

Effect of Anxiety and Depression Symptoms on Pregnancy and Birth Outcome

¹Safaa Abdelazem Osman, ²Hanan Fawzy Elsayed, ³Nevin Samir Metwally

¹Lecturer of Psychiatric and Mental Health Nursing, Faculty of Nursing Suez canal University, Egypt

²Lecturer of Maternal and Newborn Health Nursing, Faculty of Nursing Helwan University, Egypt

³Assistant Prof. of Maternal and gynecological Nursing Department, Faculty of Nursing, Ain Shams University

Abstract: Psychiatric morbidity during pregnancy is a major public health concern. World Health Organization (WHO) ranks depression as one of the most burdensome illnesses in the world. Depression is predicted to be the uppermost cause of morbidity by 2030. Anxiety about a particular pregnancy is especially potent, and depressive symptoms in mothers during pregnancy are associated with low birth weight newborns with consequences for infant morbidity. These distinguishable risk factors and related pathways to distinct birth outcomes merit further investigation. The aim of current study was to identify the effect of anxiety and depression symptoms on Pregnancy and birth outcome. Study design: A descriptive correlational design was used, whereby a convenience sample of 150 pregnant women was recruited for this study. Setting: This study conducted at the obstetric outpatient clinic, Ain Shams University Hospitals. Five tools were used for data collection namely, a structured interviewing questionnaire sheet, the Beck Anxiety Inventory (BAI), the Beck Depression Inventory (BDI), Modified WHO partogram and Apgar score sheet. Results: This study denoted that women with sever anxiety and depressive symptoms during pregnancy exhibit an increased likelihood of having neonates with low total Apgar score (0-6), need for resuscitation and neonatal intensive care unit, As well as a statistically significant relation between all items of obstetric history and different anxiety levels at p value <0.001. Moreover, pregnant women who reported sever anxiety and depressive symptoms during pregnancy were more prone to cesarean section, preterm labor and prolonged labor, in addition to statistically significant relation was detected between all birth outcome items and depression symptoms at p value <0.001. Conclusion: pregnant women who reported severe anxiety and depression symptoms during pregnancy were more prone to increase need to the neonatal resuscitation, increase chance to prematurity, cesarean section, prolonged labor and preterm birth. Recommendation: Health educational program and campaign about pregnant woman mental and psychological wellness should be conducted. Future researches should be conducted to early detect the common psychiatric health problems in pregnancy.

Keywords: Birth outcome, pregnancy, anxiety, depression, neonatal, labor, Apgar score.

I. INTRODUCTION

Pregnancy considered a period of significant physical and psychological changes for women, however most pregnant women have experienced marked distress, anxiety and depression symptoms during pregnancy. Commonly, many stressors affect pregnant women such as low income, difficult working conditions, large family and household responsibilities as well as problems in close relationships, and pregnancy complications^[1]. A growing body of review concludes that daily life stressors, lack of social support, low educational level and violence were associated with increased of depression and anxiety symptoms during pregnancy, and affects not only the woman but also her developing fetus^[2, 3, and 4].

The World Health Organization (WHO) defined anxiety as a state of fearfulness about what may happen in the future and it is relatively common in prenatal period. As well as, defines depression as “a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness

and poor concentration”, unfortunately it can affect both antenatal and postnatal period ^[5]. Anxiety and depression symptoms are conjoint during pregnancy, with the prevalence of 24% anxiety and 18.4% depression during pregnancy. The risks related to antenatal anxiety and depression on mothers and their fetus cannot be ignored ^[6].

The prenatal stage has been considered as a critical period for psychological changes and consequently during this period there is susceptibility for alterations in brain development and behavior. Unfortunately, consequences of anxiety and depression during pregnancy are the essential fatty acid to consume and linked to low birth weight and reduction in cognitive and motor functions ^[7]. Furthermore, up till now there is no clear reason around the relation between pregnancy anxiety and its strong effects on mothers and their fetus. In fact, this concept has not yet received sufficient attention to be fully explained ^[8].

The negative events during past pregnancy and delivery, including, preeclampsia, preterm delivery and operative deliveries are also associated with antenatal depression ^[9]. Moreover, pregnant women suffering from severe depression symptoms have been found to have adverse outcomes such as preterm labor, Apgar score < 7 at 5 min, admission to NICU, preterm birth and still birth ^[10]. Defiantly, if fetus exposure to the physiological alterations associated with woman’s psychological distress may affect birth outcomes. So, evidence of this maternal influence should be determined during the prenatal stage ^[11]. Additionally, a lot of complication related to prenatal anxiety and depression symptoms may increase infant morbidity and mortality ^[12].

Although, the studies highlighted the importance of intervention during pregnancy to reduce the risk of adverse maternal psychological health and its impact on birth outcomes, there is urgent need to provide a clear guidance about screening for common psychological health problems during pregnancy, moreover screening and intervention strategies should be used widely to reduce the burden of maternal anxiety and depression symptoms during prenatal period ^[13].

The maternity nurse plays an important role to maintain and improve physical and psychological health of pregnant women in prenatal care. Consequently, nurses need to listen with compassion, providing appropriate education and information, as well as can make referrals to mental health care providers and support groups as indicated. Additionally, holistic nursing approach may be better to reduce pregnant anxiety as well as prevention of depression during antenatal period comes in the priority for the sole purpose of fleeting reassurance ^[14].

Significance of study:

According to the latest **WHO** report (2017), anxiety and depression represent a global problem, affecting a large number of pregnant women worldwide. Anxiety is the most prevalent mental disorder with the life time prevalence of 16% in the general population. Also, depression is one of the leading causes of morbidity worldwide, and accounts for 4.3 % of global burden of disease and 11% of disability-adjusted life years, particularly in women.

In Egypt, there is totally little focus on the mental health sector and especially for the women’s mental health as women are more prone to anxiety and depression than men. For example, the prevalence of anxiety and depression have been reported to be double among women (11.7%) compared with men (5.6%). In addition, both anxiety and depression are associated with maternal negative outcomes e.g. preterm birth, preeclampsia, cesarean section and postnatal depression. Particular, comorbidity of anxiety and depression is a critical condition as the effects of comorbid anxiety and depression on neonates have been suggested to be higher than those of anxiety alone or depression alone. However, information about psychiatric problems during pregnancy regarding women and their off spring in Egypt is still lacking; more accurate information about the mental health status of women during pregnancy and its effects on the birth outcome are needed.

Aim of the study:

This study aims to identify the effect of anxiety and depression symptoms during pregnancy and birth outcome through;

- 1- Assessing anxiety level among pregnant woman.
- 2- Assessing depression level among pregnant woman.
- 3- Investigating the effect of anxiety and depression on pregnancy and birth outcome.

Research Questions:

What is the effect of anxiety and depression symptoms on pregnancy and birth outcome?

II. SUBJECTS AND METHODS

Research design: A descriptive correlational design was used in carrying out this study.

Study setting: The study was conducted at the obstetric outpatient clinics, Ain Shams University Hospitals, Cairo - Egypt. These outpatient clinics are available five days per week from 9Am am to 1 pm.

Sampling type: A convenience sampling was used in collecting the data with the following

Exclusion criteria:

- History of medical or mental diseases.
- High risk pregnancy
- No stressful events during the study period

Sample size: A total of **150** pregnant women attending the previously mentioned setting.

Sample size Equation: determined by Epi-info 7 software program at 95% confidence power of the study. The researchers depended on the following equation to calculate the sample size: Steven Thimpson Equation

$$n = \frac{Z_{1-\alpha/2}^2 P (1-P)}{d^2}$$

n =Sample size

z1= the corresponding standard class of significance 95%= (1.96)

α = Alpha

P= percentage of availability of the character and objectivity= (0.1)

d= error percentage (0.5)

Tools for data collection:

Five tools were used to achieve the aim of the study. These were an Interviewing Questionnaire sheet, Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), pregnancy health record, modified WHO partogram, and Apgar score sheet.

1st Tool: Interviewing Questionnaire sheet: This sheet is developed by the researchers and included two parts:

Part I: Socio-demographic data of pregnant women: It was used to assess age, educational level, occupation, marital status, and residence.

Part II: It included data of the pregnant women' medical, surgical, Previous and current obstetric history (gravidity, parity, pregnancy complication).

2nd Tool: Beck Anxiety Inventory (BAI): It is standardized tool adopted from ^[15] used to measure the severity of anxiety. The BAI consists of a 21-item self-report inventory in which each item describes common symptoms of anxiety. Scoring system: The respondent was asked to rate each symptom over the preceding week on a four-point scale (0–3). Scores of 0–7 reflect minimal anxiety, 8–15 mild anxiety, 16–25 moderate anxiety, and a score of 26–63 indicates severe anxiety.

3rd Tool: The Beck Depression Inventory (BDI) is standardized tool constructed by ^[16] to measure the depth and behavioral manifestation of depression not necessary in patients with depressive disorder and to provide a guide to its severity. The Arabic version (BDI-11) modified by ^[17] was utilized in this study. The BDI consists of 21 items formed of several groups of questions, which assess the various depressive symptoms including sleep, appetite, mood, negative thoughts, etc. It is consistent instrument with proven validity and reliability and has been used in several studies.

Numerical values from 0-3 are assigned each statement to indicate the degree of severity. The pregnant women are asked to pick out one statement that best describes how they feel at that particular point in time. Scoring system: The total score were used as the following ; from 0-9 considered normal, score from 10-16 considered mild, score from 17-29 is considered moderate and 30 or above considered severe depression.

4th tool Modified WHO partogram adopted from ^[18]. It was a graphical representation of the various events of labor plotted against time. It serves to be a very cost effective and affordable health intervention for monitoring labor and appropriate decision making in addition, to assessment of labor outcome. It was used to assess women condition during labor. Overall test-retest reliability coefficients were cronbach's alpha values of 0.93.

5th tool Apgar score: adopted from ^[19] was used to assess neonatal condition after delivery. Apgar score is a quick test performed on a baby at 1 and 5 minutes after birth. Assessment done at one and five minutes after birth, and it may be repeated if the score remains low. The five criteria of the Apgar score are: activity, pulse, appearance, grimace, respiration. Each one of these criteria has score ranged from zero to two, and then summing up of five criteria was obtained. The resulting Apgar score ranges from zero to 10 (neonatal complications such as prematurity, birth weight, need for resuscitation and admission to NICU). Overall test-retest reliability coefficients were cronbach's alpha values of 0.87.

Validation of the tools: The tools were tested for clarity, relevance, applicability, comprehensiveness, understanding, and ease for implementation by a jury group of five experts from the professors' faculty of nursing, medicine, in maternity-gynecological nursing department and psychiatric department.

Reliability of the tools:

Reliability was applied by the researchers for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar conditions two times 15 days apart. Answers from the repeated testing were compared (Test- re- test reliability was (0.82) and Cronbach's Alpha reliability was 0.890.

Pilot study:

It was conducted on 15 pregnant women. They represented about 10% of the total study sample. The aim of the pilot study was to evaluate clarity, visibility, applicability as well as the time allowed to fulfill the developed tools. According to the obtained results modifications such as omission, addition and re-wording were done. Pregnant women who shared in the pilot study were excluded from the study sample.

Ethical Consideration:

The approval was obtained from Scientific Research Ethical committee in Faculty of Nursing at Helwan University and official approval from the Director of Faculty of Nursing, Helwan University before starting the study. The written consent was taken from the director of Ain Shams University Hospitals, Cairo- Egypt. The researchers ensured that, the study posed no risk or hazards on their health and their participation in the study is voluntary. Women who were willing to participate in the study were approached by the researchers and asked for verbal consent to confirm their acceptance, Each participant had right to withdrawal from the study at any time and all data that obtained were considered confidential

Fieldwork:

- The researchers visited the study setting at obstetric and gynecological outpatient clinics of Ain- Shams University Maternity Hospital for 2 days per week from 9 am to 2 pm until the completion of the pervious predetermined sample size. The data were collected from May 2016 to September 2017.

- At the beginning of the interview, the researchers introduced themselves to the participants and they explained the aim of the study to them and reassure them that information collected would be treated confidentiality and that would be used only for the purpose of the study. Then written consent of women was obtained.

- The researchers start to fill out the interviewing questionnaire sheet which includes general characteristics of women and contained medical data sheet about pregnant women. It included data of the pregnant women' medical, surgical, family and obstetric history as well as the as gravidity, Para, gestational age, mode of previous delivery and the current pregnancy when they were waiting for the assigned follow-ups in a calm room.

- The researchers assessed women's anxiety and depressive symptoms using BAI and BDI in individualized base during pregnancy.
- The Partogram was used for every woman immediately following the admission to evaluate fetal and maternal condition and to evaluate the labor progress during the active phase of the first stage of labor, to record data related to maternal and fetal condition during labor and early detection of intra partum complications such as: fetal distress, maternal distress and obstructed labor.
- Apgar score used to assess neonatal condition after delivery. Apgar score is performed on a baby at 1 and 5 minutes after birth. Assessment done at one and five minutes after birth, and it may be repeated if the score remains low. The five criteria of the Apgar score are: activity, pulse, appearance, grimace and respiration. Each one of these criteria has score ranged from zero to two and then summing up of five criteria was obtained. The resulting Apgar score ranges from zero to 10. In some cases it is observed by nursing staff at hospital.
- Birth outcome variables for the study were cesarean section, preterm labor, prolonged labor, Apgar score, neonatal resuscitation and neonatal death. These birth outcomes were measured after the delivery at the hospital.

Statistical Design:

Data entry and statistical analysis were performed using personal computer software, the statistical package for social sciences (SPSS), version 16.0. Suitable descriptive statistics were used such as; frequency, percentage, mean and standard deviation. Chi-square test was used to detect the relation between the variables. A significant level value was considered when $p\text{-value} \leq 0.05$ and a highly. Significant level value was considered when $p\text{-value} \leq 0.001$, while $p\text{-value} > 0.05$ indicates non-significant results.

III. RESULTS

Table 1 Displayed that 150 pregnant women participated in this study, and their mean age were 28.83 ± 2.94 . Additionally, 65.3% were working. About 42.7% of them read and write, 32.0% had a high educational level and majority of them 96.7% were from rural areas.

Table 2 revealed that the majority (93.3%) of pregnant women had no chronic diseases. Also it shows that more than three quarters of studied women (77.3%) were multigravida, approximately more than half of the women had no abortion (55.3%). Regards previous pregnancies and deliveries, approximately one quarter (26.0%) had high risk pregnancies, about (36.0%) of the newborns were born by cesarean deliveries. Additionally, the minority of them (7.3%) had dead children in previous labor.

Figure 1: Illustrates that 12.0% of pregnant women had mild level of anxiety, while 77.3% had moderate level of anxiety additionally, 10.7 % of them had sever anxiety level during pregnancy.

Table 3 Reveals that 62.5% of the women at 35 years or above had sever anxiety whereas 77.8% of those who aged less than 35 years had mind anxiety. 81.2% of housewives suffered from severe anxiety, whereas 66.7% of mild anxiety was noticed among working women. Also, 83.3% of women with low level of anxiety were from urban areas. Additionally, this table indicates a significant relation between all items of socio-demographic characteristics and different anxiety levels at $p\text{ value} < 0.001$.

Table 4: Presented the relationship between level of anxiety and the obstetric history of women participated in the study, the table revealed that the majority of women (81.2%) of high risk pregnancy, caesarean section delivery (93.8) and delivery of died child (62.5) have sever anxiety. Furthermore, a statistically significant relation between all items of obstetric history and sever anxiety level at $p\text{ value} < 0.001$.

Table (5): Clarified birth outcomes in relation to anxiety level among studied sample; as shown in the table, Apgar score zero to six score in first and five minute related to sever anxiety (87.5%) and (81.2%) respectively. Statistically significant relationship was detected with regard to sever anxiety and prematurity (76.9%), need for resuscitation (75.0%), need for neonatal intensive care (68.8%). Furthermore, cesarean delivery, preterm labor and prolonged labor were higher in women with severe anxiety level (93.8%, 18.8 %and 81.2%) respectively.

Figure 2: illustrated that 38.7% of pregnant women hadn't depression symptoms during pregnancy, while 61.3% had depression symptoms during pregnancy.

Table 6: Highlighted that about two thirds (63.0%) of studied women at age >35 years old and more than half (55.4%) of them were working, 35.9% were highly educated and 98.9% from rural areas has depressive symptoms. Additionally, statistically significant relationship was detected between all socio-demographic items and total depression symptoms scores among pregnant women at p value < 0.01

Table 7 illustrated obstetric history of studied women in relation to depression symptoms score. It showed that multi-gravid (84.8%), prim-porous (43.5%), once aborted women (45.7%) and women had two or more living children (66.3%) have higher depression symptoms scores. Whereas depressive symptoms were low among normal previous pregnancies (89.7%), previous vaginal deliveries (75.9%) and women had alive child in previous pregnancies (98.3%). There is a statistically significant relationship between all obstetric history items of pregnant women and their depression symptoms scores.

Table 8 clarified birth outcomes in relation to depression symptoms scores among studied women; as shown in the table, Apgar score zero to six score in first and five minute related to presence of depression symptoms (47.8%) and (33.7%) respectively. Statistically significant relationship was detected between presence of depression symptoms and prematurity (13.0%), need for resuscitation (27.2%), need for intensive care (17.4%) and neonatal death (4.3%) at p- value <0.0 5. Additionally, caesarian-section delivery and prolonged labor were higher among depressed cases (96.6% and 85.9%) respectively.

Table 1: Socio-demographic characteristics of pregnant women in the study sample (no=150)

Socio-demographic characteristics	No.	%
Age:		
≥35	88	58.7
35+	62	41.3
Mean ± (SD)	28.83± 2.94	
Occupation:		
Working:	98	65.3
House wife	52	34.7
Educational level:		
University	48	32.0
Secondary	38	25.3
Basic	64	42.7
Residence:		
Rural	145	96.7
Urban	5	3.3

Table 2: Medical and obstetric history of pregnant women in the study sample (no=150)

Items	No.	%
History of chronic disease:		
No chronic disease	140	93.3
cardiac	3	2.0
Hypertension	1	0.7
Liver	0	0.0
diabetes	4	2.7
others	2	1.3
Obstetric history:		
Gravidity		
Primigravid	34	22.7
Multigravida:	116	77.3
Parity:		
Primiparous:	65	43.3

Multiparou:	85	56.7
Abortion:		
No	83	55.3
Once	48	32.0
Twice or more	19	12.7
Number of living children:		
No	27	18.0
One	41	27.3
Two or more	82	54.7
Previous pregnancies:		
Normal	111	74.0
High risk	39	26.0
Previous mode of deliveries:		
Vaginal delivery	96	64.0
Caesarian section	54	36.0
Previous labor outcome:		
Alive baby	139	92.1
Dead baby	11	7.3

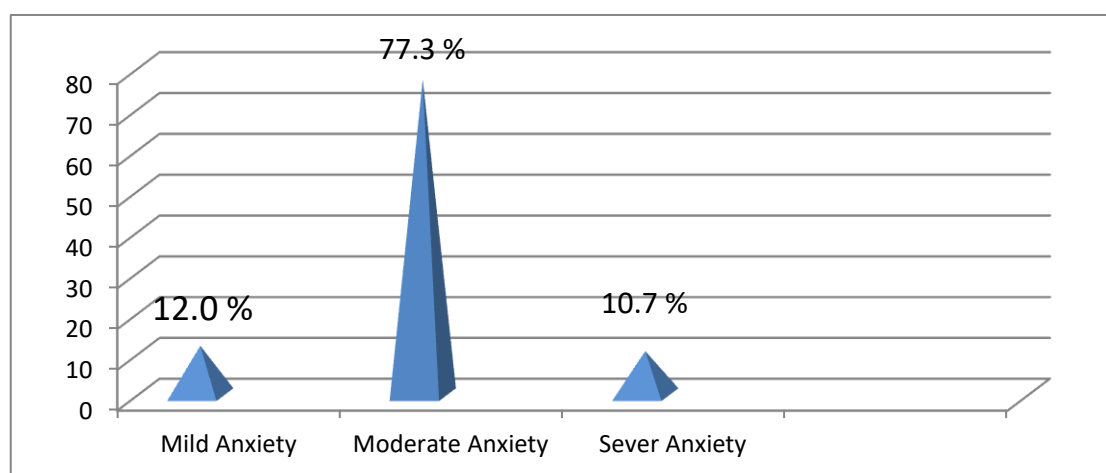


Figure 1: Frequency distribution of Anxiety levels during pregnancy among women in study sample (no=150)

Table 3: Relationship between anxiety levels during pregnancy and socio-demographic characteristics of studied sample (no=150).

Items	Anxiety levels						X2	p- value
	Mild (no.=18)		Moderate (no.=116)		Sever (no.=16)			
	No.	%	No.	%	No.	%		
Age:								
>35	14	77.8	68	58.6	6	37.5	5.667	0.05*
35+	4	22.2	48	41.4	10	62.5		
Occupation:								
Working	12	66.7	83	71.6	3	18.8	17.324	0.00**
House wife	6	33.3	33	28.4	13	81.2		
Education:								
University	10	55.6	37	31.9	1	6.2	24.018	0.00**
Secondary	3	16.6	29	25.0	6	37.5		
Basic	5	27.8	50	43.1	9	56.3		
Residence:								
Rural	15	83.3	114	98.3	16	100	9.296	0.01**
Urban	3	16.7	2	1.7	0	0.0		

(*) Statistically significant at $p < 0.05$ & (**) highly statistical significant at < 0.01

Table 4: Relationship between anxiety levels during pregnancy and obstetric history of studied sample (no=150)

Obstetric history items	Anxiety level						X2	p-value
	Mild (no.= 18)		Moderate (no.= 116)		Sever (no.= 16)			
	No.	%	No.	%	No.	%		
Gravidity:								
Prim-gravid	4	22.2	22	19.0	8	50.0	7.728	0.02**
Multi-gravid:	14	77.8	94	81.0	8	50.0		
Parity:								
Primi-parous:	8	44.4	42	36.2	15	93.8	40.993	0.00**
Multi-parous:	10	55.6	74	63.8	1	6.2		
Abortion:								
No	8	44.4	75	64.7	0	0.0	27.722	0.00**
Once	6	33.3	32	27.6	10	62.5		
Twice or more	4	22.2	9	7.8	6	37.5		
No. of living children:								
No							21.468	0.00**
One	0	0.0	20	17.2	7	43.8		
Two or more	2	11.1	39	33.6	0	0.0		
	16	88.9	57	49.1	9	56.2		
Previous pregnancies:								
Normal							28.502	0.00**
High risk	14	77.8	94	81.0	3	18.8		
	4	22.2	22	19.0	13	81.2		
Previous mode of deliveries:								
Vaginal delivery							28.847	0.00**
Caesarian section	16	88.9	79	68.1	1	6.2		
	2	11.1	37	31.9	15	93.8		
Previous labor outcome:								
Alive							80.228	0.00**
Died	18	100.0	115	99.1	6	37.5		
	0	0.0	1	0.9	10	62.5		

(*) Statistically significant at $p < 0.05$ & (**) highly statistical significant at < 0.01

Table 5: Relationship between anxiety levels during pregnancy and Birth outcomes among studied sample (no=150)

Birth outcomes	Anxiety level						X2	P- value
	Mild No. (18)		Moderate No. (116)		Severe No. (16)			
	No.	%	No.	%	No.	%		
Neonatal Outcome								
Total Apgar score at 1st minute:								
(0-6)							18.997	0.00**
(7-10)	4	22.2	40	34.5	14	87.5		
	14	77.8	76	65.5	2	12.5		
Total Apgar score at 5th minute:								
(0-6)							38.390	0.00**
(7-10)	3	16.7	16	13.8	13	81.2		
	15	83.3	100	86.2	3	18.8		
Prematurity:								
Yes	0	0.0	3	23.1	10	76.9	65.705	0.000**
No	18	13.1	113	82.5	6	4.4		
Neonatal resuscitation:								

Yes	2	11.1	13	11.2	12	75.0	39.425	0.00**
No	16	88.9	103	88.8	4	25.0		
Admission to neonatal ICU:								
Yes	1	5.6	7	6.0	11	68.8	50.928	0.00**
No	17	94.4	109	94.0	5	31.2		
Neonatal death:								
Yes	0	0.0	0	0.0	4	25.0		
No	18	100.0	116	100.0	12	75.0	34.418	0.00**
Labor Outcome								
Mode of delivery:								
Normal	16	88.9	79	68.1	1	6.2		
Caesarian section	2	11.1	37	31.9	15	93.8	21.467	0.00**
Preterm labor								
	14	77.8	94	81.0	3	18.8	7.532	0.006**
Prolonged labor								
	4	22.2	22	19.0	13	81.2	28.502	0.00**

(*) Statistically significant at $p < 0.05$, (**) highly statistical significant at < 0.01

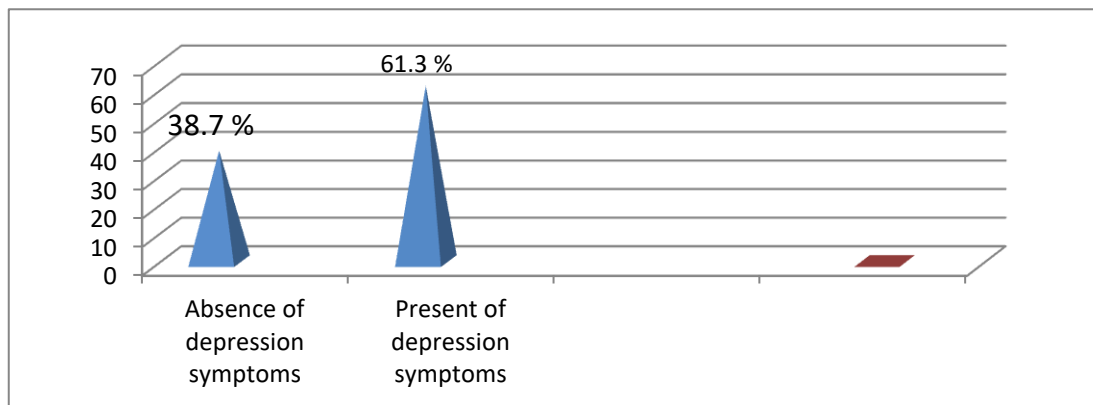


Figure 2: Frequency distribution of total depression scores during pregnancy among women in study sample (no=150).

Table 6: Relationship between total depression symptoms scores among pregnant women during pregnancy and their socio-demographic characteristics (no= 150).

Socio-demographic characteristics	Depression symptoms score				X ²	p- value
	Absent No =(58)		Present No=(92)			
	No.	%	No.	%		
Age:						
>35	54	93.1	34	37.0		
35+	4	6.9	58	63.0	46.247	0.000**
Occupation:						
Working	47	81.0	51	55.4	10.293	0.001**
House wife	11	19.0	41	44.6		
Education:						
University	14	24.1	33	35.9	20.829	0.001**
Secondary	7	12.1	31	33.7		
Basic	37	63.8	28	30.4		
Residence:						
Rural	54	93.1	91	98.9	3.726	0.054**
Urban	4	6.9	1	1.1		

(*)Statistically significant at $p < 0.05$, (**) highly statistical significant at < 0.01

Table 7: Relationship between total score of depression symptoms during pregnancy and women obstetric history (no=150).

Obstetric history Items	Depression score				X2	p- value
	Absent (no.=58)		present (no.=92)			
	No.	%	No.	%		
Gravidity:						
Prim-gravid	20	34.5	14	15.2	7.532	0.006**
Multi-gravid:	38	65.5	78	84.8		
Parity:						
Null-parous:	5	8.6	15	16.3	17.158	0.000**
Primi-parous:	8	13.8	37	40.2		
Multi-parous:	45	77.6	40	43.5		
Abortion:						
No	47	81.0	36	39.1	26.369	0.000**
Once	6	10.3	42	45.7		
Twice or more	5	8.6	14	15.2		
No. of living children:						
No	7	12.1	20	21.7	28.325	0.000**
One	30	51.7	11	12.0		
Two or more	21	36.2	61	66.3		
Previous pregnancies:						
Normal	52	89.7	59	64.1	12.046	0.001**
High risk	6	10.3	33	35.9		
Previous mode of deliveries:						
Vaginal delivery	44	75.9	52	56.5	6.017	0.016**
Caesarian section	14	24.1	40	43.5		
Previous labor outcome:						
Alive	57	98.3	82	89.1	4.378	0.036*
Died	1	1.7	10	10.9		

(*) Statistically significant at $p < 0.05$, (**) highly statistical significant at < 0.01

Table 8: Relationship between total score of depression during pregnancy and Birth Outcome (no=150)

Birth Outcome	Depression score				X2	P- value
	Absent No. (58)		Present No. (92)			
	No.	%	No.	%		
Neonatal Outcome:						
Total Apgar score at 1st minute:						
(0-6)	14	24.1	44	47.8	8.417	0.004**
(7-10)	44	75.9	48	52.2		
Total Apgar score at 5th minute:						
(0-6)	1	1.7	31	33.7	21.667	0.000**
(7-10)	57	98.3	61	66.3		
Prematurity:						
Yes	1	1.7	12	13.0	5.758	0.016*
No	57	98.3	80	87.0		
Need for resuscitation:						
Yes	2	3.4	25	27.2	13.567	0.000**
No	56	96.6	67	72.8		
Admission to neonatal ICU:						
Yes	3	5.2	16	17.4	4.801	0.028*
No	55	94.8	76	82.6		
Neonatal death:						
Yes	0	0.0	4	4.3	2.591	0.107
No	58	100.0	88	95.7		

Labor Outcome:						
Mode of delivery:						
Normal	31	33.7	25	27.2	2.591	0.003**
Caesarian section	38	65.5	56	96.6	5.758	
Preterm labor:	28	48.3	13	14.1	8.417	0.004**
Prolonged labor:	30	51.7	79	85.9	21.667	0.001**

(*) Statistically significant at $p < 0.05$, (**) highly statistical significant

IV. DISCUSSION

Anxiety and depression contribute to increase burden to the pregnant women and their fetus, hence the present study is an attempt to throw out some light on the prevalence of anxiety and depression symptoms during pregnancy and their effect on maternal and birth outcomes. The study was carried out on a sample of pregnant women; their socio-demographic characteristics were those of typical pregnant women with physiological and psychological changes, with a higher percentage from rural areas.

The results of the present study highlighted that two thirds of the women at 35 years or above had severe anxiety level whereas slightly more than three quarter of those who aged less than 35 years had mild anxiety level. This is mainly because pregnancy is considered to be a period of psychological changes and challenges. This finding is consistent with previous study in Malaysia^[20] who reported that anxiety and depression are associated with identifiable socioeconomic and obstetric risk factors.

According to the level of anxiety among working women, the current study revealed that the majority of housewives suffered from severe anxiety level, whereas nearly two thirds of working women has mild anxiety level, this may be due to that the housewives women have more responsibility and duties adding to lower household wealth and lack of partner support unlike the working women who may be ventilate with her friends and discuss about pregnancy issues as well as obtaining more support from friends. This result is congruent with study done in Ethiopia^[21] who indicated that antenatal anxiety and depression symptoms were significantly associated with women occupation. The fear of being financially dependent on others or insufficient financially could be the reason for the potential to develop antenatal anxiety and depression symptoms. In addition to pregnant women with low income, with debt, the worry of future mother about the newborn baby and with economic problems are more likely to develop antenatal anxiety and depression.

Additionally, the result obtained from socio demographic status factors indicated relationship between anxiety levels and pregnant women' socio demographic status. This means that anxiety level may be high among women in middle age group, unemployed, low educational level and rural residence. Therefore, health care providers should take these results as vital foundation in assessment, planning, investigation, prevention, treatment, education, research and developing of health educational programs. This result is consistent with other study in Newzealand^[22] who reported that antenatal mental health requires at least as much attention in the prenatal period. Services need to specifically target young women with a prior history of depression.

Moreover,^[23] highlighted that the partners' support may be an important factor among pregnant women which can decrease the symptoms of antenatal anxiety and depression; however it was modifiable target for intervention to improve pregnancy outcomes, this result can open eye on how nurses can be involved with health care providers in helping to reduce or solve obstetric related issues, increase father awareness. Furthermore,^[24] reported that anxiety among pregnant women could be related to low maternal self-esteem which may reduce fetal growth throughout physiologic changes. Therefore, nurses' awareness about changes in mental health status among pregnant women is very crucial for the formulation of appropriate policies and measures to promote mental health during pregnancy as possible.

As regard to obstetric history of studied women, the current study indicated that half of the primi-gravid and multi-gravid women had severe anxiety level as well as the majority of high risk pregnancy and caesarean section delivery. This may be due to that section delivery is one of several variables considered a significant risk and more related to postpartum depression as well as the woman hangs around her child and the majority of women in the study had high risk pregnancy. This result is in line with other research in Saudi Arabia^[25] who concluded that anxiety and depression symptoms are higher among unemployed women with history of miscarriage and unplanned pregnancy, in addition, the most women who had no problem in previous deliveries have mild anxiety.

Furthermore, a statistically significant relation was found between all items of obstetric history and different anxiety levels. This may be explained by level of anxiety is considerably higher among women who did not plan their current pregnancy that causing physical and psychosocial changes in women. The other factor may be marital status of women; unmarried women have a higher rate of prevalence for antenatal depression than married ones. The reason could be that unmarried women might practice more loneliness, poorer social support, and lower self-confidence and are more likely to be living alone, which are usually regarded as risk factors for depression in the pregnant women. The results were in the same line with the findings of the study of ^[26] who studied the prenatal depression, anxiety, and spontaneous preterm birth and found that antenatal depression was significantly associated with spontaneous preterm birth in the women receiving early and regular care.

This result is consistent with other research ^[27] illustrated the relationship between effect of anxiety and depression on birth outcomes including fetal growth, delivery complication, birth weight and gestational age at the time of delivery as well as, maternal postpartum depression. Regarding factors related to anxiety, they were mainly found with level of education, having a history of depression, extreme fatigue, lack of exercise, having experienced negative life events and having depression and/or anxiety symptoms in early pregnancy. However, ^[28] in India stated that, maternal anxiety and depression during pregnancy has been associated with shorter gestation and higher incidence of preterm birth, low birth weight and increased risk of miscarriage.

The present study findings indicated that the anxiety and depression symptoms were higher in oldest age and basic educated women. This result justifies observation that high levels of anxiety bring high risks for women own health and pregnancy outcomes in addition to the fear of pregnant women from delivery and concerns about subjective physical pain experience during labor. Undoubtedly, any help for reducing anxiety and depression symptoms would ease the burden of pregnancy and childbirth lying on women. This finding is in line with ^[29] in their study in Iran reported that maternal anxiety increases with pregnancy age and pregnant women with depression and anxiety symptoms have more fear from vaginal birth, thereby increasing rate of caesarean section will be more likely in these women. Furthermore, ^[30] recommended that during pregnancy, methods of adjustment and coping with anxiety and depression symptoms should be taught to pregnant women for improving their mental health and quality of life adding to mental status should be screened with accredited questionnaires in follow up session.

The result of current study shows that nearly two thirds of studied women at age >35 years, working and coming from rural area have high depressive symptoms which indicated sociocultural context in study setting. Additionally, statistically significant relation was detected between all socio-demographic items and depression scale. This finding is in line with ^[31] in Egypt who found a strong link between maternal depressive and anxiety symptoms during pregnancy and various fetal developmental problems. Therefore, the early detection and management of depressive and anxiety symptoms during pregnancy should be provided routinely for all pregnant women. In the same line ^[32] studied the prevalence of antenatal depression among the studied Omani women was high, particularly in comparison to findings from other Arab countries. Thus, antenatal screening for depression should be considered in routine primary antenatal care. Couples should also be encouraged to seek psychological support to manage marital conflicts develop during pregnancy.

As regard to birth outcome, Apgar score is zero to six scores in first and fifth minute related to sever anxiety level reported among the majority of mothers. As well as the majority of mild anxiety was reported in seven to ten score during the first minute and three quarters of neonates need for resuscitation among women with sever anxiety level. Additionally, more than two thirds of neonates needed to intensive care unit among women who have severe anxiety level. This result may be indicated that newborn needs medical assistance. The lower score indicates that the newborn needs help to adjust outside the mother's womb as well as association between the score more than 7 and the newborn is normal and does not need any medical assistance.

In the same line ^[33] and ^[34] reported that, Pregnant women suffering from depression symptoms have been found to have adverse outcomes such as low birth weight, Apgar score < 7 at 5 min, admission to new natal intensive care unit, still birth and preterm birth. The evidence from this study suggests that the head circumference at birth may be associated with comorbid anxiety and depression during third trimester of pregnancy. Given the potential influence of anxiety and depression on birth outcomes, further research on the possible underlying biological mechanisms is required, along with longitudinal studies on maternal health and later effect on newborns.

However ^[35] reported an association between ante-partum depression and risk of preterm birth and a range of altered physical and physiological fetal outcomes. In the other hand, ^[36] in a systematic review At Australia showed a modest relationship between depression during pregnancy and low birth weight and preterm birth. In contrary with our study finding ^[37] reported there were no association between ante-partum depression and other adverse outcomes such as low birth weight (LBW), admission to a neonatal (NICU) and low Apgar score. Also, a study by ^[38] in their study in German found no relationship between antenatal depression and anxiety and neonatal outcome. There may be using deferent tools as well as cultural and financial factors.

Congruently, ^[39] stated that antenatal anxiety and depression is accompanied by maternal functional changes that may influence fetal development, these changes include disturbance of maternal circadian rhythms and behavioral changes that may effect on maternal diet and lifestyle. Moreover ^[40] in a study done in Saudi Arabia indicated that Life stressor scale shows that all study sample 200 (100%) have low stress event; this may indicate a critical issue that postpartum depression can develop even in low life stress and it also can indicate that physiological hormonal and changes and personality type of mothers can more affect in developing of postpartum depression.

Finally, Antenatal anxiety and depression is a common psychiatric maternal and health concerns, further attention should be given to psychological health for pregnant women, social support, pregnancy-related complications and conflicts. A proper obstetric and maternal care for women as well as a psychological wellbeing routine screening of women in the antenatal period may decrease the prevalence of depression and anxiety during pregnancy ^[41].

V. CONCLUSION

Based on the findings of the present study, we can concluded that there was a negative effect of anxiety and depression symptoms on pregnancy and birth outcome represented in increase need to the neonatal resuscitation, steal birth, increase chance to prematurity, caesarean section, prolonged labor and preterm birth.

VI. RECOMMENDATION

Based on the finding of the current study, the following recommendations are suggested

- Enhance multidisciplinary collaboration approach for health team to offer comprehensive care for pregnant women during antenatal care.
- Health educational program and campaign about pregnant woman mental and psychological wellness should be conducted.
- Future researches should be conducted to early detect the common psychiatric health problems in pregnancy.

REFERENCES

- [1] Gaynes, B.N. Gavin, N., Meltzer-Brody, S., Lohr, K.N., Swinson, T., Gartlehner, G., Brody, S., and Miller, W.C. (2005): Perinatal depression: prevalence, screening accuracy, and screening outcomes. Evidence Report/Technology Assessment. 119, 1-8.
- [2] Cheng ER, Rifas-Shiman SL, Perkins ME, Rich-Edwards JW, Gillman MW, Wright R, and Taveras EM (2016): The Influence of Antenatal Partner Support on Pregnancy Outcomes. J Womens Health (Larchmt). Jul; 25(7):672-9.
- [3] Lancaster CA, Gold KJ and Flynn HA, (2010): Risk factors for depressive symptoms during pregnancy: a systematic review. Am J Obstet Gynecol; 202:5-14.
- [4] Blumenshine P, Egerter S, and Barclay CJ, (2010): Socioeconomic disparities in adverse birth outcomes: a systematic review. Am J Prev Med; 39:263-72.
- [5] World Health Organization (2017): Mental Disorders: Global Health Estimates. Geneva: Licence: CC BY-NC-SA 3.0 IGO.
- [6] Perera F, (2006): Children's environmental health research--highlights from the Columbia Center for Children's Environmental Health. Ann N Y Acad Sci.; 1076:15-28.

International Journal of Novel Research in Healthcare and Nursing

 Vol. 6, Issue 1, pp: (124-138), Month: January - April 2019, Available at: www.noveltyjournals.com

- [7] Heron J., O'Connor T. and Evans G. (2004): The course of anxiety and depression through pregnancy and the postpartum in a community sample, *J Affect Disord*; 80(1):65-73.
- [8] Marcus SM, Flynn HA, Blow FC and Barry KL (2013): Depressive symptoms among pregnant women screened in obstetrics settings, *J Women's Health*; 12(4):373-80.
- [9] Kinsella MT (2012): Impact of maternal stress, depression and anxiety on fetal neurobehavioral development. *Clin Obstet Gynecol. Sep*; 52(3):425-40. doi: 10.1097/GRF.0b013e3181b52df1.
- [10] Dunkel Schetter C and Tanner L. (2012): Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Curr Opin Psychiatry. Mar*; 25(2):141-8.
- [11] Accortt EE, Cheadle AC and Dunkel Schetter C. (2015): Prenatal depression and adverse birth outcomes: an updated systematic review. *Matern Child Health J. Jun*; 19(6):1306-37.
- [12] Glover V, and Barlow J. (2014): Psychological adversity in pregnancy: what works to improve outcomes? *J Children's Services*, 9(2):96-108.
- [13] Alder J, Fink N, and Bitzer J, (2007): Depression and anxiety during pregnancy: a risk factor for obstetric, fetal and neonatal outcome? A critical review of the literature. *J Matern Fetal Neonatal Med* 20: 189-209.
- [14] National Institute for Health and Care Excellence (2014): Antenatal and postnatal mental health: clinical management and service guidance. Clinical guideline 192. London: NICE. Available from: www.nice.org.uk/Guidance/CG192 Accessed 16 April 2015.
- [15] Beck, A. T., Epstein, N., Brown, G., and Steer, R. A. (1988): An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, 56, 893-897.
- [16] Beck, A. T., Kovacs, M., and Weissman, A. (1979): Assessment of suicidal intention: The Scale for Suicidal Ideation. *Journal of Consulting and Clinical Psychology*, 47(2), 343-352.
- [17] Gharaib, G.A. (1996): Maternal knowledge, beliefs, attitudes and practices. Relating to child immunization among Jordaian Mothers. Unpublished Doctoral Dissertation. University of Ulster, Northern Ireland.
- [18] Gans-Lartey, F., O'Brien, B. A., Gyekye, F. O., and Schopflocher, D., (2013): The relationship between the use of the partograph and birth outcomes at Korle-Bu teaching hospital. *Midwifery* 29, 461-467.
- [19] Veronesi M.C., Panzani S., Faustini M., and Rota A. (2009): An Apgar scoring system for routine assessment of newborn puppy viability and short-term survival prognosis. *Theriogenology* 72: 401-40.
- [20] Nagandla K, Nalliah S, and Yin LK, (2016): Prevalence and associated risk factors of depression, anxiety and stress in pregnancy. *Int J Reproduction*. 5(7):2380-2388.
- [21] Getinet W, Amare T, Boru B, Shumet Sh, Worku W and Azale T (2018): Prevalence and Risk Factors for Antenatal Depression in Ethiopia: Systematic Review *Hindawi. Depression Research and Treatment Volume*, Article ID 3649269, 12 pages <https://doi.org/10.1155/2018/3649269>.
- [22] Signal TL, Paine SJ, and Sweeney B, (2017): The prevalence of symptoms of depression and anxiety, and the level of life stress and worry in newzealand māori and non-māori women in late pregnancy. *Aust N Z J Psychiatry*; 51(2):168-176.
- [23] Cheng ER, Rifas-Shiman SL, Perkins ME, Rich-Edwards JW, Gillman MW, Wright R, and Taveras EM (2016): The Influence of Antenatal Partner Support on Pregnancy Outcomes. *J Womens Health (Larchmt)*. Jul;25(7):672-9.
- [24] van de Loo KFE, Vlenterie R, Nikkels S J, Merkus P, Roukema J, M Verhaak Ch, Roeleveld N and Gelder M (2017): Depression and Anxiety during Pregnancy: The Influence of Maternal Characteristics. *J Mood Disord Ther* 2017, 1(1):1-16 Volume 1 | Issue 1
- [25] Alqahtani A H, Al Khedair Kh, Al-Jeheiman R, Al-Turk H A i, and Al Qahtani N H (2018): Anxiety and depression during pregnancy in women attending clinics in a University Hospital in Eastern province of Saudi Arabia: prevalence and associated factors Published online 2018 Feb 23. doi: 10.2147/IJWH.S153273 *Int J Womens Health*. 2018 ; 10: 101-108.

International Journal of Novel Research in Healthcare and Nursing

 Vol. 6, Issue 1, pp: (124-138), Month: January - April 2019, Available at: www.noveltyjournals.com

- [26] Dayan J, Creveuil C, Marks MN, Conroy S, Herlicoviez M, Dreyfus M and Tordjman S (2016): Prenatal depression, prenatal anxiety, and spontaneous preterm birth: a prospective cohort study among women with early and regular care. *Psychosom Med* ;68(6):938-46.
- [27] Grote NK, Bridge JA, Gavin AR, Melville JL, Iyengar S and Katon WJ. A (2010): Meta-analysis of depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction. *Arch Gen Psychiatry*; 67(10):1012–24. doi: 10.1001/archgenpsychiatry.2010.111.
- [28] Kumari Sh. and Joshi Sh. (2014): Birth outcomes following antenatal anxiety and depression. *DELHI PSYCHIATRY JOURNAL*. Delhi Psychiatry Society 17 VOL. 1 NO. 2.
- [29] Noor NC, Samani1L N, Jahdi1 F and Hoseini A F (2015): The relationship between anxiety in the third trimester of pregnancy and obstetric outcomes within Miandoab County in 2013. *Journal of Chemical and Pharmaceutical Research*, 7(2):298-301 Review Article ISSN : 0975-7384 CODEN(USA) : JCPRC5
- [30] Nekoe T and Zarei M (2015): Evaluation the Anxiety Status of Pregnant Women in the Third Trimester of Pregnancy and Fear of Childbirth and Related Factors. *British Journal of Medicine & Medical Research* 9(12): 1-8, Article no.BJMMR.19784 ISSN: 2231-0614 SCIENCEDOMAIN international www.sciencedomain.org.
- [31] Sabri Y and Nabel H (2015): The impact of anxiety and depression during pregnancy on fetal growth and the birth outcome. *Egypt J Psychiatr* 36:95–100 © 2015 Egyptian Journal of Psychiatry 1110-110.
- [32] Al-Azri M, Al-Lawati I, and Al-Kamyani R, (2016): Prevalence and risk factors of antenatal depression among Omani women in a primary care setting: cross-sectional study. *Sultan Qaboos Univ Med J.*; 16(1):e35–e4.
- [33] Upadhyaya S (2016): Anxiety and depression during pregnancy and their influence on birth outcomes: kuopio birth cohort study un published Master's thesis in Public Health. Faculty of Health Sciences University of Eastern Finland.
- [34] Räisänen S, Lehto SM, Nielsen HS, Gissler M, Kramer MR, and Heinonen S. (2014): Risk factors for and perinatal outcomes of major depression during pregnancy: a population-based analysis during 2002-2010 in Finland. *BMJ Open*; 4(11):e004883.
- [35] Buss C, Davis EP, and Muftuler LT, (2010): High pregnancy anxiety during mid-gestation is associated with decreased gray matter density in 6-9-year-old children. *Psychoneuroendocrinology*; 35(1):141-53.
- [36] Staneva A, Bogossian F, Pritchard M and Wittkowski A (2015): The effects of maternal depression, anxiety, and perceived stress during pregnancy on preterm birth: A systematic review. *Women and Birth journal* home page: www.elsevier.com/locate/womb I Women and Birth 28 179–193. Australia.
- [37] Grigoriadis S, VonderPorten EH, and Mamisashvili (2013): The impact of maternal depression during pregnancy on perinatal outcomes: a systematic review and meta-analysis. *J Clin Psychiatry*; 74: e321–41.
- [38] Gawlik S, Waldeier L, Müller M, Szabo A, Sohn C, and Reck C (2012): Subclinical depressive symptoms during pregnancy and birth outcome-a pilot study in a healthy German sample. *Arch Womens Ment Health.*; 21(In press).
- [39] Glover V (2014): Maternal depression, anxiety and stress during pregnancy and child outcome; what needs to be done. *Best Pract Res Clin Obstet Gynaecol* 28: 25-35.
- [40] Moawed S and Al-Shami N (2012): Factors Associated with Postpartum Depression among Saudi Females in Riyadh City. *J Am Sci* 2012; 8(11): 67-73]. (ISSN: 1545-1003). <http://www.jofamericanscience.org>.
- [41] Alhusen J. L., Ayres L., and Depriest K. (2016): “Effects of Maternal Mental Health on Engagement in Favorable Health Practices During Pregnancy,” *Journal of Midwifery & Women’s Health*, vol. 61, no. 2, pp. 210–216.