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Research Article

Anxiety in Pregnancy: Comparing High-Risk and Normal Pregnant Women through the Beck Anxiety Inventory

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Abstract

Aim: Pregnancy is a critical life event that necessitates adaptation to numerous physical and psychological changes. While it often brings positive emotions, it can also induce significant stress and anxiety, especially in high-risk scenarios with potential maternal and fetal health concerns. This study aims to investigate whether there is a difference in anxiety levels between pregnant women under routine obstetric care and those under perinatology care for high-risk pregnancies.

Material and Method: This cross-sectional survey was conducted at the Giresun Training and Research Hospital Obstetrics and Gynecology Hospital. Ninety pregnant women aged 18-40 were divided into two groups: 45 women receiving routine obstetric care (Group I) and 45 women receiving perinatology care for high-risk pregnancies (Group II). Data were collected using a 20-question socio-demographic and medical characteristics questionnaire, along with the Beck Anxiety Inventory.

Results: The study found no significant difference in socio-demographic characteristics such as education, employment, and income status between the two groups (p>0.05). The Beck Anxiety Inventory scores indicated that both groups predominantly experienced low-level anxiety: 82.2% in Group I and 86.7% in Group II. Moderate anxiety was reported by 15.6% of Group I and 11.1% of Group II. Only 2.2% of participants in each group experienced severe anxiety. There was no significant difference in the overall anxiety levels between the two groups (p>0.05), although Group I reported higher heart palpitations (p<0.05).

Conclusion: The findings suggest that while high-risk pregnancies managed by perinatology specialists do not significantly differ in overall anxiety levels from normal pregnancies, specific anxiety symptoms like heart palpitations may vary. This underscores the need for targeted anxiety management interventions for pregnant women, regardless of risk status, to ensure better maternal and fetal outcomes.

Keywords: Pregnancy anxiety, Beck Anxiety Inventory, perinatology, anxiety management in pregnancy

INTRODUCTION

Pregnancy is a pivotal period of profound physiological, emotional, and psychological transformations. While it is often a time filled with anticipation and joy, it can also be fraught with significant stress and anxiety. Various factors, including hormonal changes, physical discomforts, and concerns about the health and well-being of the fetus and the impending responsibilities of motherhood, influence these psychological states during pregnancy (1).

The prevalence of anxiety during pregnancy is notably high, with studies indicating that approximately 15-23% of pregnant women experience clinically significant anxiety symptoms (2). Anxiety during pregnancy is not only distressing for the expectant mother but also has been associated with adverse outcomes for both the mother and the fetus. Elevated anxiety levels have been linked to complications such as preterm birth, low birth weight, and developmental issues in children. Additionally, high

maternal anxiety can adversely affect maternal-infant bonding, potentially leading to long-term emotional and behavioural problems in children (3).

High-risk pregnancies, defined by the presence of medical or obstetric complications that may endanger the health of the mother or fetus, further amplify the psychological burden on expectant mothers. These complications can include conditions such as preeclampsia, gestational diabetes, and fetal growth restrictions, among others. Women with high-risk pregnancies are subjected to more frequent medical interventions and heightened monitoring, which can exacerbate feelings of anxiety and stress. The uncertainty surrounding the pregnancy outcome and the potential for adverse events create a significant psychological strain on these women (4,5).

Perinatology, a subspecialty of obstetrics, focuses on managing high-risk pregnancies. Perinatologists are crucial in identifying, monitoring, and managing risk factors

to optimise maternal and fetal outcomes (6,7). However, the psychological support provided to these women is equally vital. Studies have shown that psychological interventions, including counselling, stress management techniques, and social support, can significantly alleviate anxiety and improve pregnancy outcomes (8).

The purpose of this study was to investigate the differences in anxiety status in pregnant women receiving routine obstetric care and pregnant women under the supervision of perinatologists for high-risk pregnancies. By utilising the Beck Anxiety Inventory (BAI), a widely recognised tool for assessing anxiety, this study seeks to provide a comprehensive comparison of anxiety levels in these two distinct groups of pregnant women. Understanding these differences is essential for developing targeted interventions to support the mental health of all pregnant women, especially those facing high-risk conditions.

Through this research, we aim to highlight the importance of addressing psychological well-being in prenatal care and underscore the need for comprehensive support systems for expectant mothers, ensuring both their mental health and optimal pregnancy outcomes.

MATERIAL AND METHOD

The local ethics committee of Giresun Training and Research Hospital approved the study protocol. Participants were recruited from the Obstetrics and Perinatology Outpatient Clinics. After obtaining informed consent, participants were asked to complete the socio-demographic and medical characteristics questionnaire, followed by the Beck Anxiety Inventory. The data was collected in a private and comfortable setting to ensure the participants' confidentiality and comfort. This study was conducted following the relevant ethical principles of the Declaration of Helsinki, which was revised in 2013.

The study included pregnant women aged 18-40 who were literate and had no communication barriers, ensuring they could understand and complete the questionnaire. Participants were required to be willing to participate in the study, as indicated by their informed consent. Exclusion criteria were multiple pregnancies, which presented different risk factors, psychological challenges, and refusal to participate in the study. These criteria ensured a focused and comparable study population, allowing for a clear assessment of anxiety levels in routine obstetric care versus high-risk perinatology care.

This cross-sectional survey was conducted at the Giresun Training and Research Hospital Obstetrics and Gynecology Clinic. The study population consisted of pregnant women attending the Obstetrics and Perinatology Outpatient Clinics for pregnancy follow-up. A total of 90 pregnant women aged 18-40 were included in the study. Participants were divided into two groups: 45 women receiving routine obstetric care (Group I) and 45 women under perinatology care for high-risk pregnancies (Group II).

The BAI consists of 21 questions, with each response rated on a scale from 0 (none) to 3 (severe). The standardised cut-off points are as follows: 0-7 indicates minimal anxiety, 8-15 indicates mild anxiety, 16-25 indicates moderate anxiety, and 26-63 indicates severe anxiety. The demographic data of the patients were obtained from patient records. The Beck anxiety inventory scale (9) is shown in Table 1.

Table 1. Beck anxiety inventory				
	Not at all	Mildly, but it didn't bother me much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot
Numbness or tingling	0	1	2	3
Feeling hot	0	1	2	3
Wobbliness in legs	0	1	2	3
Unable to relax	0	1	2	3
Fear of worst happening	0	1	2	3
Dizzy or lightheaded	0	1	2	3
Heart pounding/racing	0	1	2	3
Unsteady	0	1	2	3
Terrified or afraid	0	1	2	3
Nervous	0	1	2	3
Feeling of choking	0	1	2	3
Hands trembling	0	1	2	3
Shaky/unsteady	0	1	2	3
Fear of losing control	0	1	2	3
Difficulty in breathing	0	1	2	3
Fear of dying	0	1	2	3
Scared	0	1	2	3
Indigestion	0	1	2	3
Faint/lightheaded	0	1	2	3
Face flushed	0	1	2	3
Hot/cold sweats	0	1	2	3
Column sum				

Statistical Analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS) 26.0 Statistics package programme. The categorical data of pregnant women who applied to the obstetrics outpatient clinic and perinatology outpatient clinic were given as numbers and percentages, and continuous variables were given as mean and standard deviation. The conformity of the patients' age, items of the Beck Anxiety Scale and total scores to normal distribution was determined by looking at the skewness and kurtosis values. It was decided that the items of the Beck anxiety scale, except for the items of loss of balance, shakiness, fear of losing control and fainting, complied with the rules of normal distribution. The reference value taken in a normal distribution is between ±1.96. The chi-square test was used to compare the demographic, social status, health and family status values of pregnant women who applied to the obstetrics outpatient clinic and perinatology outpatient clinic. Independent Sample T Test or Mann Whitney U Test was used to test whether there was a significant difference between the Beck anxiety levels of pregnant women who applied to obstetrics outpatient clinic and perinatology outpatient clinic. In the study, significance levels were carried out by considering 0.05 and 0.01 values.

RESULTS

The study included 90 pregnant women, divided equally into two groups: 45 women receiving routine obstetric care (Group I) and 45 women under perinatology care for high-risk pregnancies (Group II). The socio-demographic characteristics of the participants were generally similar between the two groups. In Group I, 60% of the women were high school graduates, and 40% were university graduates. In Group II, 46.7% were high school graduates, and 53.3% were university graduates. The employment rate was consistent across both groups at 60%. Most participants in both groups reported that their income and expenses were balanced. Social security coverage was reported by 73.3% of Group I and 88.9% of Group II participants. Most participants in both groups desired their pregnancies (Group I: 91.1%; Group II: 97.8%), and very few reported consanguineous marriages (Group I: 6.7%; Group II: 0%). These differences were not statistically significant (p>0.05).

The educational status of the participants' husbands showed some variation. In Group I, 22.2% of the husbands had education levels of secondary school or below, 46.7% were high school graduates, and 31.1% were university graduates. In Group II, 20% had education levels of secondary school or below, 24.4% were high school graduates, and 55.6% were university graduates. This difference in husbands' educational status was statistically significant (p<0.05).

The mean age of the pregnant women in Group I was 28.71 years, and in Group II, it was 29.84 years, showing no significant difference (p>0.05).

Table 2 compares the demographic and social status of pregnant women who applied to the obstetrics outpatient clinic and the perinatology outpatient clinic.

Table 2. Comparison of demographic and social status of pregnant women admitted to obstetrics outpatient clinic and perinatology outpatient clinic					
Demographic and social situation		**Gynaecology outpatient clinic (n: 45)**		**Perinatology outpatient clinic (n:45)**		**p**
		Number	**%**	**Number**	**%**	
Education level	High school and below	27	60.0	21	46.7	0.291
	University	18	40.0	24	53.3	
Employment status	Working	18	40.0	18	40.0	1.000
	Housewife	27	60.0	27	60.0	
Income status	Income less than expenditure	8	17.8	10	22.2	0.801
	Income equal to expenditure	27	60.0	27	60.0	
	Income more than expenditure	10	22.2	8	17.8	
Presence of social security	Exist	33	73.3	40	88.9	0.106
	None	12	26.7	5	11.1	
Husband's education level	Secondary school and below	10	22.2	9	20.0	**0.043***
	High school	21	46.7	11	24.4	
	University	14	31.1	25	55.6	
Desire for pregnancy	Exist	41	91.1	44	97.8	0.357
	None	4	8.9	1	2.2	
Consanguineous marriage status	Exist	3	6.7	0	0.0	0.242
	None	42	93.3	45	100.0	
		Med.±S.D (Min.-Max.)		**Med.±S.D (Min.-Max.)**		
Age^t		28.71±4.47 (18-38)		29.84±4.88 (21-42)		0.254

*p<0.05, **p<0.01, χ²: Chi-square test (Categorical data), t: Independent Sample T Test; Med: median, S.D: standart deviation

Among the participants, 4.4% of Group I and 2.2% of Group II had a disabled child. The distribution of first pregnancies was largely similar in both groups. Stillbirths were reported by 13.3% of Group I and 11.1% of Group II participants. Both groups demonstrated regular doctor visits and reported having a good marital life. These health

and family status distributions showed no significant differences between the two groups (p>0.05).

Table 3 compares the health and family status of pregnant women who applied to the obstetrics outpatient clinic and the perinatology outpatient clinic.

Table 3. Comparison of health and family status of pregnant women who applied to obstetrics outpatient clinic and perinatology outpatient clinic		Gynaecology outpatient clinic (n: 45)		Perinatology outpatient clinic (n: 45)		p
Health and family situation		**Number**	**%**	**Number**	**%**	
Presence of children with disabilities	Exist	2	4.4	1	2.2	1.000
	None	43	95.6	44	97.8	
Number of pregnancies	First pregnancy	18	40.0	20	44.4	0.887
	2-3rd pregnancy	22	48.9	21	46.7	
	4th and above	5	11.1	4	8.9	
Number of stillbirths	Exist	6	13.3	5	11.1	1.000
	None	39	86.7	40	88.9	
Regular medical check-ups	Not regular	5	11.1	1	2.2	0.203
	Regular	40	88.9	44	97.8	
Status of married life	Not bad	4	8.9	2	4.4	0.700
	Good	19	42.2	20	44.4	
	Very good	22	48.9	23	51.1	

*p<0.05, **p<0.01, χ^2: Chi-square test (Categorical data)

The BAI scores were used to assess anxiety levels. The mean BAI score for Group I was 13.53, while for Group II, it was 12.33. This difference was not statistically significant (p>0.05).

In Group I, 82.2% of participants exhibited low-level anxiety, 15.6% had moderate anxiety, and 2.2% had severe anxiety. In Group II, 86.7% of participants showed low-level anxiety, 11.1% had moderate anxiety, and 2.2% had severe anxiety. The distribution of anxiety levels between the two groups was not significantly different (p>0.05).

However, a significant difference was observed in the heart palpitations item of the BAI. Group I participants had a mean heart palpitations score of 0.91, compared to 0.51 in Group II (p<0.05), indicating that heart palpitations were more common in women receiving routine obstetric care than those under perinatology care.

The comparison of Beck anxiety scores of pregnant women who applied to the obstetrics outpatient clinic and perinatology outpatient clinic is shown in Table 4.

Table 4. Comparison of Beck Anxiety Scores of pregnant women admitted to obstetrics outpatient clinic and perinatology outpatient clinic	Gynaecology outpatient clinic (n: 45)	Perinatology outpatient clinic (n: 45)	p
Questions and responses	**Med.±S.D**	**Med.±S.D**	
Numbness or tingling[t]	0.67±0.74	0.71±0.76	0.779
Feeling hot[t]	1.09±0.95	0.84±0.74	0.176
Wobbliness in legs[t]	0.69±0.87	0.62±0.78	0.703
Unable to relax[t]	0.51±0.76	0.56±0.66	0.767
Fear of worst happening[t]	0.73±1.01	1.04±0.88	0.122
Dizzy or lightheaded[t]	0.82±0.83	0.76±0.80	0.700
Heart pounding/racing[t]	0.91±1.04	0.51±0.69	**0.035***
Unsteady[z]	0.47±0.63	0.27±0.50	0.083
Terrified or afraid[t]	0.44±0.76	0.44±0.76	1.000
Nervous[t]	1.16±0.85	1.16±0.80	1.000
Feeling of chocking[t]	0.49±0.76	0.53±0.76	0.781
Hands trembling[t]	0.33±0.56	0.38±0.58	0.712
Shaky/unsteady[z]	0.20±0.46	0.11±0.38	0.228
Fear of losing control[z]	0.27±0.50	0.18±0.44	0.307
Difficulty in breathing[t]	0.76±0.83	0.56±0.62	0.200
Feel of dying[t]	0.44±0.76	0.49±0.66	0.767
Scared[t]	0.64±0.80	0.76±0.77	0.505
Indigestion[t]	1.36±0.93	1.27±1.01	0.665
Faint/lightheaded[z]	0.38±0.68	0.24±0.53	0.394
Face flushed[t]	0.44±0.66	0.40±0.62	0.742
Hot/cold sweats[t]	0.73±0.81	0.51±0.69	0.166
Beck Anxiety Score[t]	**13.53±9.52**	**12.33±8.17**	0.523

*p<0.05, **p<0.01, t: Independent Sample T Test; z: Mann Whitney U Test; Med: median, S.D: standart deviation

The Beck Anxiety Inventory scores for pregnant women attending the obstetrics outpatient clinic averaged 13.53, while those for women at the perinatology outpatient clinic averaged 12.33. These results indicate that there was no significant difference in the anxiety levels between the two groups (p>0.05). Figure 1 illustrates the Beck Anxiety Inventory scores for both the obstetrics and perinatology outpatient clinic groups.
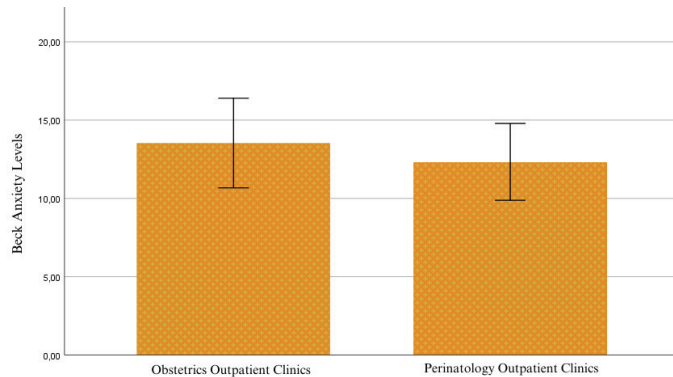

Figure 1. Beck anxiety levels of pregnant women admitted to obstetrics outpatient clinic and perinatology outpatient clinic

Of the pregnant women attending the obstetrics outpatient clinic, 82.2% exhibited low-level anxiety, 15.6% showed moderate anxiety, and 2.2% experienced severe anxiety. In comparison, among those at the perinatology outpatient clinic, 86.7% had low-level anxiety, 11.1% had moderate anxiety, and 2.2% had severe anxiety. The distributions of Beck Anxiety Inventory levels between the two groups did not differ significantly (p>0.05). Table 5 presents the comparison of Beck anxiety levels between pregnant women at the obstetrics and perinatology outpatient clinics.

Table 5. Comparison of Beck anxiety levels of pregnant women admitted to obstetrics outpatient clinic and perinatology outpatient clinic

Beck anxiety levels	Gynaecology outpatient clinic (n: 45)		Perinatology outpatient clinic (n: 45)		p
	Number	%	Number	%	
Low-level anxiety	37	82.2	39	86.7	0.877
Moderate anxiety	7	15.6	5	11.1	
Severe anxiety	1	2.2	1	2.2	

*p<0.05, **p<0.01, χ²: Chi-square test (Categorical data)

DISCUSSION

The principal aim of this study was to assess and contrast the prevalence of anxiety disorders between pregnant women who received standard obstetric care and those who were under the care of a perinatologist for pregnancies deemed high-risk. This was achieved by utilising the BAI. The findings indicate that, although the overall anxiety levels were comparable between the two groups, specific symptoms, such as heart palpitations, were more prevalent among women receiving routine obstetric care.

These findings are in alignment with those of numerous studies that have investigated anxiety in pregnant populations. For example, Dunkel Schetter and Tanner have reported that approximately 15-23% of pregnant women experience clinically significant anxiety symptoms, thereby underscoring the pervasive prevalence of anxiety during pregnancy (10). In accordance with the aforementioned findings, our study revealed that a considerable proportion of participants from both groups exhibited low to moderate anxiety levels, with no notable discrepancy in the overall BAI scores.

Moreover, Field et al. have demonstrated that elevated anxiety levels during pregnancy are associated with adverse outcomes, including preterm birth and low birth weight (11). Although our study did not directly assess pregnancy outcomes, the comparable anxiety levels observed in both groups indicate that substantial psychological stress can impact both high-risk and normal pregnancies, emphasising the necessity for meticulous monitoring and prompt intervention. As evidenced by studies such as those conducted by Howard et al., antenatal anxiety has been identified as a predictor of adverse birth outcomes. This reinforces the importance of addressing anxiety during prenatal care (12).

In contrast, a study by Cumberbatch et al. reported that anxiety levels are typically higher among women with high-risk pregnancies than those with normal pregnancies (13). This discrepancy may be attributed to differences in the characteristics of the samples, the methods of anxiety assessment employed, or the specific risk factors present in the high-risk group. Our findings indicate that the prevalence of heart palpitations was higher in the routine obstetric care group, suggesting that anxiety symptoms may vary based on the type of care provided and the perceived level of risk. This is corroborated by recent findings from Pascal et al., who observed that anxiety manifestations, such as physical symptoms, were more pronounced in settings where perceived medical support was less specialised (14).

The notable discrepancy in heart palpitation scores between the two groups may suggest that women receiving routine obstetric care experience more pronounced physical manifestations of anxiety than those under perinatology care. This may be attributed to the enhanced surveillance and specialised management provided by perinatologists, which might offer high-risk pregnant women a greater sense of security and support. A study by McLeish and Redshaw similarly demonstrated that the provision of specialised care and continuous monitoring resulted in a notable reduction in anxiety symptoms among high-risk pregnant women, thereby underscoring the importance of specialised support in the management of anxiety (15).

Furthermore, Guardino and Schetter have highlighted the pivotal role of coping mechanisms and social support in the management of pregnancy-related anxiety, advocating for the implementation of targeted interventions tailored to both routine and high-risk pregnancy care contexts (16). Similarly, recent literature, such as that presented by

Manolova et al., has highlighted the benefits of integrating mental health support and stress-reduction strategies into prenatal care, particularly for women facing elevated medical risks (17).

In light of these findings, our study contributes to the understanding of prenatal anxiety by highlighting that while overall anxiety levels may not differ significantly between routine and high-risk pregnancies, the specific nature of anxiety symptoms can vary. This underscores the need for comprehensive, tailored approaches to anxiety management in both routine and specialised prenatal care settings. Further studies should explore these dynamics further, focusing on diverse populations and utilising multiple measures of anxiety to provide more nuanced insights into the psychological experiences of pregnant women.

Study Limitations

This study has several limitations. The small sample size and single-center design limit generalizability. The cross-sectional approach only provides a snapshot of anxiety levels, requiring longitudinal studies for a more comprehensive view. Reliance on self-reported data introduces potential biases, and the lack of detailed medical histories and control of confounding variables may affect the results. The specific cultural context may also influence applicability to other regions. While the BAI is validated, additional assessment methods could offer a broader perspective.

CONCLUSION

In conclusion, our study found no significant difference in overall anxiety levels between pregnant women receiving routine obstetric care and those under perinatology care for high-risk pregnancies, as measured by the Beck Anxiety Inventory. However, specific symptoms such as heart palpitations were more pronounced in the routine obstetric care group, highlighting the variability in anxiety manifestations. These findings underscore the importance of comprehensive psychological support for all pregnant women, regardless of risk status. Targeted interventions to manage anxiety symptoms can improve maternal well-being and pregnancy outcomes. Future research with larger, multi-centre, and longitudinal designs are necessary to confirm these results and explore the underlying mechanisms of prenatal anxiety. Addressing these aspects will contribute to better maternal and fetal health, ultimately enhancing the overall pregnancy experience.

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