

Psychiatric morbidity across perinatal period in a sample of Egyptian women

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Introduction

Pregnancy and puerperium are universal events that face the majority of women in the reproductive age all around the world, during which major biological, hormonal, and psychological events occur. This study was conducted to verify the hypothesis and investigate (i) psychiatric morbidity in the perinatal period and its comparison with controls. (ii) Is there difference in the psychiatric state across the four perinatal periods?

Patients and methods

Accordingly, a study was conducted on 105 women who were pregnant or in the postpartum period. They were selected from the outpatient clinic of Obstetrics and Gynecology Hospital in the Ain Shams University. Control nonpregnant women were also selected. They were subjected to Mini International Neuropsychiatric Interview-Plus, Beck Depression Inventory, State-Trait Anxiety Inventory, and Edinburgh Postnatal Depression Scale.

Results

Our study revealed that the prevalence of psychiatric disorders during the first and second trimesters of pregnancy was not significantly different in comparison with controls. However, it is much higher than controls during the third trimester with slight decrease in the postpartum period. The most common diagnosis that was found is adjustment disorder all through pregnancy. There were no significant differences between psychiatric morbidity across the perinatal period.

Conclusion

We can conclude that women are vulnerable to psychiatric morbidity in the perinatal period especially in the third trimester and they have high depressive and anxiety states.

Keywords:

anxiety, depression, perinatal, postpartum, pregnancy, psychiatric morbidity

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Introduction

The miracle of pregnancy and the transformation of women into mothers have fascinated people from antiquity to the present. However, it is only during the past century that mental health professionals have begun to contribute to our understanding of the psychological aspects of pregnancy and the psychological phases that the women pass through their journey to motherhood [1].

The past decade has witnessed the emergence of an increased interest in women's reproductive health and development-related programs to improve reproductive health across the globe. This phenomenon was primarily catalyzed by the 1994 International Conference on Population and Development in Cairo. This conference solidified a new, comprehensive understanding of reproductive health, largely owing to the efforts of participating policymakers, researchers, health service providers, scholars, feminists, and health advocates from developed and developing countries [2].

Pregnancy is a time of profound biological, psychological, and interpersonal changes in the lives of many women, and as the stages of psychological adaptation to the event are not well understood, yet a stage of ambivalence develops as a normal response to a major life transition for which some women may fail to adapt, hence psychological state develops [3].

Several psychiatric disorders may occur during the perinatal period, such as anxiety, mood symptoms especially depression, obsessive-compulsive disorder, post-traumatic stress disorder, sleep disorders forgetfulness, and postpartum blues, depression, or psychosis postnatally as well [3].

The aims of the study was

- (1) To verify that women are more prone to psychiatric morbidity during the perinatal period;
- (2) Is psychiatric morbidity more common during pregnancy and postpartum period, in comparison with control group?

- (3) Attempt to predict any specific risk factor that could predispose psychiatric morbidity during the perinatal period;
- (4) Is there difference in the psychiatric state across the four perinatal periods?

Patients and methods

Study design

This study is a quantitative, cross-sectional case-control, observational study at the Department of Obstetrics and Gynecology, Ain Shams University Hospitals.

One hundred and sixty women participated in this study. They were organized into five groups.

The case group represented pregnant women and was divided into four groups; three groups represented three trimesters of pregnancy (each group for a trimester) and the fourth group represented the postpartum period.

A stratified random sample of 115 women who were attending the outpatient clinic for obstetric antenatal follow-up of pregnancy and the gynecology clinic and family planning clinic for postpartum period follow-up or for postpartum contraception were chosen.

Women who had a medical history and those with a positive psychiatric history were excluded; they were nine in number.

- (1) Pregnant women were selected from the obstetric clinic on Sundays on a weekly basis.
- (2) We chose the seventh and the 14th names of each clinic, and according to the patient's gestational age she was placed in her group.
- (3) The first group included women who were pregnant and their gestational age ranged from first week to 13th week, which represented the first trimester interval. It consisted of 25 women.
- (4) The second group included women who were pregnant and their gestational age ranged from 14th week to 27th week, which represented the second trimester interval. It consisted of 25 women.
- (5) The third group included women who were pregnant and their gestational age ranged from 28th week to 40th week or term, which represented the third trimester interval. It consisted of 28 women.
- (6) The fourth group represented women in the postpartum period ranging from fourth week to 24th week postpartum.

The control group (group 5) consisted of 50 Egyptian married women in the child-bearing period who were not pregnant and a minimum of 2 years had passed since the previous postpartum period. They were matched for age and other demographic variables. An informed verbal consent was obtained from all participants.

All patients were subjected to:

- (1) Complete personal, family, past history for both medical and psychiatric histories were obtained.

- (2) Full obstetric history of the current pregnancy and previous pregnancies.
- (3) General and neurological examinations.
- (4) The Mini International Neuropsychiatric Interview (M.I.N.I.-Plus).
- (5) Then, all were requested to answer all questions of all used questionnaires:
 - (a) Beck Depression Inventory (BDI).
 - (b) State-Trait Anxiety Inventory (STAI).
 - (c) Edinburgh Postnatal Depression Scale (EPDS).

Mini International Neuropsychiatric Interview-Plus [4]

M.I.N.I.-Plus was designed to provide a structured, standardized, and summarized tool for axis 1 diagnoses by *Diagnostic and Statistical Manual of Mental Disorders, fourth edition* (DSM-IV) and WHO international classification of diseases, tenth revision (ICD-10) either in the past or currently. It is divided into sections from A–Z, and each has an English letter that represents different diagnostic groups, major depression, dysthymia, bipolar affective disorder, panic disorder, agoraphobia, social phobia, obsessive-compulsive disorder, posttraumatic stress disorder, substance and alcohol abuse, psychotic disorders, premenstrual syndrome, and so on. Both required and optional probes are provided, and skip outs are subjected when no further questioning is warranted. Validity and reliability studies were carried out to M.I.N.I.-Plus, and revealed high validity and reliability values. In addition, it has a benefit that it needs less time for application. M.I.N.I.-Plus has been translated by Ghanem *et al.* [5], and this Arabic version was used in this study.

Beck Depression Inventory [6]

It is often used in a self-rating form. It screens and measures the depth and behavioral manifestations of depression and consists of 21 items, each of which has four responses of increasing severity.

Numerical values from 0–3 are assigned to each statement to indicate the degree of severity. The total score is then interpreted; a score from 0 to 20 is considered normal, a score from 31 to 40 is considered mild, a score from 31 to 41 is considered moderate, and a score from 42 to 63 or above is considered severe depression.

It is a widely used standardized, consistent instrument with proven validity and reliability and has been used in several studies. It has been translated to Arabic.

State-Trait Anxiety Inventory

The State-Trait Anxiety Inventory is a self-rating scale that is composed of two parts, and is used to assess both anxiety state and anxiety trait separately in adults whether healthy, physically ill, or mentally ill [7]. Anxiety state assessment reveals the degree of anxiety experienced by the patient currently. In contrast, anxiety trait assessment reveals the degree of anxiety generally and is used to differentiate individual responses to stressors. Each part of the scale is composed of 20 statements, and the answers are graded into four degrees (never, little

amount, sometimes, always). Numerical scores from 1 to 4 are graded according to severity for each statement; these values are summed up to give the total scale ranging from 20 to 80 for each part. The scale has been translated and validated, and this Arabic version El beheery [8] was used in this study.

Edinburgh Postnatal Depression Scale [9]

It is a self-rating screening scale for depressive symptoms during pregnancy and postpartum period. It is composed of 10 items; each item is scored on a four-point scale 0–3, the score ranges from 0 to 30. The scale rates the intensity of depressive symptoms. Five items are concerned with dysphoric mood, two with anxiety, and three with guilt, and one each for not coping and suicidal ideas. A validated Arabic version is used in this study.

Statistical analysis

All data were recorded and entered in a statistical package on a compatible computer and varied. Analysis was carried out using an SPSS version 15 (SPSS, IBM, Chicago, Illinois, USA), 2007.

Results

As regards sociodemographic data:

- (1) We found that the mean age for group 1 was 28.1 ± 5.473 standard deviation (SD) years, for group 2 was 28.48 ± 5.471 SD years, for group 3 was 27.27 ± 5.023 SD years, and for group 4 was 28.44 ± 6.216 SD years, with a quite comparable mean age for the control group (29.54 ± 0.186 SD years; $P = 0.381$). In addition, there were no significant differences between the four groups as regards other

data, that is, educational level, social class, and occupations when they were compared with the control group.

- (2) Marriage duration showed a mean of 4.73 ± 4.221 SD years in the first four groups and a mean of 5.86 ± 3.608 SD years in the control group ($P = 0.232$). In addition, on comparing the four groups with the controls as regards obstetric history (number of parity, history of abortion) there was no difference between them.

Part 1

Group 1 ($n = 25$) represents pregnant women in the first trimester recruited from the obstetric clinic for antenatal follow-up.

Table 1 shows no significant difference between the two groups as regards past history or family history of psychiatric morbidity, but there were significant differences between them in having a history of premenstrual dysphoric disorder (PMDD).

At the same time, current psychiatric morbidity assessed using M.I.N.I.-Plus revealed that 32% of women in the first trimester had an axis-I diagnosis; adjustment disorder was the main diagnosis and this was of no statistical difference when compared with the control group as shown in Table 2.

On assessment of the depressive state in both groups using BDI, there were very high significant differences between both the groups (Table 3); moreover, using EPDS 20% ($n = 5$) of women in the first trimester were found to be depressed.

Table 3, on assessment of anxiety state and trait shows that the women who were in their first trimester showed

Table 1 Psychiatric morbidity among women in the first trimester in comparison with the control group

	Group 1 ($n=25$)		Group 5 ($n=50$)		Chi-square value	P value	Significance
	N	Percentage	N	Percentage			
Family history							
Yes	1	4	3	6	1.563	0.211	NS
No	24	96	47	94			
Past history							
Yes	3	12	2	4	0.315	0.575	NS
No	22	88	48	96			
PMDD							
Yes	10	40	33	66	4.606	0.032	SIG
No	15	60	17	34			

N, number of patients; NS, not significant; PMDD, premenstrual dysphoric disorder; SIG, significant.

Table 2 Current psychiatric morbidity among women in the first trimester in comparison with the control group

Psychiatric morbidity	Group 1 first trimester ($n=25$)		Group 5 controls ($n=50$)		Chi-square value	P value	Significance
	N	Percentage	N	Percentage			
None	17	68	43	86	4.061	0.255	NS
Axis-I diagnosis	8	32	7	14			
Adjustment disorder-mixed type	4	16	3	6			
Adjustment disorder-depressive type	3	12	2	4			
Major depressive disorders	1	4	2	4			

N, number of patients; NS, not significant.

Table 3 Assessment of depressive state, anxiety state, and trait in women in the first trimester in comparison with the control group

Assessment tool	Group 1 (n=25)	Group 5 (n=50)	t value	P value	Significance
BDI					
Mean	14.04	7.14	4.501	0.000	VHS
SD	8.193	5.047			
Anxiety state					
Mean	48.56	35.78	4.986	0.000	VHS
SD	11.023	10.179			
Anxiety trait					
Mean	47.00	38.00	4.389	0.000	VHS
SD	9.587	7.706			

BDI, Beck Depression Inventory; VHS, very high significance.

Table 4 Psychiatric morbidity among women in the second trimester in comparison with the control group

	Group 2 (n=25)		Group 5 (n=50)		Chi-square value	P value	Significance
	N	Percentage	N	Percentage			
Family history							
Yes	1	4	3	6	0.132	0.716	NS
No	24	96	47	94			
Past history							
Yes	2	8	2	4	2.027	0.155	NS
No	23	92	48	96			
PMDD							
Yes	14	56	33	66	0.712	0.399	NS
No	11	44	17	34			

N, number of patients; NS, not significant; PMDD, premenstrual dysphoric disorder.

Table 5 Current psychiatric morbidity among women in the second trimester in comparison with the control group

Psychiatric morbidity	Group 2 second trimester (n=25)		Group 5 controls (n=50)		Chi-square value	P value
	N	Percentage	N	Percentage		
None	21	84	43	86		
Axis-I diagnosis	4	16	7	14		
Adjustment disorder-mixed type	2	8	3	6	4.758	0.313
Adjustment disorder-depressive type	0	0	2	4		
Major depressive disorders	1	4	2	4		
Somatization	1	4	0	0		
Specific phobia	1	4	0	0		

N, number of patients.

Table 6 Assessment of depressive state, anxiety state, and trait in women in the second trimester in comparison with the control group

Assessment tool	Group 2 (n=25)	Group 5 (n=50)	t value	P value	Significance
BDI					
Mean	11.16	7.14	2.855	0.006	HS
SD	6.962	5.047			
EPDS					
Mean	7.52	0			
SD	5.277				
Anxiety state					
Mean	46.52	35.78	4.482	0.000	VHS
SD	8.922	10.179			
Anxiety trait					
Mean	47.08	38.00	4.650	0.000	VHS
SD	8.490	7.706			

BDI, Beck Depression Inventory; EPDS, Edinburgh Postnatal Depression Scale.

Table 7 Psychiatric morbidity among women in the third trimester in comparison with the control group

	Group 3 (<i>n</i> = 28)		Group 5 (<i>n</i> = 50)		Chi-square value	<i>P</i> value	Significance
	<i>N</i>	Percentage	<i>N</i>	Percentage			
Family history							
Yes	1	3.6	3	6	0.218	0.641	NS
No	27	96.4	47	94			
Past history							
Yes	2	7.15	2	4	0.770	0.380	NS
No	26	92.85	48	96			
PMDD							
Yes	16	57.1	33	66	0.603	0.437	NS
No	12	42.9	17	34			

N, number of patients; NS, not significant; PMDD, premenstrual dysphoric disorder.

Table 8 Current psychiatric morbidity among women in the third trimester in comparison with the control group

Psychiatric morbidity	Group 3 third trimester (<i>n</i> = 28)		Group 5 controls (<i>n</i> = 50)		Chi-square value	<i>P</i> value	Significance
	<i>N</i>	Percentage	<i>N</i>	Percentage			
None	16	57.1	43	86	26.305	0.000	VHS
Axis-I diagnosis	12	42.9	7	14			
Adjustment disorder-mixed type	4	14.2	3	6			
Anxiety disorder	3	10.7	0	0			
Major depressive disorders	2	7.2	2	4			
Post-traumatic stress disorder	2	7.2	0	0			
Specific phobia	2	7.2	0	0			
Social phobia	1	3.6	0	0			
Adjustment disorder anxiety type	0	0.0	2	4			

N, number of patients.

Table 9 Assessment of depressive state, anxiety state, and trait in women in the third trimester in comparison with the control group

Assessment tool	Group 3 (<i>n</i> = 28)	Group 5 (<i>n</i> = 50)	<i>t</i> value	<i>P</i> value	Significance
BDI					
Mean	15.36	7.14	4.528	0.000	VHS
SD	10.962	5.047			
EPDS					
Mean	10.79				
SD	6.713				
Anxiety state					
Mean	50.61	35.78	5.583	0.000	VHS
SD	12.974	10.179			
Anxiety trait					
Mean	48.86	38.00	4.775	0.000	VHS
SD	12.385	7.706			

BDI, Beck Depression Inventory; EPDS, Edinburgh Postnatal Depression Scale.

a mean score of 48.56 ± 11.023 SD compared with a mean score of 35.78 ± 10.179 SD in the control group, and this difference was statistically of high significance ($P = 0.000$).

Part 2

Group 2 represents pregnant women in their second trimester; there were 25 women. They were compared with the control group (group 5, $n = 50$).

Table 4 shows no significant difference between the two groups as regards past history or family history of psychiatric morbidity, but there were significant differences between them in having a history of PMDD.

At the same time, the current psychiatric morbidity that was assessed using M.I.N.I.-Plus revealed that 16% of women in the second trimester had an axis-I diagnosis; adjustment disorder was the main diagnosis and this was of no statistical difference when compared with the control group as shown in Table 5.

On BDI, the scores showed a mean value of 11.16 ± 6.962 SD compared with the controls' mean score (7.14 ± 5.047 SD); this was statistically highly significant ($P = 0.006$) as shown in Table 6. There were 16% ($n = 4$) of women having scores greater than 20 according to the cutoff score of BDI, and they were considered to be depressed.

Table 10 Psychiatric morbidity among women in the postpartum period in comparison with the control group

	Group 4 (n=27)		Group 5 (n=50)		Chi-square value	P value	Significance
	N	Percentage	N	Percentage			
Family history							
Yes	2	7.4	3	6			
No	25	92.6	47	94	0.057	0.811	NS
Past history							
Yes	1	3.7	2	4			
No	26	92.85	48	96	0.770	0.380	NS
PMDD							
Yes	14	51.9	33	66			
No	13	48.1	17	34	1.476	0.224	NS
Postpartum blues							
Yes	10	37.0					
No	17	63.0					

N, number of patients; NS, not significant; PMDD, premenstrual dysphoric disorder.

Table 11 Current psychiatric morbidity among women in the postpartum period in comparison with the control group

Psychiatric morbidity	Group 4 postpartum (n=27)		Group 5 controls (n=50)		Chi-square value	P value
	N	Percentage	N	Percentage		
None	17	63.0	43	86	11.049	0.087
Axis-I diagnosis	10	37.0	7	14		
Adjustment disorder-mixed type	3	11.1	3	6		
Anxiety disorder	1	3.7	0	0		
Major depressive disorders	1	3.7	2	4		
Post-traumatic stress disorder	2	7.4	0	0		
Specific phobia	2	7.4	0	0		
Social phobia	1	3.7	0	0		
Adjustment disorder anxiety type	0	0.0	2	4		
Postpartum depression	1	3.7	0	0		
Postpartum depression with psychotic features	1	3.7	0	0		
Postpartum psychosis	1	3.7	0	0		

N, number of patients.

Table 12 Assessment of depressive state, anxiety state, and trait in females in the postpartum period in comparison with the control group

Assessment tool	Group 4 (n=27)	Group 5 (n=50)	t value	P value	Significance
BDI					
Mean	17.52	7.14	6.101	0.000	VHS
SD	9.916	5.047			
EPDS					
Mean	9.37				
SD	6.840				
Anxiety state					
Mean	47.78	35.78	4.711	0.000	VHS
SD	11.524	10.179			
Anxiety trait					
Mean	48.19	38.00	4.443	0.000	VHS
SD	12.404	7.706			

BDI, Beck Depression Inventory; EPDS, Edinburgh Postnatal Depression Scale.

Table 6, on assessment of anxiety state shows that the women who were in their second trimester showed a mean score of 46.52 ± 8.922 SD compared with a mean score of 35.78 ± 10.179 SD in the control group, and this difference was statistically of high significance ($P = 0.000$). As regards anxiety trait, the women in their second trimester showed a mean score of 47.08 ± 8.490 SD compared with a mean score of 38.00 ± 7.706 SD in the control group,

and this difference was statistically highly significant ($P = 0.000$).

Part 3

Group 3 represents pregnant women in their third trimester; there were 28 women. They were compared with the control group (group 5), and they were 50 in number.

Table 13 Shows comparison between the four groups as regards depressive state, anxiety state, and trait scores, it showed no statistical difference between different groups

Scores	Group 1 (n=25)	Group 2 (n=25)	Group 3 (n=28)	Group 4 (n=27)	F value ANOVA	P value	Significance
EPDS							
Mean	8.08	7.52	10.79	9.37	1.403	0.246	NS
SD	6.298	5.2777	6.713	6.840			
BDI							
Mean	14.04	11.16	15.36	17.52	2.158	0.098	NS
SD	8.193	6.962	10.962	9.916			
Anxiety state							
Mean	48.56	46.52	50.61	47.78	0.619	0.604	NS
SD	11.023	8.922	12.974	11.524			
Anxiety trait							
Mean	47.00	47.08	48.86	48.19	0.179	0.910	NS
SD	9.587	8.490	12.385	12.404			

ANOVA, analysis of variance; BDI, Beck Depression Inventory; EPDS, Edinburgh Postnatal Depression Scale; NS, not significant.

Table 7 shows no significant difference between the two groups as regards past history or family history of psychiatric morbidity, but there were significant differences between them in having a history of PMDD.

At the same time, the current psychiatric morbidity assessed using M.I.N.I.-Plus revealed that 42.9% of women in the third trimester had an axis-I diagnosis; adjustment disorder was the common diagnosis, and when compared with the control group there were significant statistical differences as shown in Table 8.

On BDI, the scores showed a mean value of 15.36 ± 10.962 SD compared with the controls' mean score (7.14 ± 5.047 SD), this was statistically highly significant ($P = 0.006$) as shown in Table 9. There were 32.1% ($n = 9$) of women having scores greater than 20 according to the cutoff score of BDI, and they were considered to be depressed.

Table 9, on assessment of anxiety state, the women who were in their third trimester showed a mean score of 50.61 ± 12.974 SD compared with the mean score in the control group (35.78 ± 10.179 SD), and this difference was statistically of high significance ($P = 0.000$). As regards anxiety trait, the women in their third trimester showed a mean score of 48.86 ± 12.385 SD compared with a mean score of 38.00 ± 7.706 SD in the control group, and this difference was statistically highly significant ($P = 0.000$).

Part 4

Group 4 represents women in the postpartum period from 2 weeks to 24 weeks postpartum; there were 27 women. They were compared with the control group (group 5); they were 50 in number.

Table 10 shows no significant difference between the two groups as regards past history or family history of psychiatric morbidity, but there were significant differences between them in having a history of PMDD.

At the same time, current psychiatric morbidity assessed using M.I.N.I.-Plus revealed that 37% of women in the postpartum period had an axis-I diagnosis; adjustment disorder was the common diagnosis, and when compared

with the control group there were no significant statistical difference as shown in Table 11.

On BDI, the scores showed a mean value of 17.52 ± 9.916 SD compared with the controls' mean score (7.14 ± 5.047 SD); this was statistically highly significant ($P = 0.006$) as shown in Table 12. Of all the women, 40.7% ($n = 11$) had scores greater than 20 according to the cutoff score of BDI, and they were considered to be depressed.

Table 12, on assessment of anxiety state shows that the women who were in their postpartum period showed a mean score of 47.78 ± 11.524 SD compared with a mean score of 35.78 ± 10.179 SD in the control group, and this difference was statistically of high significance ($P = 0.000$). As regards anxiety trait, they showed a mean score of 48.19 ± 12.404 SD compared with a mean score of 38.00 ± 7.706 SD in the control group; this difference was statistically highly significant ($P = 0.000$).

Part 5

In this part, we try to answer the question whether there is any difference between different groups (three trimesters and the postpartum period) in the depressive state, anxiety state, and trait.

It is shown that the highest prevalence of depression and psychiatric morbidity is in the third trimester, followed by the postpartum period, and the least in prevalence is the second trimester as shown in Table 13.

Discussion

Although pregnancy is a common event for reproductive-age women, surprisingly little has been published about the physical and emotional changes that typically occur during pregnancy and the postpartum period in the literature [10,11].

Perinatal mental health refers to the emotional well being of a mother, her partner, and her infant, from conception until 24 months postpartum. Transitional life stages also represent times of increased vulnerability, and a degree of anxiety and a labile mood can be expected at these times. However, they are also associated with increased vulnerability to more severe mental health disturbances.

During this time, women (and their partners) may experience difficulties ranging from mild, transient anxiety, or depression to more severe psychiatric illness [12].

Our results were divided into four parts; each part addresses one trimester of the three trimesters of pregnancy and the postpartum period. These partitions were considered in a trial to associate the results of each part to the nature of changes of each stage of pregnancy and postpartum period.

Psychiatric morbidity in the first trimester

Our results revealed that 32% of female patients in the first trimester had an axis-I diagnosis, but that was not significantly higher than controls. The most frequent diagnosis was adjustment disorder mixed anxiety and depression type (16%), depressive type (12%), major depressive disorder (4%), and one case of double depression (4%). These findings suggest that there is no difference between prevalence of psychiatric disorders among women in the first trimester and the women in the general population, and this agrees with the opinion of literature [13].

During the first trimester, it can be particularly difficult to diagnose depression because of the overlap between symptoms of pregnancy and somatic symptoms of depression. Bennett *et al.* [13] reported a rate of depression during the first trimester was found by Birndorf *et al.* [14] to be 24.6% using BDI, and this agrees with our findings.

When assessing the anxiety state and trait, it was found that there were very high significant differences between women in the first trimester in comparison with controls. There were no researches found assessing anxiety symptomatology. The available researches only assessed specific anxiety disorders such as obsessive-compulsive disorder or panic disorder course during pregnancy in well-known patients with these disorders.

In a trial to find sociodemographic correlates with depression and anxiety states, we found that the depressive state was positively correlated with occupational differences; women who had professional occupations had higher levels of depressive state. Similar finding was found by Felice *et al.* [15], and postulated it as it is due to the trial of the women to adjust with her new condition.

Psychiatric morbidity in the second trimester

In addition, in our study we found that 16% of women in the second trimester had axis-I diagnosis, approximately half of the patients (8%) had adjustment disorder, major depressive disorder (4%), somatization (4%), specific phobia (4%), and this rate was not statistically significant different from controls. The most common diagnosis was adjustment disorder. Nearly the same findings were reported by Andersson *et al.* [16].

Evaluation of the depression state revealed statistically higher scores in women in the second trimester than controls. In addition, depressive symptomatology rates were 16% when assessed by both EPDS and BDI, and

those 16% were only having a mild degree of depression according to the severity degrees of BDI. The same rate was found by Salamero *et al.* [17].

Gavin *et al.* [18] in a systematic review of perinatal depression prevalence and incidence reported that prevalence of both minor and major depressions in the first trimester is 11%, which drops to 8.5% in the second trimester. We also found the same drop of the depressive symptomatology from the first trimester 20–25%, which dropped to 16% in the second trimester, but the difference in our rates is postulated to the different study populations and the different assessment tools that were used.

When assessing anxiety state and trait, it was found that there were very high significant differences between women in the second trimester in comparison with controls.

On studying sociodemographic correlates, there was significantly positive correlation between low socioeconomic class and severity of depression. This was in agreement with all studies assessing depression in the perinatal period, as they considered that low socioeconomic status is a risk factor for depression in the perinatal period, and those of low socioeconomic status were considered to be a high-risk group and rates of depression may reach 50% [13,19].

Psychiatric morbidity in the third trimester

In the third trimester, we found that the psychiatric morbidity rate increased and reached 42.9% of the sample having axis-I diagnosis, and this rate was significantly higher than controls. With adjustment disorder being the most common diagnosis 14.2%, anxiety disorder 10.7%, the rate of major depressive disorder increased to 7.2% including patients who were having comorbidity (having both depression and anxiety).

Meanwhile, the rate of depressive symptoms increased as well; it reached 32.1–42.9% when assessed by BDI and EPDS, respectively. The mean score of BDI was significantly higher than controls. These findings suggest that the progression of pregnancy may have an impact on the status of depression, and this agrees with Bennett *et al.*'s findings. [13]. In addition, we suggest that the mechanism of depression progression in the third trimester is related to the high levels of corticotropin-releasing hormone, which reaches its highest levels in the third trimester [13].

When assessing the anxiety state and trait, it was found that there were very high significant differences between women in the third trimester in comparison with controls. Unfortunately, there were no researches found assessing anxiety symptomatology for comparative results. This high anxiety state can be explained by the well-known high comorbidity between depression and anxiety, and also by the high level of cortisol hormonal level during pregnancy specifically during the third trimester, and this hormone increases the sense of stress and stress reaction.

Meanwhile, we found that the BDI score was directly correlated with a history of PMDD. This agrees with the literature and other researchers' findings, as they reported that history of PMDD is considered to be a risk factor for depression during pregnancy [20].

Psychiatric morbidity in the postpartum period

We found that the rate of postpartum blues in our sample is 37%; the universal ranges of postpartum blues is approximately 29–80% [21]. This wide range of variation can be attributed to cultural factors and the presence of high social and familial support after childbirth that may ameliorate the symptoms rapidly. The same percentage of postpartum blues in Egypt was reported by El Akabawi *et al.* [22]; another study in Egypt found lower rates (8%) of postpartum blues, which was explained by methodological differences [23].

Okasha *et al.* [23], in a descriptive, epidemiological study of the postpartum psychiatric disorders in Egypt, found that the incidence of postpartum psychiatric disorders was 4.3%. Most of these findings are in accordance to our findings.

Using the self-report tools, we found that the rate of depressive symptomatology in the postpartum period was 40.7% according to the cutoff scores of both BDI and EPDS. In addition, the mean scores in both the questionnaires were statistically very highly significant than those of the controls.

In a recent study in Brazil, researchers found that the rate of postpartum depression is 20.7%, which as they reported is considered higher than rates recorded in developed countries, and they deduced that low income is a risk for the development of postpartum depression in developing countries [24].

In addition, researchers suggested that postpartum depression is a continuum with prenatal depression, which needs further investigation with longitudinal cohort study to follow these variations.

However, the finding of an increased risk commencing shortly after delivery suggests that childbirth and its immediate psychosocial sequelae are likely to be important causal factors for nonpsychotic depression [25].

On the assessment of anxiety state and trait postpartum, we found very high significant levels in comparison with controls; this finding agrees with Ahmed *et al.*'s [26] findings.

Furthermore, obstetric variables as regards parity or way of labor were not significantly correlated to the severity of the depressive state and anxiety state and trait; this agrees with the findings of Ahmed *et al.* [26], and Felice *et al.* [15].

On comparing the four periods of the perinatal period, we did not find any significant difference between them as regards severity of depressive or anxiety state and trait despite being significantly higher than controls. However, we observed that the highest mean scores were in the third trimester, followed by the postpartum period and the lower scores were in the second trimester. Further-

more, the rate of depressed patients and patients with axis-I diagnosis was highest in the third trimester, followed by the postpartum period, and the least percentages were in the second trimester. So we deduced that third trimester is the most critical period in pregnancy where vulnerability to develop depression, anxiety or other psychiatric disorder reaches its peak during the third trimester, with slight decrease of this vulnerability in the postpartum period. The least vulnerability is during the second trimester, which is considered as an interval for emotional, physical, and psychological stability during pregnancy. Therefore, we suggest that longitudinal prospective study on a larger number of patients will show the onset and course of symptomatology more clearly. Similar findings were reported by Evans *et al.* [27] and Josefsson *et al.* [28] in their longitudinal studies, and they recommended that early screening during pregnancy and intervention when needed may decrease the incidence of postpartum psychiatric disorders.

Conclusion

From our research, we concluded that the prevalence of psychiatric disorders during the first and second trimesters of pregnancy is as common as in the general population. However, it is much higher during the third trimester with a slight decrease in the postpartum period. The most common diagnosis that was found is adjustment disorder. Therefore, we suggest that social support may improve their condition.

All through the perinatal period there was high prevalence of depressive and anxiety symptomatology.

In addition, we found that depressed patients had higher harm avoidance, lower persistence, self directedness, and cooperativeness.

Thus, we agree with regard to increased rate of psychiatric morbidity in the perinatal period and how personality affects their presentation.

There is no conflict of interest to declare.

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الملخص العربي

الامراض النفسية المصاحبة لفترة الحمل و ما بعد الولادة في عينة من السيدات المصريات
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كلية الطب - جامعة عين شمس

إن معجزة الحمل و الولادة و تحول المرأة إلى أم قد شغلت الناس منذ الأزل حتى الآن، و لكن حديثاً فقط بدأ الاهتمام بالجوانب النفسية للمرأة الحامل، في محاولة لفهم التغيرات النفسية التي تحدث لها في هذه المرحلة الهامة لكي تصبح أما.

الهدف من العمل :

- إثبات ما تتعرض له السيدات أثناء الحمل من مشاكل نفسية .
 - مراجعة الأبحاث السابقة التي لها علاقة بالبحث .
 - دراسة مدى انتشار الاضطرابات النفسية في النساء .
- تم عمل الدراسة في قسم إمراض النساء و التوليد بمستشفيات جامعة عين شمس .
- وقد تم تقسيم هذه العينة الى اربعة أقسام :

القسم الأول : و هو يمثل السيدات اللاتي في الشهور الثلاث الاولى من الحمل و هن 25 سيدة .

القسم الثاني : و هو يمثل السيدات اللاتي في الشهور الثلاث الثانية من الحمل و هن 25 سيدة .

القسم الثالث : و هو يمثل السيدات اللاتي في الشهور الثلاث الاخيرة من الحمل و هن 28 سيدة .

خبراً القسم الرابع : و هو للسيدات في فترة ما بعد الولادة وعددهن 27 سيدة.

العينة الضابطة : وتتكون من 50 سيدة من العاملات في المستشفى.

الاختبارات و الأدوات :

1. مقياس ميني بلس الإكلينيكي لتشخيص الأمراض النفسية.
2. مقياس المستوى الاجتماعي لفهمي والشربيني .
3. مقياس ادنبرج لأكتئاب ما بعد الولادة .
4. مقياس بيك الأكتئاب .
5. مقياس حالة وسممة القلق.

زمن العينة : بدأت الدراسة الفعلية في أغسطس 2006 وحتى أغسطس 2007

نتائج البحث :

- 1- توصلت الدراسة الى مدى انتشار الامراض النفسية ولكنها كانت مرتفعة جداً في المرحلة الثالثة للحمل مع تحسن طفيف في فترة ما بعد الولادة.
- 2- كانت أكثر التشخيصات شيوعاً في فترة الحمل هو مرض عدم التكيف
- 3- وجد أن السيدات في فترة الحمل وما بعد الولادة يصبين باعراض اكتئابية شديدة بالمقارنة بالعينة الضابطة .