The Prevalence of Antenatal Depression among Women in Medina, Saudi Arabia

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

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ABSTRACT

Background: Antenatal depression is a recognized global burden. However, it has remained an ignored part of public health. Most of the maternal depression interventions have been directed towards post-natal depression.

Purpose of the Study: The purpose of this study was to understand the third-trimester antenatal depression risk factors and prevalence among Saudi Arabian women.

Method: This study employed cross-sectional study design from April 2020 to June 2020 and 201 participants were recruited for this study. The study was conducted at Medina in the Maternity and Children's Hospital (MCH) from April 2020 to June 2020. The inclusion criteria were pregnant women who visited the outpatient clinic of antenatal care in MCH. Pregnant women who had a known familial history or already been diagnosed with depression before pregnancy were excluded from this study. The collection of the data was through researcher administered questionnaire to the pregnant women meeting eligibility criteria who were visiting the clinic of antenatal care at the Maternity and Children's Hospital. Data were collected using a structured and validated Patient Health Questionnaire-9 (PHQ-9). All the collected data were analyzed using descriptive statistics, Anova and t-test statistics.

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Results: Antenatal depression among participants stands at 35.8% for normal/ minimal depression, 31.3% for mild depression, 3.9% for moderate depression, 5.5% for moderately severe, and 3.5% for severe depression. Antenatal depression was mostly prevalent in the third trimester.

Conclusion: The antenatal depression prevalence among pregnant women in Medina is high. Screening for mental health problems and provision of supportive mental health services as a component of antenatal care services is recommended.

1. INTRODUCTION

Depression is a global burden that is highly prevalent in pregnancy [1]. Mothers transitioning through pregnancy to parenthood usually face psychological and social changes that involve anxiety [2]. Up to 25% of women suffer from depression during pregnancy [2,3]. The early, mid (3rd trimester), and post pregnancy prevalence have been estimated at 15.5%, 11.1%, and 8.7% respectively [2]. Pregnancy poses a high vulnerability for depression in women. Surprisingly, a lot of effort has been directed to understanding postpartum depression, ignoring pregnancy associated depression [1]. Yet, by virtue of prevalence, pregnancy associated depression is more wanting to be addressed.

The depressive episodes that begin during pregnancy provide a basis for defining antenatal depression and usually predict possible postnatal depression [4,5]. Evidence shows that the incidence rate of depression in females with a known depression history is 42.5% and that in females without a known depression history is 21.7% [6,7]. Depression affects the health, career, social, and family life of the affected pregnant women [8].

The manifestation of depression is linked to alterations in women's sex hormones and life stressors during or before pregnancy [8,9]. The antenatal depression risk factors are highly identical with those of any other form of depression at any one time. Research shows that the most common depression risk factors during pregnancy are perceived stress, life satisfaction, and social support [10]. A review of 50 studies additionally showed that previous history of depression, life stressors, unplanned pregnancy, lower education, single marital status, Medicaid insurance, domestic violence, lack of social support, lower-income, and smoking significantly contribute to antenatal depression [11]. Other studies have identified other risk factors for depression during pregnancy such as fear of childbirth, pregnancy issues, history of pregnancy loss, poor antenatal care, and poor nutrition [2,12]. In Saudi Arabia, there is little literature on depression during pregnancy and associated risk factors.

Antenatal depression is usually associated with significant psychological and medical issues that can affect both the baby and mother before and affect delivery [13]. Research has mentioned that antenatal depression is highly associated with operative deliveries such as instrumental vaginal deliveries or C-sections, pre-eclampsia, use of epidural analgesics during delivery, postnatal depression, suicidal thoughts, and spontaneous preterm births [14]. For the baby, the risk of low birth weight is highly associated with antenatal depression, decreased fetal movement, and even sudden death [15]. Subsequently, the babies of depressed mothers stand a high likelihood of developing psychological and physical issues after birth [16,17]. Hence, carrying the effects forward to their pregnant life when they grow up. As such, increased early detection of antenatal depression and awareness with suitable psychological interventions particularly for women in the third trimester could decrease the high risk of adverse effects for the pregnant woman's life, family, and newborn child. The purpose of this study, therefore, was to understand the third-trimester antenatal depression risk factors and prevalence among Saudi Arabian women.

1.1 Objectives

- To determine the antenatal depression prevalence for pregnant women attending antenatal care clinic in the Maternity and Children's Hospital in Medina, Saudi Arabia.
- To establish the risk factors for antenatal depression among pregnant women attending antenatal care clinic in the Maternity and Children's Hospital in Medina, Saudi Arabia.

2. METHODS

This study employed a descriptive cross-sectional study design. The study was conducted at Medina in the Maternity and Children's Hospital (MCH) from April 2020 to June 2020. The study participants were pregnant women who visited the outpatient clinic of antenatal care in MCH. Pregnant women who had a known familial history or already been diagnosed with depression before pregnancy were excluded from this study. The sample size was calculated using the formula: n= P (1-P) * $Z\alpha_2$ / d_2 where n is calculated sample size, p is expected proportion in population based on previous studies. Z is the z-value for the selected level of confidence (95%), and d is absolute error or precision (0.05) [18]. These participants were selected randomly. Every 5 to 10 participants per day who reported to the outpatient clinic for antenatal care at MCH and consented to be part of the study were enrolled in the study. This procedure was repeated daily until the sample size was reached.

An already structured Patient Health Questionnaire-9 (PHQ-9) [19] that was researcher self-administered was used to collect data from the participants. This questionnaire consisted of three parts; the socio-demographic data part, the obstetric history part, and the screening for depression among pregnant females part. This tool has previously been used in several other studies; hence, its validity and reliability are sound with high internal consistency. However, to understand this tool's reliability in the current study, it was piloted among 10 participants from a hospital different from the current study setting. Given the limitations of the Covid-19 pandemic, all the hospital Covid-19 initiated standard operating procedures were observed for safety of the researchers and the participants.

The validity of diagnosis for the 9-item PHQ-9 was conducted in different studies involving 7 obstetrical clinics and 8 primary health care units. PHQ-9 scores > 10 for the major depressive disorder had a specificity of 88% and a sensitivity of 88%. The tool's validity and reliability have indicated it has psychometric properties sound. This questionnaire has been shown a high internal consistency. Two different populations of a patient for a study involving produced Cronbach alphas of .86 and .89. By using a mental health professional validity of criteria, which established by the conduction of 580

structured interviews. The interviews results from these showed that between 7 to 13.6 times by the mental health professional are more likely to be diagnosed with depression and on the PHQ-9 who scored high (≥ 10) too. On the other hand, individuals whose scoring is low (≤ 4) on the PHQ-9 and had a less than a 1 in 25 chance of having depression (23). In this study, The Arabic version of PHQ-9 will be used. In the general population for detecting depression, it is a valid and reliable finding of case way. The (Cronbach's alpha = 0.84) in Arabic PHQ-9 was found to have good internal reliability. As for the Arabic PHQ-9 criterion validity, the correlation of Pearson's coefficient between HAD and the PHQ-9 was 0.94 and the correlation of Spearman's coefficient was 0.81. A positive association was indicated in good strength between the two instruments. On the Arabic PHQ-9 a cut-off, score of 10 or higher for detecting depression had a specificity of 83.8 and a sensitivity of 86.2 and (24). The PHQ-9 total score is calculated by adding the 9 items of the participant's responses (Nearly every day=3, more than half of the days=2, several days=1, not at all=0,) and the cut-off points for determining the levels of depression are: total scores 20-27= severe depression, 15-19=moderately severe depression, 10-14=moderate depression, 5- 9=mild depression, 1-4= none or minimal depression).

2.1 Data Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) program version 22. Descriptive statistics were calculated for all the major variables and presented as frequencies. Logistic regression (for not normal distribution) and linear regression (for normal distribution) were used to predict the factors among participants in the first, second, and third trimesters. T-test was used only to compare means between groups. The statistical significance level was set at a p-value of <0.05.

3. RESULTS

The participant's mean age was 30.13 ± 5.97 years, the mean number of pregnancies was 33.71 ± 2.26 pregnancy, and the mean total score of depression was 7.33 ± 5.36. As shown in Table 1, most of the participants (56.7%) were in the third trimester, followed by 32.3% who were in the second trimester, and 10.9% in the first trimester. Seventy percent of the participants reported no disease associated with their

pregnancies. Among those who reported at least a disease associated with their pregnancies, 5.5%, 5.5%, 4.0%, 1.5%, 1.5%, 1.0%, and 0.5% suffer from hypertension, hypothyroidism, Iron deficiency anemia, hypotension, chronic inflammations, asthma, and hyperthyroidism respectively. 68.2% of the participants reported having less than 5 pregnancies and 31.8% reported having 5 and more pregnancies. Regarding the number of children, a participant had, 81.1% reported having less than 5 children while 18.9% have 5 and more children. 35.8% of the participants reported having no or minimal depression, 31.3% had mild depression, 23.9% had moderate depression, 5.5% had moderately severe depression, and 3.5% had severe depression. Concerning how the problems were affecting the participants, most of the participants (43.8%) reported no difficulty at all, 23.9% had somewhat difficulty, 19.4% had reported the problem being very difficult, and 12.9% reported the problem being extremely difficult to them.

Table 2 shows that the mean score among pregnant women in the 1st, 2nd, and 3rd trimesters is 5.86±4.47528, 6.18 ±4.39422, and 8.28 ±5.84082 respectively and this difference is statistically significant (*p=.016*) on ANOVA. A post hoc analysis test was used to identify which exact pairs were different. Only the mean depression score of women in the 2nd and 3rd trimester pair was statically significant (*p= 0.011*). Comparing the means of this pair, the participants in the 3rd trimester were more susceptible to depression compared to those in the 2nd trimester. Surprisingly, when participants with chronic illnesses in pregnancy, their number of pregnancies, and children were compared with mean depression scores on t-tests, the findings were not statistically significant.

Table 1. Frequencies of the social-demographic variables

Variable	Frequency (n=201)	Percentage (%)
Age		
<25	36	17.9
25-35	107	53.2
36-45	87	43.3
>45	61	30.3
Trimester		
1st trimester	22	10.9
2nd trimester	65	32.3
3rd trimester	114	56.7
No diseases associated with pregnancy	142	70.6
Diseases associated with pregnancy		
Diabetes	20	10
Hypertension	11	5.5
Hypothyroidism	11	5.5
Iron deficiency anemia	8	4.0
Asthma	2	1.0
Hyperthyroidism	1	0.5
Number of pregnancies		
Less than 5 pregnancies	137	68.2
5 and more pregnancies	64	31.8
Number of children born to each woman		
less than 5 children	163	81.1
5 and more children	38	18.9
Depression grade		
None/minimal depression	72	35.8
Mild depression	63	31.3
Moderate depression	48	23.9
Moderately severe depression	11	5.5
Severe depression	7	3.5
Impact of problem (depression)		
not difficult at all	88	43.8
somewhat difficult	48	23.9
very difficult	39	19.4
extremely difficult	26	12.9

Table 2. Comparison of the mean depression scores among participants in the first, second, and third trimester of pregnancy

Trimester	N	Mean	Std. Deviation	P-value
1st	22	5.8636	4.47528	.016
2nd	65	6.1846	4.39422	
3rd	114	8.2807	5.84082	
Total	201	7.3383	5.36050	

4. DISCUSSION

Determining the prevalence of and risk factors for antenatal depression among Saudi Arabian pregnant women were the specific objectives of this study. This determination is fundamental to the prevention and management of antenatal depression [1]. Data from 201 participants were analyzed and the mean age of the participants was 30.13 ± 5.97 years with the majority (56.7%) of the participants in the third trimester of pregnancy. This finding indicates that the majority of the pregnant women in Saudi Arabia that go for antenatal care are young women between 25 and 35 years. This observation resonates with the findings in studies elsewhere [20,21] where the majority of the pregnant women seeking antenatal care are younger in age compared to the older ones.

In this study, the prevalence of antenatal depression stands at 31.3% in mild depression, 23.9% in moderate depression, 5.5% in moderately severe depression, and 3.5% in severe depression. In a study by Beyene et al. [20] where depression was not categorized, the prevalence of antenatal depression was found to be 24.45%. This observation is comparable to that of this current study. Additionally, Bunevicius et al. [22] found out that in their study 7.4% of the women had a diagnosis of a depressive disorder at least once during pregnancy. Depressive disorders have become a common disorder among pregnant women however with increasing prevalence in the third trimester. In the current study, most of the depressive disorders were significantly registered among participants in the third trimester. In the study by Bunevicius et al. [22] this observation is linked to unplanned and unwanted pregnancy, high neuroticism, and occurrence of psychosocial stressors among women.

In the current study, the observed antenatal depression disorders have been associated with pregnancy related diseases and an increasing number of pregnancies. The majority (43.8%) of the participants reported that depression did not create any difficulty for them. This observation

might be explained by the findings in the study by Beyene et al. [22] that indicate that antenatal depression is largely a neglected public health problem among pregnant women. Subsequently, Dadi et al. [23] in their study indicated that antenatal depression does not cause fatal outcomes has contributed largely to the low intervention priority among the potential victims. However, it's important to note that when not well attended to, antenatal depression increases the risk of adverse pregnancy outcomes, particularly preterm birth risk [23]. This association can be explained in three ways: First, depression may cause the production of Hypothalamic-Pituitary-Adrenocortical Axis that stimulates the production of stress hormones such as cortisol. Cortisol interrupts adequate oxygen and nutrient flow to the fetus [22]. Secondly, depression can disrupt the immune system functioning causing infections that affect fetal growth [20]. Lastly, depressed mothers have a poor appetite and can even smoke and take alcohol that nutritionally affects the fetus [21].

Although not included in this study, evidence shows that other factors are associated with antenatal depression. These factors include; low level of education, low economic income, unplanned pregnancy, a history of psychological disorders like depression, anxiety, stress, and low social support during pregnancy [1,21]. Additionally, pregnant women from poor marital relationships and experiencing domestic violence are more susceptible to antenatal depression than the rest of the pregnant women [23].

5. CONCLUSION

The objectives of this study were met. The prevalence of antenatal depression among the participants in this study varies from 31.3% for mild depression, 23.9% for moderate depression, 5.5% for moderately severe depression, and 3.5% for severe depression. Although several factors can be associated with antenatal depression among women, in this study the third trimester of pregnancy significantly demonstrated being riskier to the development of antenatal depressive disorders compared to the first and

second trimesters. Screening for mental health problems and provision of supportive mental health services as a component of antenatal care services is recommended.

6. LIMITATIONS

The study requires a larger sample size to ensure a representative distribution of the population.

7. RECOMMENDATIONS

Given the above findings and discussion, there is a need to screen all pregnant women for depression as part of routine antenatal care so that appropriate care is given to them. The health care system needs to consider antenatal depression a priority in obstetrics for better maternal and child health.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

ETHICAL APPROVAL AND CONSENT

The ethical approval was obtained from the Review Ethical Committee of the faculty of medicine, Taibah University under study ID PEP4-F12 v2. Additional approval was obtained from the administration of the Maternity and Children's Hospital. Informed consent was sought from the participants before interviewing them.

All the information was handled with confidentiality under password protected computers to ensure the participants' information doesn't leak to the public.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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