital and a network of primary health care centers (PHCCs). The antenatal care clinics provide regular care for pregnant women with the use of the classic 13 visits schedule throughout pregnancy. The postnatal visits were conducted monthly after birth and at times of neonatal vaccination.

Sample selection

The sample comprised all primigravid teenage women who were attended the primary health care centers for postnatal visits and for infant vaccination within 2 months after delivery. The cases were evaluated during the period 2007-09. Women with any chronic medical disease (hypertension, diabetes, renal, cardiac and sickle cell disease) or multiple births were excluded from the study. 205 cases were legible teenagers to be enrolled in the study. Out of them, six cases with incomplete data cases and nine cases giving birth outside the maternity hospital were excluded. The remaining 190 cases were enrolled as the study sample. An informed consent was obtained from each participant before enrollment in the study.

Study design

The women completed a questionnaire designed for this study that covered socio- demographic (educational

level and occupation of the wife and husband, current residence and level of income) medical, especially obstetrical (antenatal: pregnancy induced hypertension, gestational diabetes, antepartum hemorrhage, anemia, premature rupture of membranes; Perinatal: birth weight, gestational age at birth, mode of delivery, newborn gender and health status; postnatal: postpartum hemorrhage, fever and continence problems) psychiatric (quality of marital life, husband support, stressful live events in the last 6 months, family and past history of psychiatric illness). The women also completed the General Health Questionnaire (GHQ), a widely used, valid and reliable indicator of psychological distress and a predictor of psychological distress . This instrument has previously used in screening for postpartum psychiatric morbidity.(14-15) The 12-item Arabic version was used in this study. The cut-off score of 12 was adopted a priori to identify cases.(16) Sensitivity and specificity was 0.83 and 0.80 respectively. The total discriminatory powers of the GHQ-12 were approximately 86%, and have a significant concurrent validity.

Analytical Procedure

GHQ data were tabulated and all the included cases were divided according to the score of GHQ into either cases (GHQ score >12) or non cases (GHQ score ≤12). Independent student t test was used to compare them. All demographic, psychiatric and obstetric risk factors were explored and compared in cases and non cases using non parametric analysis; chi-square and the two-tailed Fisher's exact test. Significance was considered at P <0.05. Binary logistic regression analysis was used to estimate the predictability of having postpartum psychological distress after adjusting for covariates identified in the bivariate analyses. Significance was based on significant β coefficient and significant odds ratio with confidence interval (CI) not crossing one. The analysis was done using the SPSS software package version 16 (Chicago, USA).

Results:

A total of 205 young women were invited to take part in the study. The GHQ was completed for 190 women (the response rate was 92.7%). the mean age was 17.7 years, ranging from 15.7 to 19.8. All of them were married and their delivery was conducted at hospital

Point prevalence of psychological distress

The prevalence of psychological distress was (35.2%). The mean score of GHQ in the cases was 22.81± 6.44 (range 14-35). On the other hand the mean score in the non cases was 8.98 ± 1.83 (range 5-12), with significant statistical difference. (P< 0.01)

Table 1 summarizes the socio-demographic and psychiatric characteristics of the study sample. The majority of mothers (72.1%) had achieved either elementary or secondary levels of education and 78.4% were housewives. Nightly-two women (48.4%) were living in urban areas. Only 31.6% of their husbands had achieved a higher level of education and 5.3 % had unstable jobs. The majority of cases had good quality of married life; however 31 (16.3%) of them described this relation as poor and 27.8 % of the sample lack the assistance from husband, 17.9 % had stressful life events during the previous 6 months, 21.6 % had previous psychiatric disorders and 26.8 % had a family history of psychiatric disorders. (Table 1)

Table 2 summarizes the obstetric characteristics of the study sample. Regarding the course of pregnancy, nearly half of the sample reported anemia (43.2%) whereas 24.2% had gestational diabetes, others include: hypertension, premature rupture of membranes and antepartum hemorrhage in 17.9, 11.1 and 5.3% respectively. The majority of participants reported a cesarean mode of delivery ending in a full term newborn with average birth weight and appropriate Apgar scoring, moreover the newborns had a comparable sex distribution (55.3 % males and 44.7 % females) but, one tenth of the newborns (13.2%) were admitted to the NICU. The most common postnatal complications in the sample were post partum fever (27.4%) followed by continence problems (13.7%) and post partum hemorrhage (5.8%). (Table 2)

Table 1: Socio-demographic and psychiatric characteristics in cases with or without psychiatric disturbance as defined by GHQ

	Total (N=190)	Non-case (N=123)	Case (N=67)	P value
	N (%)	N (%)	N (%)	(X2 or FET)
Husband education:				
<Secondary	73 (38.4)	50 (40.7)	23 (34.3)	0.68
Secondary	57 (30)	35 (28.5)	22 (32.8)	
>Secondary	60 (31.6)	38 (30.9)	22 (32.8)	
Husband occupation:				
Professional	53 (27.9)	37 (30.1)	16 (23.9)	0.023 *
Employee	73 (38.4)	48 (39)	25 (37.3)	
Non governmental	54 (28.4)	36 (29.3)	18 (26.9)	
Unstable	10 (5.3)	2 (1.6)	8 (11.9)	
Maternal education:				
< Secondary	39 (20.5)	25 (21.3)	14 (20.9)	0.64
Secondary	98 (51.6)	61 (59.6)	37 (55.2)	
> secondary	53 (27.9)	37 (30.1)	16 (23.9)	
Maternal occupation:				
House wives	149 (78.4)	103 (83.7)	46 (68.7)	0.043 *
Working	3 (1.6)	2 (1.6)	1 (1.5)	
Students	38 (20)	18 (14.6)	20 (29.9)	
Current residence				
Urban	92 (48.4)	60 (48.8)	32 (47.8)	0.72
Rural	68 (35.8)	42 (34.1)	26 (38.8)	
Hagar	30 (15.8)	21 (17.1)	9 (13.4)	
Current income				
Satisfactory	156 (82.1)	112 (91.1)	44 (65.7)	000 **
Unsatisfactory	34 (17.9)	11 (8.9)	23 (34.3)	
Past history of psychiatric illness	41 (21.6)	18 (14.6)	23 (34.3)	0.019 *
Family history of psychiatric illness	51 (26.8)	13 (10.6)	28 (41.8)	000 **
Poor quality of marital life	31 (16.3)	17 (13.8)	14 (20.7)	0.6
Stressful life events in last 6 months	34 (17.9)	19 (15.4)	15 (22.4)	0.72
Absent husband support	53 (27.8)	20 (16.3)	33 (49.3)	000 **

* Significant; **Highly Significant

Table 2: Obstetric risk factors in cases with or without psychiatric disturbance as defined by GHQ				
	Total (N=190)	Non-case (N=123)	Case (N=67)	P value
	N (%)	N (%)	N (%)	(X2 or FET)
Gestational diabetes	46 (24.2)	14 (11.4)	32 (47.8)	0.001**
Pregnancy induced hypertension	34 (17.9)	11 (8.9)	23 (34.3)	0.001**
Anemia	82 (43.2)	50 (40.7)	32 (47.8)	0.82
Antepartum hemorrhage (APH)	10 (5.3)	5 (4.1)	5 (7.5)	0.8
Premature rupture of membranes	21 (11.1)	11 (8.9)	10 (14.9)	0.66
Low birth weight	17 (8.9)	8 (6.5)	9 (13.4)	0.46
Abnormal delivery mode				
Cesarean	48 (25.3)	28 (22.8)	20 (29.9)	0.028*
Instrumental	31 (16.3)	15 (12.2)	16 (23.9)	
Low Apgar score (<7) at 7 minutes	12 (6.3)	8 (6.5)	4 (6)	0.99
Admission to NICU	25 (13.2)	5 (4.1)	20 (29.9)	0.001**
Baby sex (Gender)				
Male	105 (55.3)	86 (69.9)	19 (27.4)	0.001**
Female	85 (44.7)	37 (30.1)	48 (71.6)	
Postpartum hemorrhage	11 (5.8)	4 (3.3)	7 (10.4)	0.24
Postpartum fever	52 (27.4)	21 (17.1)	31 (46.3)	0.001**
Postnatal continence problems	26 (13.7)	16 (13)	10 (14.9)	0.98
* Significant; **Highly Significant				

Factors associated with psychiatric disturbance

We compared the group of mothers with current psychiatric disturbance, according to the diagnosis generated by GHQ in the eighth week after childbirth, to the non-cases group. We first tested associations between psychiatric disturbance and socio-demographic and psychiatric factors. Husband occupation, maternal occupation and past history of psychiatric illness showed significant difference ($P < 0.05$) On the other hand the difference in current income and absent husband support was highly significant ($P < 0.01$)

We examined potential relationship associating obstetrical factors with postpartum psychological distress. Cases reported highly significant more complications of pregnancy (hypertension, diabetes), cesarean mode of delivery, female baby sex, admission to the NICU and postpartum fever. ($P < 0.01$).

Table 3 shows results of the logistic regression analysis. It indicated that, after adjusting for potential confounders, the main significant determinants of psychological distress are unsatisfactory family income, poor husband support, gestational Diabetes, and female baby sex. The odds of having psychological distress for women who had unsatisfactory family income are 3.5 times compared with those with satisfactory family income. (95% CI 1.3 - 9.1). Women who reported gestational diabetes are 3.4 times more likely to have psychological distress (95% CI 1.96 - 6.01). A significant interaction was found between husband support and psychological distress. Compared with women without support, women having support were less likely to have a psychiatric disorder, (95% CI 2.63 – 17.9). Women who gave birth to female babies reported more risk to have psychological distress (95% CI 1.19 – 2.41).

Table 3: Binary Logistic regression analysis of all the significant predictors for psychological distress				
	P value	Odds Ratio	95% CI	
			Lower	Upper
Unsatisfactory income	.034	3.49	1.34	9.06
Family history of psychiatric illness	.367	.67	28	1.59
Poor husband support	.000	6.88	2.63	17.96
Antenatal PIH	.436	.80	.46	1.39
Antenatal DM	.044	3.43	1.96	6.01
Abnormal delivery mode	.176	.442	.14	1.44
Admission to NICU	.100	.99	.83	8.81
Female baby sex	.001	1.259	1.19	2.40
Postpartum fever	.356	1.52	.63	3.69

Discussion:

Since the mid-20th century, Saudi Arabia with its oil riches has been in a socio-demographic, cultural, and economic transformation. In the last four decades the population has increased from 4 million (5% urban, 70% illiterate) to 28 million (80 % urban, 81% literate) with over 50% of the population in Saudi Arabia is now less than 25 years of age.(17)

This fast transformation and the complex social pattern of the country caused various conflicts which may affect young women. They are more reluctant to marry at an earlier age, choosing to pursuit higher education and careers, less accepting of having their roles restricted to motherhood. The consequences of these problems would have a substantial effect on the mother, her child and the family.(18)

This study is one of very few researches looking at postpartum psychological distress among women from Middle East.(19-21) Moreover, to our knowledge, it is the first to show the prevalence and putative risk factors in young mothers.

Point prevalence of psychiatric disturbance

The relationship between motherhood and psychiatric illness has been extensively studied in recent years. A large review of 20 studies of the prevalence of postpartum psychiatric illness showed large variations related to differences in methodology, sample size, assessment techniques (self-report vs. diagnostic interview), timing of assessment and period of risk.(22)

The findings of the present study indicate a high prevalence of psychological distress among a sample of Saudi young mothers: 35.3% according to the GHQ eight weeks after childbirth. Our results were higher than obtained from a study of a sample of women in United Arab Emirates (23), where psychological distress were present in 24% using Self Reporting Questionnaire score > 6 on day 2 after delivery in 95 women admitted for childbirth to the New Dubai Hospital. The difference may be due to the used tool and also our tool; GHQ is brief, simple, and easy to complete. In a recent study from Saudi Arabia, Belha et al, 2009 (24), reported that the prevalence of psychiatric disorders using a structured interview was 14% and 16% in young and old mothers respectively .When subgroups of psychiatric disorders were considered, the anxiety disorders were higher in the young mothers probably due to significant increase for the posttraumatic stress disorder and generalized anxiety disorder.

O'Hara and Swain (25) found that the prevalence estimates of postpartum psychiatric disorders were higher in self-report-based studies than in interview (diagnosis)-based

studies. Furthermore, estimates were higher in studies that used a wide window (e.g. the first 8 weeks) than in those that used a narrow one (e.g. the first 4 weeks), and the postpartum period under study made the largest contribution to the prediction of prevalence estimates, accounting for 17% of the variance.

Factors associated with psychiatric disturbance

The few significant psychosocial correlates of postpartum GHQ-defined psychiatric disturbance in our study are consistent with the findings of one of the previous studies.(26) Ghubash et al., reported that low family income and lack of emotional support are probably risk factors which have been previously identified in a community based survey of psychological distress in women in Gulf region.(19)

Alami et al., used the EPDS to follow a sample of Moroccan women from the first trimester of pregnancy to 9 months after delivery. The study identified four risk factors for case and non-case status (EPDS score <12), namely stressful life events during pregnancy, baby's health problems and poor marital relationship.(27)

Donaghy suggested that postpartum depression occurs more frequently in women with less supportive and understanding husbands, in lower socioeconomic groups, and where financial constrains such that the women may be forced to go back to work and therefore , experience guilt and anxiety about leaving the child.(28)

However, in Lebanon, Chaaya et al., reported no association between depressed mood during the postpartum and demographic factors such as age, education, residence and social status.(20)

Several obstetric factors were recognized to be associated with postpartum depression such as complications during pregnancy and early post partum period or difficult labor.(29)

Mothers who experienced complications during pregnancy such as gestational diabetes in our study reported significantly more psychological distress. However, mode of delivery (vaginal versus cesarean) and health status of the infant did not represent significant risk factors. This confirms previous findings relating the mother's general health to postpartum depression.(30)

In a study comparing Australian and Lebanese women with postpartum depression, De Costa found that many of the Lebanese women experienced complications of anemia, antenatal hemorrhage and diabetes.(31)

Kozhimannil et al., researched the association between pre pregnancy diabetes or gestational diabetes and perinatal depression in a sample of 11 024 low income pregnant women. They found that women with diabetes compared with those without diabetes irrespective of age had nearly double the odds of experiencing depression during the perinatal period.(32) Medical disorders can alter or disrupt neurotransmitter functions or can simply act as a severe stressor. Both mechanisms predispose to general depression or may also act with postpartum depression. Crowther et al., and Schram et al., reported that diabetes patients are known to have a worse quality of life and an increased risk for depressive symptoms than individuals without diabetes.(33,34) However, Nielson Forman et al., reported no association with postpartum depression and any obstetric factor.(35)

An interesting pattern appeared in the analysis of the gender of the children, the risk of common mental disorder was higher among young mothers with female children. In many Arab communities, boys in the family are regarded as an asset (who acts as a future means of security for the parents) whereas girls are regarded as a liability (a mother sometimes exerts her influence on her husband and other members of the family through the agency of her eldest son.(36)

Inand et a., observed a significant excess risk of depression among Turkish women with 3 or more daughters, but not with the same number of sons, controlling for the gender of previous children showed that mothers of female babies had higher risk of depression, which may be important indicators of gender discrimination and the social status of women.(37) Zhang et al., similarly showed that a husband's desire for a boy child was significantly associated with maternal postpartum depression in China.(38)

Our study has a number of limitations. First, psychological distress was assessed by the use of a screening instrument (GHQ-12) instead of a standardized clinical interview like the Mini International Neuropsychiatric Interview. Therefore, we cannot interpret our results as a clinical diagnostic judgment. . Although previous studies have shown that the GHQ-12 is useful in detecting postpartum depressive disorders, it is not originally designed to identify a specific psychiatric disorder in the postpartum period.(39,40)

Second, the assessment of psychological distress was made only in the postpartum period, and not during pregnancy. In fact, previous studies indicated that a pre partum depressed mood was a great predictor of developing postpartum depression.(31) Last, the data were collected during routine clinic appointments at PHCCs in only one region (Al-Ahsa region), which potentially limits the generalizability of the current findings.

In conclusion, the findings of this study represent the first report from Saudi Arabia of the prevalence of postpartum psychological distress among young mothers attending the primary health care centers and the identification of putative risk factors such as low family income, poor husband support, female baby birth and gestational diabetes. Consequently, in the future, the implantation of routine screening for psychological distress during the antenatal visits to primary health care centers in Saudi Arabia must be addressed.

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References:

1. UNICEF. A league table of teenage births in rich nations. Innocenti Report Card No. 3; 2001
2. U.S. Teenage Pregnancy Statistics: Overall Trends, Trends by Race and Ethnicity and State-by-State Information. New York, NY: The Alan Guttmacher Institute; 2004.
3. Khoja AT, Farid AM. Saudi Arabia Family Health Survey, Ministry of Health , Saudi Arabia, 2000
4. Mahfouz AAR, El-Said MM, Al-Erian RAG, Hamid AM. Teenage pregnancy: are teenagers a high risk group? *Eur J Obstet Gynecol Repr Biol* 1995;59:17-20.
5. Khwaja SS, Al-Sibai MH, Al-Suleiman SA, El-Zibdeh MY. Obstetric implications of pregnancy in adolescence. *Acta Obstet Gynecol Scand* 1986;65:57-61
6. Abu-Heija A, Ali AM, Al-Dakheil S. Obstetrics and perinatal outcome of adolescent nulliparous pregnant women. *Gynecol Obstet Invest* 2002;53 (2):90–92.
7. Mesleh RA, Al-Aql AS, Kurdi AM. Teenage pregnancy. *Saudi Med J* 2001;22:10
8. Fergerson SS, Jamieson DJ, Lindsay M. Diagnosing postpartum depression: can we do better? *Am J Obstet Gynecol* 2002;186:899–902.

9. Oates MR, Cox JL, Neema S et al. TCS-PND Group. Postnatal depression across countries and cultures: a qualitative study. *Br J Psychiatry* 2004;Suppl 46:S10–S16
10. Wolf AW, De Andraca I, Lozoff B. Maternal depression in three Latin American samples. *Soc Psychiatry Psychiatr Epidemiol* 2002'37: 169–176.
11. Abou-Saleh MT, Ghubash R. The prevalence of early postpartum psychiatric morbidity in Dubai: a transcultural perspective. *Acta Psychiatr Scand* 1997;95:428–432.
12. Patel V, Rodrigues M, De Souza N. Gender, poverty, and postnatal depression: a study of mothers in Goa, India. *Am J Psychiatry* 2002;159:43–47.
13. 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;33:1161–1167.
14. Van Bussel JC, Spitz B, Demyttenaere K. Women's mental health before, during, and after pregnancy: a population-based controlled cohort study. *Birth.* 2006 Dec;33(4):297-302
15. Navarro P, Ascaso C, Garcia-Esteve L, Aguado J, Torres A, Martín-Santos R. Postnatal psychiatric morbidity: a validation study of the GHQ-12 and the EPDS as screening tools. *Gen Hosp Psychiatry*. 2007 Jan-Feb;29(1):1-7
16. El-Rufaie OF, Daradkeh TK. Validation of the Arabic versions of the thirty- and twelve-item General Health Questionnaires in primary care patients. *Br J Psychiatry*. 1996 Nov;169(5):662-664.
17. Nation-Master.com. People Statistics by country. Available from: http://www.nationmaster.com/cat/peo-people
18. AL-Sabaie A. Psychiatry in Saudi Arabia : Cultural Perspectives. *Transcultural Psychiatry Research Review* 1989;26:245-262
19. Ghubash R, Hamdi E, Bebbington Pe. The Dubai Community Psychiatric Survey: prevalence and sociodemographic correlates. *Soc Psychiatry Psychiatr Epidemiology* 1992:27:53-61.
20. Chaaya M, Campbell OMR, El Kak F, Shaar D, Harb H, Kaddour A. Postpartum depression: prevalence and determinants in Lebanon. *Arch Womens Ment Health* 2002;5:65–72.
21. Alami KM, Kadri N, Berrada S. Prevalence and psychosocial correlates of depressed mood during pregnancy and after childbirth in a Moroccan sample. *Arch Womens Ment Health.* 2006:9:343-346
22. O'hara MW, Zekoskei M. Postpartum depression. In: Kumarr, Brockingtiofn, ed. Motherhood and mental illness 2. Causes and consequences. Oxford Butterworths, Heinemann. Woollett A, & Phoenix A.1996.
23. Abou-Saleh MT, Karim L, Ghubash R. Post-partum psychiatric admissions in A1 Ain. *Ann Saudi Med* 1996:16:355-356.
24. Balaha MH, Amr MA, El-Gilany AH, Al-Sheikh FM. Obstetric and Psychiatric Outcomes in a Sample of Saudi Teen-Aged Mothers. *TAF Prev Med Bull* 2009;8(4):285-290
25. O'Hara MW, Swain AM. Rates and risk of postpartum depression— a meta-analysis. *Int Rev Psychiatry.* 1996;8:37–54.
26. Beck CT. Postpartum depression: a metasynthesis. *Qual Health Res* 2002;12:453–472.
27. Alami KM, Kadri N, Berrada S. Prevalence and psychosocial correlates of depressed mood during pregnancy and after childbirth in a Moroccan sample. *Arch Womens Ment Health* 2006:9:343-346
28. Donaghy B). Postnatal depression. Parents and Children. 1988 April/May;17:12-15.
29. Josefsson A, Berg G, Nordin C, Sydsjo G. Prevalence of depressive symptoms in late pregnancy and postpartum. *Acta Obstet Gynecol Scand* 2001;80:251–255.
30. Gjerdingen DK, Chaloner KM. The relationship of women's postpartum mental health to employment, childbirth and social support. *J Fam Pract.* 1994;38:465–472.
31. De Costa C. Pregnancy outcomes in Lebanese – born women in Western Sydney. *Medical Journal of Australia.* 1991;149(7):457-460
32. Kozhimannil, KB, Pereira MA, Harlow BL. Association Between Diabetes and Perinatal Depression Among Low-Income Mothers *JAMA.* 2009;301(8):842-847
33. Crowther CA, Hiller JE, Moss JR, McPhee AJ, Jeffries WS, Robinson JS. Effect of Treatment of Gestational Diabetes Mellitus on Pregnancy Outcomes. *NEJM.* 2005;352:24
34. Schram MT, Baan CA, Pouwer F. Depression and quality of life in patients with diabetes: a systematic review from the European depression in diabetes (EDID) research consortium. *Curr Diabetes Rev.* 2009;5(2):112-119.
35. Nielsen Forman D, Videbech P, Hedegaard M, Dalby Salving J, Secher NJ. Postpartum depression: identification of women at risk. *BJOG* 2000;107:1210–1217.
36. Bouhdiba A. The child and mother in Arab-Muslim society. In LC Brown, Itzkowitz N. (eds.) Psychological Dimensions of Near Eastern Studies. Princeton. The Darwnin Press. 1977.
37. Inandi T, Elci OC, Ozturk A, Egri M, Polat A, Sahin TK. Risk factors for depression in postnatal first year, in eastern Turkey. *Int J Epidemiol.* 2002 Dec;31(6):1201-1207.
38. Zhang R, Chen Q, Li Y. Study for the factors related to postpartum depression. *Zhonghua Fu Chan Ke Za Zhi* 1999;34:231–233
39. Kitamura T, Shima S, Sugawara M, Toda MA. Temporal variation of validity of self-rating questionnaires: repeated use of the General Health Questionnaire and Zung's Self-Rating Depression Scale among women during antenatal and postnatal periods. *Acta Psychiatr Scand* 1994;90:446–450.
40. Nott PN, Cutts S. Validation of the 30-item General Health Questionnaire in postpartum women. *Psychol Med* 1982;12: 409–413