Original article :

A cross-sectional study of the predisposition to anxiety during pregnancy in Saudi Arabia: magnitude and risk factors

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Abstract

Background and aims:
Under normal circumstances, pregnancy is a somewhat stressful condition, but for women who are prone to anxiety, it can be more complex . The objectives of this study were to identify the magnitude of anxiety among pregnant women attending the Najran Maternity & Children's Hospital (Najran City, Saudi Arabia) and to examine the correlates that may play a role in the development of anxiety during pregnancy.

Methods:
This cross-sectional study was conducted at Najran Maternity & Children's Hospital. Data were collected from 410 women through questionnaire-based interviews to gather psycho-sociodemographic, medical and gestational data. The screening of anxiety was scaled by the generalized anxiety disorder-7 (GAD-7) scale.

Result:
A total of 410 pregnant women participated in this study. In total, 11% of the participants suffered from

الملخص

الخلفية و الاهداف:
في الظروف العادية ، يعتبر الحمل حالة مقلقة إلى حد ما ، ولكن بالنسبة للنساء المعرضات للقلق ، يمكن أن يكون الحمل أكثر تعقيدًا. تهدف هذه الدراسة الى تقييم الاستعداد للقلق أثناء الحمل بين النساء اللواتي يترددن على مستشفى نجران للولادة والأطفال (مدينة نجران، المملكة العربية السعودية) وتحديد عوامل الخطر.
طريقة البحث: أجريت هذه الدراسة المقطعية في مستشفى نجران للولادة والأطفال. تم جمع البيانات من ٤١٠ امرأة من خلال المقابلات المستندة إلى الاستبيان لجمع البيانات النفسية الاجتماعية والديموغرافية والبيانات الطبية والحمل. تم تقييم الاستعداد للقلق وفقا لمقياس القلق العام (GAD-7).

النتائج:
شاركت ٤١٠ امرأة حامل في هذه الدراسة. في المجموع، عانت ١١ ٪ من المشاركات من القلق أثناء الحمل. أظهر تحليل الانحدار متعدد المتغيرات المرض النفسي وكانت الضغوطات الرئيسية تنبئ عن القلق أثناء الحمل.

الخلاصة:
إن الاستعداد للقلق أثناء الحمل ليس شائعًا بين النساء اللاتي ترددن على مستشفى نجران للولادة والأطفال ويرتبط بالنتائج السلبية. إن توفير رعاية جيدة قبل الولادة للنساء الحوامل عن طريق فحص

anxiety during pregnancy. Multivariate regression analysis showed psychiatric illness and feeling of being stressed were significant correlates of anxiety during pregnancy.

Conclusion:
The anxiety disorder during pregnancy is associated with adverse pregnancy outcomes. Thus, the proper antenatal care to identify and manage anxiety among pregnant women might benefit the psychological and physical health of pregnant women, their children, and families. It is necessary to consider all possible various biopsychosocial factors that account for anxiety occurrence during pregnancy.

Keywords:
anxiety, pregnancy, screening, antenatal care, prevalence

القلق، وتعديل عوامل الخطر وإدارة المرضى وفقًا لذلك سيعزز من رفاهية الأم والطفل والأسرة على المدى الطويل

Introduction

Under normal circumstances, pregnancy is a somewhat stressful condition, but for women who are prone to anxiety, it can be more complex. In general, approximately 21% of pregnant women have clinically significant symptoms of anxiety [1]. Local studies have shown that the prevalence of anxiety during pregnancy ranges from 23.6% to 30% [2,3].

Anxiety during pregnancy is a predictor of adverse maternal and child outcomes [4].

Anxiety during pregnancy is associated with a variety of maternal consequences including increased number of irrational visits to health services, severe nausea and vomiting, pre-eclampsia, spontaneous preterm labor, unnecessary elective cesarean section, a more difficult labor and delivery with an increased risk of post-traumatic stress disorder (PTSD) symptoms related to birth [5]. Moreover, there are consequences of anxiety during pregnancy for the child including preterm birth, low birth weight, admission to neonatal intensive care and difficulties in receiving proper care after delivery [1]. The effects of anxiety during pregnancy on the health of the child are serious and long-term, including adverse biological, mental, and behavioral effects [6].

Biological changes during pregnancy might explain such emotional instabilities.

However, psychosocial, medical, and antenatal care factors may play a role in the development of anxiety during pregnancy. Correlational studies have shown significant associations between anxiety during pregnancy and low level of education, unemployment, unplanned pregnancy, no family support, no or low income, negative life events, multiparity, history of miscarriage, a history of depression, chronic disease and gestational diabetes [2,3,7].

Taking into account the seriousness of the pregnancy period, we have assessed our practice to a establish comprehensive care model for pregnant women either by prevention of anxiety or early detection to ensure better pregnancy outcomes.

The objectives of the study were to identify the magnitude of anxiety among pregnant women attending the Najran Maternity & Children Hospital in Najran, Saudi Arabia and to examine the correlates that may play a role in the development of anxiety during pregnancy.

Methods

This cross-sectional study was conducted at Najran Maternity & Children's Hospital, which provides the majority of antenatal care in Najran City, in southwestern Saudi Arabia, from June to August 2017. Using simple random sampling, 410 women were recruited from the study population consisting of all pregnant women attending the antenatal clinic (ANC) during the study period and provided verbal consent to participate in the study. The screening of anxiety was scaled by the generalized anxiety disorder-7 (GAD-7) scale. This is the most extensively validated screening tool used to measure the severity of GAD, with a score of 10 or more having good diagnostic sensitivity and specificity. This scale was created by Spitzer et al., with an educational grant from Pfizer Inc[8]. The Arabic translation was downloadable from patient health questionnaire (PHQ) screeners website (https://www.phqscreeners.com/select-screener/41); no permission is required to reproduce, translate, display or distribute this information. The scale consists of seven items and total scores range from 0 to 21. A score of 10 or greater is the cutoff for screening of anxiety and further evaluation is recommended [8].

While dependent variable is anxiety symptoms among pregnant women , and independent variables are all the psycho-sociodemographic, medical, gestational characteristics (age, nationality, educational status, occupation, history of psychiatric illness, family support, level of family support, feeling of being stressed, stress control, medical illnesses, medications, parity, cesarean section, miscarriage, gestational

age, risk categories, family planning, antenatal follow up, number of visits, antenatal care provider, and antenatal care place). All data were obtained through questionnaire-based interviews.

The study was conducted with the approval of the Research Ethics Committee of Najran University Faculty of Medicine. Participant confidentiality was ensured for the purposes of the study.

The statistical analysis program (SPSS v.21) was been used in the study in data entry and analysis, with the use of necessary statistical methods to achieve the objectives of the study. The following statistical methods were used: Frequencies & Percentages: which is used for describing personal data for the study sample. Mean: to identify the level for the generalized anxiety disorder-7 (GAD-7) scale. Standard Deviation: shows how much variation or dispersion exists from the average (mean). Chi-Squared Test: to test differences in the distribution of responses to questions. T-test for independent samples: To test the presence of statistically significant difference in the anxiety level among pregnant women attending antenatal clinic according to nationality and occupation. Analysis of Variance- ANOVA: To test for the presence of statistically significant difference in the anxiety level among pregnant women attending antenatal clinic according to age and education level. P-value ≤ 0.05 was considered to indicate statistical significance.

Results

In total, 410 pregnant women have participated in the study with a 100% response rate in direct interviews. The psycho-sociodemographic characteristics of the participants are shown in Table 1. The majority (69%) of the participants in this study were aged between 20 and 35 years and 88% were Saudi. Among the participants, 62% were educated to secondary level or below. Five (1.2 %) of pregnant women were diagnosed with a psychiatric disease. During pregnancy; 9% of the participants had feeling of being stressed, which most of them (73%)were under control.

Table 1. Psycho-sociodemographic characteristics of participants

Demographic/psychosocial data		No.	%
Age (years)	<20	23	5.6
	20–35	283	69.0
	>35	104	25.4
Nationality	Saudi	363	88.5
	Non-Saudi	47	11.5
Education level	Illiterate	44	10.7
	Primary	86	21.0
	Pre-university	125	30.5
	University	121	29.5
	Postgraduate	34	8.3
Occupation	Yes	87	21.2
	No	323	78.8
History of psychiatric illness	No	405	98.8%
	Yes	5	1.2%
Family support	Yes	397	96.8%
	No	13	3.2%
Level of family support (n = 403) (self-perceived)	Satisfied	393	95.9%
	Not satisfied	17	4.1%
Feeling of being stressed	No	373	91.0%
	Yes	37	9.0%
Stress control, (n = 37)	Under control	27	73.0%
	Out of control	10	27.0%

The medical characteristics of participants are shown in Table 2. Three hundred and seven (74.9%) of pregnant women had no medical history, The others (25.1%) had some chronic illnesses.

Table 2. Medical characteristics of participants

Medical data		No.	%
Medical illnessess	No illness	307	74.9
	DM	12	2.9
	HTN	13	3.2
	DVT	7	1.7
	Hypothyroidism	19	4.6
	Anemia	27	6.6
	Other	25	6.1
Medications history	No	336	82.0
	Yes	74	18.0

The gestational characteristics of participants are shown in Table 3. The majority (76.8%) of our participants were multiparous and 66% had no history of cesarean section. More than half of participants had planned for the preganancy and they were in the third trimester. Of the participants, 78% received regular follow-up during antenatal visits with 57% receiving follow-up health care from multiple providers.

Table 3. Gestational characteristics of participants

Gestational data		No.	%
Parity	Nulli-parous	95	23.2
	Para-4 or less	224	54.6
	Para-5 or more	91	22.2
Cesarean section	No	271	66.1
	One	81	19.8
	Two or more	58	14.1
Miscarriage	No	248	60.5
	≤2	140	34.1
	≥3	22	5.4
Gestational age	1st trimester	37	9.0
	2nd trimester	134	32.7

Gestational age	3rd trimester	239	58.3
Risk category	Low risk	355	86.6
	High risk	55	13.4
Family planning	Planned	211	51.5
	Unplanned	199	48.5
Antenatal follow-up	Regular	320	78.0
	Irregular	90	22.0
Number of visits	1–4	159	38.7
	5–11	251	61.3
Antenatal care provider	One	176	42.9
	Multiple	234	57.1
Antenatal care place	PHC	25	6.1
	Maternity hospital	150	36.6
	Private sector	2	0.5
	Mixed	233	56.8

The results of multivariate regression analysis predicting the correlates that have a role to play in the development of anxiety during pregnancy from the psycho-sociodemographic, gestational and medical variables are shown in Table 4. Where the results of Logistic regression analysis revealed that feeling of being stressed significantly increased the odds ratio of anxiety during pregnancy (P = 0.002). History of psychiatric illness also significantly increased the odds ratio of anxiety during pregnancy (P = 0.01).

Table (4): Correlationbetween anxiety during pregnancy and the psycho-sociodemographic, gestational, and medical characteristics

Variable	Odds Ratio	95% C.I.)		P-value
		Lower	Upper	
Age	1.270	.701	2.302	.430
Nationality	.879	.322	2.398	.801
Education level	.858	.632	1.164	.325
Occupation	.670	.294	1.529	.342
History of psychiatric illness	13.004	1.843	91.767	.010
Family support	2.943	.251	34.459	.390
Level of support (self -perceived)	.370	.041	3.316	.374
Feeling of being stressed	50.096	4.303	583.254	.002
Stress control,	.210	.032	1.368	.103
Medical history	1.106	.912	1.343	.306

Medications history	1.692	.644	4.446	.286
Parity	1.002	.555	1.809	.994
Cesarean section	1.400	.890	2.204	.146
Miscarriage	.987	.540	1.805	.967
Gestational age	.880	.412	1.880	.742
Risk categories	1.729	.713	4.195	.226
Family planning	1.154	.559	2.379	.699
Antenatal care	1.719	.540	5.474	.359
Number of visits	1.022	.816	1.280	.850
health provider	.295	.027	3.196	.315
Place of care	1.935	.624	5.999	.253

CI – Confidence Interval. *Significant at p-≤0.05.

Discussion

It is not unusual for a pregnant woman to be anxiouse about her and baby's health within normal coping capacity. However,untreated maternal anxiety during pregnancy may lead to negative obstetrical outcomes, postpartum effects, and impact on family health as well as the child [9]. The study to uncover how much the magnitude of the anxiety among pregnant women attending the Najran Maternity & Children's Hospital and what the correlates that may play a role in the development of anxiety during pregnancy.

It is found that around 11% of pregnant women have positive symptoms of anxiety and further evaluation is recommended. This figure is not consistent with the fact that one-third of the general population is affected by an anxiety disorder during their lifetime, the majority are women and particularly during midlife [10]. If we assume pregnancy is extra-stressor; so this percentage should increase during pregnancy. In a similar study conducted in Singapore, 12.5% of pregnant women had anxiety [11]. In contrast, a study in China identified anxiety in 20.6% of participants [12]. Furthermore, a study in urban South Africa showed a prevalence of anxiety disorders of 23% [13]. Another study in Brazil showed a high incidence (58.5%) of anxiety among pregnant women [14]. Moreover, a similar study conducted in Brazil showed 26.8% of participants suffered from anxiety [15]. A study conducted at the University Hospital of Imam Abdulrahman Bin Faisal University in Saudi Arabia showed 23.6% of participants experienced anxiety during pregnancy [2] .

This variation in the prevalence of anxiety during pregnancy suggests the role of cultural background in an assessment of the

psychological aspect of individuals. Problematically for identify the symptoms of prenatal anxiety, may be mistaken as normal changes of pregnancy. Even though mental health has advanced in recent times in neurobiology and psychopharmacology, but still its roots are in a sociological perspective. It is because the symptoms of mental illness are only expressed in a social context. Therefore; it is a necessity to realize that visualizing anxiety disorder is not exclusively biological and that there are various biopsychosocial factors that account for anxiety occurrence [16].

Although people differ in their definition of stressor, it is clear that there is a strong link between serious or long-lasting stress and the presence of anxiety symptoms during pregnancy. Where current studies suggest that prenatal stress is associated with preterm birth, low birth weight, and peripartum anxiety [17]. The study revealed that the odds of pregnant women who feel of being stressed to get anxiety are 50 times. Despite, the effects of stress on pregnancy are not well understood; certain stress-related hormones may play a role in causing certain pregnancy complications (e.g. high blood pressure, decrease immunity competency, and mental health). Therefore, reduce stress among pregnant women might benefit the psychological and physical health of mother and baby [17].

we also noted a strong association between prenatal anxiety symptoms and a history of psychiatric illness; odds antenatal anxiety was 13 times greater in those who have a positive history of psychiatric illness compared to those who have a negative history of psychiatric illness. Usually, anxiety disorders exhibit comorbidity with other Axis I diagnoses and this coexisting may be common in the pregnancy as well [18]. This agrees with a study conducted in Malaysia, where concluded that a positive history of mental illness and depressive comorbidity associated factors with antenatal anxiety [19].

Based on the sound clinical and social context; the study hypothesized that young age, providing satisfied family support, planned conceive, regular antenatal follow up, and free of medical illnesses might play a good role to prevent or minimize anxiety during pregnancy. Despite this may make a further explanation of the low prevalence of antenatal anxiety in the study, but we could not prove it or reject it statistically. A similar study was conducted at King Fahd University Hospital, in Al-Khobar city revealed that anxiety was higher among pregnant women with an unplanned pregnancy, recurrent miscarriage, and unemployment [2]. Moreover, one more study conducted in 2016 by King Abdulaziz Medical City (KAMC) in Riyadh, Saudi Arabia showed

pregnant Saudi women with no or low income, chronic disease, no family support reported high levels of stress [3].

Conclusion

Anxiety disorder during pregnancy is associated with adverse pregnancy outcomes. Thus, the proper antenatal care to identify and manage anxiety among pregnant women might benefit the psychological and physical health of pregnant women and their infants [20]. Comprehensively; it is necessary to consider all possible various biopsychosocial factors that account for anxiety occurrence during pregnancy.

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