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ORIGINAL ARTICLE

Factors affecting Depression, Stress, and Anxiety Levels Among Postpartum Women in Najran City

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ABSTRACT

Postpartum depression is a debilitating mental disorder with a high prevalence. mental disorder that affects women during postpartum period. Postpartum depression is the most common psychological condition following deliveryto assess the factors affecting stress, depression and anxiety levels among postpartum women in Najran cityIt was an observational design that conducted from 1st May to 30th September 2022. Primary healthcare facilities located in Najran, Saudi Arabia. A purposive sample of 241 postpartum women participated in the study. Socio-demographic characteristics, obstetric history, Depression, Anxiety, and Stress Scale (DASS-21) were the main variables when collecting the data. There was high significant model detected through f test 13.772, p value= .000. This explains 57% of the variation at depression level detected through $R^2$0.57. As well, it reflects that Number of children you have, Number of pregnancies, age, and number of delivery and CS delivery has slight frequency positive effect on depression level at p= <0.05. While enough income and working had negative predictors on depression level at p =039 and .016. Also, planned pregnancy had high negative effect on depression level at p= <0.01. The risk factors associated with an increased likelihood of experiencing depression, stress, and anxiety among postpartum women include an increasing number of children, being multipara, advancing age, and having a history of multigravida and cesarean section deliveries. Conversely, several factors have been identified as protective factors that can reduce the risk of these mental health issues. These protective factors include planning the pregnancy, having an adequate income, and being employed. It is important to note that depression, anxiety, and stress are independent risk factors for each other.
Keywords: Postpartum; women; depression; anxiety; stress; mental health

INTRODUCTION

Depression, stress, and anxiety are significant mental health challenges that affect millions of individuals worldwide. Among the most vulnerable population groups, postpartum women experience unique and intensified levels of these conditions. The postpartum period, also known as the "fourth trimester," encompasses the first few weeks or months following childbirth, during which women undergo numerous physical, emotional, and psychological changes[7].While motherhood is often associated with joy and fulfillment, many women face considerable emotional distress during this time. Understanding the factors that contribute to depression, stress, and anxiety levels among postpartum women is crucial for developing effective interventions and providing appropriate support [6].

Postpartum depression is a highly debilitating mental disorder affecting a significant number of mothers worldwide (prevalence between 5% and 60.8%). It burdens afflicted mothers to the point that some describe their lives during this period as trapped in despair. In contrast, nondepressed mothers often perceive childbirth as their happiest and most fulfilling experience. Symptoms of postpartum depression

include disrupted sleep, mood swings, appetite changes, heightened anxiety about the baby's well-being, intense sadness, self-doubt, difficulty concentrating, loss of interest in daily activities, and even thoughts of death or suicide[8].

The depression, stress, and anxiety levels among postpartum women are influenced by a multitude of factors, including hormonal fluctuations, social support, history of mental health problems, mother-infant relationship, and socioeconomic factors[11].

Hormonal fluctuations, particularly the rapid decline in estrogen and progesterone levels after childbirth, contribute significantly to depression, stress, and anxiety among postpartum women. These hormonal changes, combined with physical exhaustion and sleep deprivation, create a vulnerable state that predisposes women to mental health challenges[25]. Additionally, inadequate social support systems are a crucial factor in postpartum mental health. Research consistently indicates that women without sufficient support networks are at a higher risk of experiencing depression, stress, and anxiety during the transition to motherhood[1].

A history of mental health problems, such as pre-existing depression or anxiety disorders, is another significant factor impacting postpartum mental health. Women with previous mental illness are more susceptible to exacerbated symptoms during the postpartum period. Healthcare providers must identify and address these pre-existing conditions to ensure appropriate support and intervention[19]. The quality of the mother-infant relationship also plays a vital role in maternal mental health. Difficulties in bonding with the newborn, feelings of inadequacy, and societal pressures to be a "perfect" mother can significantly affect a woman's emotional well-being. Understanding the dynamics of this relationship and providing guidance and support in establishing a strong bond can help reduce the risk of depression, stress, and anxiety among postpartum women [4].

Furthermore, socioeconomic factors such as income level, education, and access to healthcare have a significant impact on a woman's mental health during the postpartum period. Financial stress, limited resources, and inadequate access to healthcare services increase the likelihood of experiencing depression, stress, and anxiety. Addressing these socioeconomic disparities and ensuring equitable access to healthcare and social support are crucial steps toward promoting better postpartum mental health outcomes [1].

Understanding these factors and their interplay is essential for developing effective interventions and support systems that can promote the well-being of postpartum women. By addressing these challenges, we can strive towards creating a supportive environment that nurtures the mental health of new mothers and enhances their overall quality of life[9].

MATERIAL AND METHODS
Aim: to assess the factors affecting stress, depression, and anxiety levels among postpartum women in najran city
Research question
Q1: What are factors affecting postpartum women depression?
Q2: What are factors affecting postpartum women anxiety?
Q3: What are factors affecting postpartum women stress?
This study employed a descriptive observational design and was conducted from 1st May to 30th September 2022. The research took place in primary healthcare facilities located in Najran, Saudi Arabia. A purposive sample of 241 postpartum women participated in the study. Invitations to participate were extended to 360 women, and out of those, 241 women agreed to participate, resulting in a response rate of 66.9%.
Subjects:
The subjects of the study were pregnant women who were attending primary healthcare facilities for postpartum care or neonate immunization. The inclusion criteria for participation in the study were being between the ages of 18 and 45 and providing consent to participate. Women who had a pre-existing psychiatric disorder before delivery were excluded from the study.
Tool of data collection:
The researchers developed an electronic questionnaire after thoroughly reviewing the relevant literature, guided by their supervisor. This questionnaire was conveniently shared through email or WhatsApp by sending a link to the respondents.
Tool I: Questionnaire include two parts:
First Part: This section encompassed the socio-demographic characteristics of all study participants, including variables such as age, weight, height, employment status, level of education, income level, and place of residence.

Second Part: The part included obstetric history, encompassing various factors such as the number of children, the sex of the baby, the age of the last baby, the type of current delivery, details of previous deliveries, number of deliveriy and pregnancies, and abortion history.

Tool III-The DASS-21, also known as the Depression, Anxiety, and Stress Scale**,** is a commonly employed self-assessment survey aimed at gauging the intensity of symptoms associated with depression, anxiety, and stress in individuals. Originally created by Lovibond and Lovibond in 1995, it serves as a condensed version of the initial DASS scale.

The DASS-21 is comprised of 21 items, with seven items dedicated to each of the three categories: depression, anxiety, and stress. Respondents are asked to rate the extent of their experience with each symptom during the previous week, using a four-point Likert scale. To assess the severity of depression, anxiety, and stress symptoms, the DASS-21 employs a scoring system based on the responses provided to the questionnaire's 21 items. Each item is rated on a scale of 0 to 3. The scores for each category are calculated by summing the ratings for the corresponding items, with a maximum score of 21 for each domain. Furthermore, an overall score can be obtained by summing the scores from all 21 items, yielding a maximum total score of 63.

Tools validity and reliability:
A group of 5 nursing experts was selected to administer the tool and assess its qualities, who evaluated its relevance, clarity, complete and applicable of the items. Based on their opinions, the tool was deemed valid. Reliability was assessed using the Cronbach's Alpha coefficient test, yielding a score of 0.97 for the Depression, Anxiety, and Stress Scale (DASS-21).

Statistical Analysis
The collected data were organized, categorized, and presented in tables for analysis. The Statistical Package for the Social Sciences (SPSS Inc., version 27) on a suitable personal computer was used to perform the data analysis. Descriptive statistics, such as frequencies and percentages for categorical variables, and means and standard deviations for continuous variables, were employed to summarize the participants' demographic details. Linear regression, which is a method for modeling the relationship between a single response variable and one or more explanatory variables, was utilized in the analysis. The correlation coefficient, on the other hand, served as a statistical measure to assess the strength of the linear relationship between two variables.

Ethical Considerations
The study obtained ethical approval from the institutional review board of the Faculty of Nursing's ethical committee, ensuring compliance with ethical guidelines such as the Declaration of Helsinki. Participation in the study was voluntary, meaning individuals had the choice to take part or not. Written consent was not required as the questionnaires did not contain any personal identifiers, and this exemption was approved by the ethical committee. The researchers did not exert any coercion or inducement to encourage questionnaire completion. Respondents' anonymity was preserved as the questionnaires were filled out anonymously, and the collected data were treated confidentially, solely for research purposes.

RESULTS AND DISCUSSION
According to Characteristics of Postpartum Women, table 1 displays the demographic characteristics of the subjects included in the study. The data reveals that 51% of the participants fell within the age range of 19-30 years. Moreover, 40.1% of the subjects were classified as having a normal weight. In terms of educational level, it was found that 58.1% of the female participants had obtained a university education, while 46.1% identified themselves as housewives. When considering income level, the majority of the participants (65.6%) reported having sufficient family income. Additionally, it was observed that 79.3% of the subjects resided in urban areas.

In regard to the obstetric history, the data analysis reveals that 56.4% of the female participants had given birth to 2-4 children, while 55.2% of them had encountered 2-4 pregnancies. In terms of the total number of deliveries, 47.7% of the women had undergone 1-2 deliveries, out of which 72.6% experienced a normal delivery. With regard to the gender distribution of the newborns, 50.6% were male, while a majority of 88% were under 1 year of age. Furthermore, the study revealed that 72.2% of the women planned to give birth in the coming future respectively.

Table (1) Characteristics of studied participants (n=241)

	Items	F	%
Age	19 to 30 years	125	51.9%
	31 to 40 years	79	32.8%
	41 to 50 years	34	14.1%
	50> years	3	1.2%
body weight	Very severe deficiency	1	0.4%
	Acute shortage	1	0.4%
	Weight loss	11	4.6%
	normal weight	97	40.2%
	Increase in weight	63	26.1%
	Mild obesity	44	18.3%
	Medium obesity	19	7.9%
	Excessive obesity	5	2.1%
Educational level	Primary	18	7.5%
	secondary	72	29.9%
	University	140	58.1%
	Post graduate	11	4.6%
Job	Student	49	20.3%
	Housewife	111	46.1%
	Work in the health sector	38	15.8%
	Work in the unhealthy sector	43	17.8%
Income level	Not enough	67	27.8%
	Enough	158	65.6%
	Enough and more	16	6.6%
Residence	Urban	191	79.3%
	Rural	50	20.7%

Table (2) Mean score of subjects related DASS (n=241).

	Max	Min	Mean	SD
Depression	9	0	8.14	1.46
Anxiety	10	1	9.83	2.03
Stress	12	2	10.11	1.65

Table (2) reveals that mean score of subjects related depression was 8.14 (1,46), anxiety was 9.83 (2.03), and stress was 10.11 (1.65).

Table (3): Multiple Linear regression model for total depression

	Unstandardized Coefficients		standardized Coefficients		
	B		B	T	P. value
Age	.200		.142	2.765	.033*
Body weight	.104		.056	1.013	.067
Education level (High)	-.120		.078	1.842	.052
Income (enough)	-.182		.119	2.765	.039*
Job (work)	-.209		.124	2.977	.016*
Number of children you have	.165		.104	2.201	.045*
Number of pregnancies	.152		.100	2.187	.047*
Number of deliveries	.175		.113	2.897	.039*
Type of the current delivery (C/S)	.158		.099	2.600	.044*
Planned pregnancy (yes)	-.390		.217	6.801	.002**

Model	R²	Df.	F	P. value
Regression	**0.57**	9	13.772	.000**

a. Dependent Variable: total depression
b. Predictors: (constant): Age, Body weight, Education level (High), Income (enough), Job (work), Number of children you have, Number of pregnancies, Number of deliveries, Type of the current delivery (C/S), and Have history of abortion (yes)

Table 3 reveals that high significant model detected through *f* test 13.772, p value= .000. This explains 57% of the variation at depression level detected through R^2 0.57. As well, it reflects that Number of

children you have, Number of pregnancies, age, and number of delivery and CS delivery has slight frequency positive effect on depression level at *p*= <0.05. While enough income and working had negative predictors on depression level at *p* =039 and .016.Also, planned pregnancy had high negative effect on depression level at *p*= <0.01.

Table (4): Multiple Linear regression model for total stress

	Unstandardized Coefficients		standardized Coefficients		
	B		B	T	P. value
Age	.249		.197	4.012	.007**
Body weight	.060		.005	0.670	.083
Education level (High)	-.070		.012	0.261	.072
Income (enough)	-.160		.117	2.233	.038*
Job (work)	-.177		.104	2.366	.040*
Number of children you have	.346		.310	5.900	.001**
Number of pregnancies	.278		.213	3.768	.009**
Number of deliveries	.250		.201	3.544	.009**
Type of the current delivery (C/S)	.192		.136	2.800	.030*
Planned pregnancy (yes)	-.364		.299	5.791	.003**
Model	**R²**	**Df.**		**F**	**P. value**
Regression	**0.43**	9		11.008	.000**

a. Dependent Variable: total stress
b. Predictors: (constant): Age, Body weight, Education level (High), Income (enough), Job (work), Number of children you have, Number of pregnancies, Number of deliveries, Type of the current delivery (C/S), and Have history of abortion (yes)

Table 4 reveals that high significant model detected through *f* test 11.008, p value= .000. This explains 43% of the variation at stress level detected through $R^2$0.43. As well, it reflects that Number of children you have, Number of pregnancies, age, and number of delivery has high frequency negative effect on stress at *p*= <0.01. Also, C/S had slight positive predictor on their stress level at *p*=.030. While enough income and working had negative predictors on stress level at *p* =038 and 040.Also, planned pregnancy had high negative effect on stress level at *p*= <0.01.

Table (5): Multiple Linear regression model for total anxiety

	Unstandardized Coefficients		standardized Coefficients		
	B		B	T	P. value
Age	.205		.136	3.012	.015*
Body weight	.073		.015	0.570	.098
Education level (High)	-.100		.036	1.022	.065
Income (enough)	-.182		.125	2.660	.034*
Job (work)	-.190		.123	2.763	.031*
Number of children you have	.299		.214	3.911	.005**
Number of pregnancies	.283		.221	3.600	.009**
Number of deliveries	.202		.146	2.400	.023*
Type of the current delivery (C/S)	.188		.124	2.654	.012*
Planned pregnancy (yes)	-.300		.227	4.661	.005**
Model	**R²**	**Df.**		**F**	**P. value**
Regression	**0.61**	9		14.555	.000**

a. Dependent Variable: total anxiety
b. Predictors: (constant): Age, Body weight, Education level (High), Income (enough), Job (work), Number of children you have, Number of pregnancies, Number of deliveries, Type of the current delivery (C/S), and Have history of abortion (yes)

Table 5 reveals that high significant model detected through *f* test 14.555, p value= .000. This explains 61% of the variation at anxiety level detected through $R^2$0.61. As well, it reflects that Number of children you have, Number of pregnancies has high frequency negative effect on anxiety at *p*= <0.01. Also, age,

number of delivery, C/S had slight positive predictor on their anxiety level at *p*=.015, *p*= .023, and *p*= .012 respectively. While enough income and working had negative predictors on anxiety level at *p* =034 and 031.Also, planned pregnancy had high negative effect on anxiety level at *p*= <0.01

The postpartum period, which occurs after childbirth, is a time that can bring both joy and challenges to new mothers. While some women are able to adjust well to the responsibilities of motherhood, a notable number of experience heightened levels of stress, depression, and anxiety during this phase[21]. The aim of this study is to assess the factors that contribute to stress, depression, and anxiety levels among postpartum women in Najran City. By exploring the context-specific factors within this population, healthcare professionals and policymakers can gain valuable insights to inform strategies that promote the mental well-being of postpartum women.

According to the correlation between variables, our study concluded that there are highly significant statistical positive correlations between the studied subjects' total stress, anxiety, and depression level. These results supported with the study by [24]who reported that there was positive correlation between anxiety and depression. Also,[15]stated that indicating that higher levels of anxiety are often accompanied by higher levels of depression among postpartum women. Likewise,[16]showed that positive association between stress and anxiety level among postpartum women. Furthermore, [20] detected that Childcare stress, and stressful life events were associated with postpartum depression (R^2 = 0.298, F = 16.794, p-value < 0.001. Also,[22]found that there was positive association between stress and depression postpartum. Moreover,[14]detected that Depression, anxiety, and stress are each independent risk factors for each other.

Regarding the factors affecting depression, anxiety, and stress among postpartum women, the current study mentioned that an increasing number of children, being multipara, advancing age, and experiencing multigravida and cesarean section deliveries are associated with an increased risk of depression, stress, and anxiety among postpartum women. Conversely, planned pregnancy, having an adequate income, and being employed are considered positive factors that decrease the risk of depression, stress, and anxiety among postpartum women. It is important to note that these factors interact with various other individual, social, and cultural factors, and their influence may vary among different populations. Therefore, further research is required to fully recognize the complex relationships among these factors and postpartum mental health outcomes.

These results support with the study by[10] reported that unplanned pregnancy can significantly affect women's life and career plans, potentially leading to an increased risk of postpartum depression.

The unexpected nature of the pregnancy and the subsequent adjustments can contribute to heightened stress, uncertainty, and emotional distress for some women during the postpartum period. Also,[3]reported that unplanned pregnancy (AOR = 2.02, 95% CI: 1.24, 3.31), relatives' mental illness (AOR = 1.20: 1.09-3.05), had no antenatal visit (AOR = 4.05, 95% CI: 1.81, 9.05), were factors significantly increase postpartum depression. Likewise, [18] have reported postpartum depression is more prevalent in multiparous women. Additionally,[12] mentioned that Several factors were found to be associated with an increased likelihood of experiencing symptoms of postpartum depression, anxiety, and stress. These factors include not living with a partner, not having postgraduate education, and being unemployed during pregnancy. Furthermore,[23]detected that negative life events, perceived stress, financial strain increase postpartum depression. Also,[13] detected that third baby or more (Beta = 2.470) had high predictors for stress, anxiety, and depression.

While[5] revealed that Antenatal education, particularly satisfaction with it, showed a negative association with the depression score level [17] found that emotional support decreasing risk of postpartum depression, so we recommended with

Raising awareness among friends, family, and the medical community is crucial to acknowledge the emotional needs of postpartum mothers and provide specialized support. Increasing awareness fosters understanding of the challenges faced by these mothers, facilitating the provision of necessary assistance. Open communication, empathy, and active listening are vital in ensuring postpartum mothers receive the emotional support they require during this vulnerable period.

CONCLUSION

The risk factors associated with an increased likelihood of experiencing depression, stress, and anxiety among postpartum women include an increasing number of children, being multipara, advancing age, and having a history of multigravida and cesarean section deliveries. Conversely, several factors have been identified as protective factors that can reduce the risk of these mental health issues. These protective factors include planning the pregnancy, having an adequate income, and being employed. It is important

to note that depression, anxiety, and stress are independent risk factors for each other, further emphasizing the need for comprehensive support and intervention for postpartum women.

RECOMMENDATION
Based on the conclusion that highlights the risk and protective factors associated with depression, stress, and anxiety among postpartum women, the following recommendations can be made:
Early identification and screening: Healthcare providers should incorporate routine screenings for depression, stress, and anxiety during the postpartum period. Identifying these issues early on can help initiate timely interventions and support. Education and awareness: It are crucial to raise awareness among healthcare professionals, expectant parents, and society as a whole about the risk factors and protective factors related to postpartum mental health. Support systems: Establishing strong support systems for postpartum women is essential. This includes providing access to mental health services, support groups, and community resources that can assist in managing and preventing mental health issues. Integrated care: Promote a multidisciplinary approach to postpartum care that involves collaboration between obstetricians, mental health professionals, and other healthcare providers.

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