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ARAŞTIRMA MAKALESİ	RESEARCH ARTICLE

İlk Kez Anne-Baba Olacaklara Verilen Doğuma Hazırlık Eğitiminin Çiftlerin Kaygı Düzeylerine Etkisi: Özel Ebelik Hizmeti Bağlamında Bir Değerlendirme

The Effect of Birth Preparation Education on the Anxiety Levels of First-Time Parents: An Assessment in the Context of a Private Midwifery Service

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ÖZET

Amaç: İlk kez anne-baba olacak çiftlere prenatal döneme verilen doğuma hazırlık eğitiminin, anne ve baba adaylarının kaygı düzeylerine etkisini incelemek, özel ebelik hizmetleri bağlamında bir değerlendirme sunmaktır. **Gereç ve Yöntemler:** Ön-test ve son-test, yarı deneysel desen de tasarlanan bu araştırma, 08 Mayıs- 25 Ekim 2006 tarihleri arasında İzmir ilinin Bornova ilçesindeki bir sağlık ocağında yürütülmüştür. Araştırmanın örneklemini belirtilen tarihlerde sağlık ocağına kayıtlı olup ilk gebeliği olan, 20-35 yaş arası anne adayları ve eşleri (n_{anne}=30, n_{baba}=30) oluşturmuştur. Araştırmacı tarafından "Anne-Baba Adayı Eğitim Kitapçığı" ve "Anne-Baba Adaylarına Yönelik Gebelik Danışmanlığı için Resimli Rehber" hazırlanmıştır. Ortalama 4 saat süren eğitimler ev ziyaretleri yapılarak ebe tarafından çiftlere aynı anda verilmiştir. Veri toplamada araştırmacı tarafından hazırlanan Anne Adayı Tanıtım Formu, Baba Adayı Tanıtım Formu ve Durumluk-Sürekli Kaygı Envanteri ile kullanılmıştır. Eğitim öncesi ve sonrası kaygı düzeyleri karşılaştırılmış, bağımlı ve bağımsız gruplarda t testleri ile iki yönlü korelasyon analizleri yapılmıştır. **Bulgular:** Eğitim öncesi eşler arasında durumluluk kaygı puan ortalaması açısından fark yokken (p>0.05), sürekli kaygı puan ortalamaları arasında anlamlı fark olduğu bulunmuştur (p<0.001). Eğitim sonrası anne adaylarının durumluk kaygı puan ortalaması 33.96±7.98'den 28.20±5.97'ye (p<0.001), baba adaylarının ise 30.26±7.31'den 27.30±6.83'e (p<0.001) düşmüştür. Anne adaylarının sürekli kaygı puanı anlamlı bir azalma göstermemiş (p>0.05), baba adaylarının sürekli kaygı puanı ise anlamlı düzeyde azalmıştır (38.16±6.31'den 35.40±7.09'a; p=0.003). Anne adaylarının eğitim öncesi ve sonrası durumluk kaygı puanları arasında orta düzeyde pozitif korelasyon gözlendi (r=0,486, p=0,007) ve bu ilişki istatistiksel olarak anlamlı bulundu. Ancak baba adayları için korelasyon daha zayıftı (r=0,330, p=0,074) ve bu ilişki 0,01 düzeyinde istatistiksel anlamlılığa ulaşmadı. Sürekli kaygı açısından ise anne adayları için eğitim öncesi ve sonrası korelasyon nispeten zayıf (r=0,220, p=0,244) iken baba adayları için daha da düşüktü (r=0,164, p=0,386). **Sonuç:** Sonuç olarak, eğitimin anne adaylarında durumluk kaygıyı azaltmada olumlu bir etkisi olurken, her iki ebeveynde de sürekli kaygıyı önemli ölçüde etkilemediği bulunmuştur. Gelecekteki doğum öncesi eğitim programlarının, annea daylarında hem durum hem de sürekli kaygıyı ele almaya daha fazla önem vermesi önerilir.

Anahtar Kelimeler: Doğum öncesi eğitim, kaygı, ebe, ebeveynler, çiftler

ABSTRACT

Objective: The study examined the effect of prenatal childbirth preparation education provided to couples expecting their first child on the anxiety levels of expectant mothers and their spouses. It also offered an assessment within the context of private midwifery services. **Material and Methods:** This pre-test and post-test study was conducted between May 8 and October 25, 2006, at a health centre in the Bornova district of Izmir. It was designed as a quasi-experimental study. The sample consisted of 30 expectant mothers and 30 their spouses aged 20–35 years. They were registered at the health centre during the specified period and were experiencing their first pregnancy. The researcher prepared an'Expectant Mother-Father Education Booklet' and an 'Illustrated Guide for Pregnancy Counselling for Expectant Parents'. The Education sessions, which lasted an average of 4 hours, were delivered simultaneously to couples by a midwife during home visits. Data collection utilised the Expectant Mother Introduction Form, the Expectant Father Introduction Form, and the State-Trait Anxiety Inventory, all of which were prepared by the researcher. Pre- and post-education anxiety levels were compared, and two-tailed correlation analyses were performed using t-tests in dependent and independent groups. **Results:** Before the training, there was no difference in the mean state anxiety score between spouses (p > 0.05), whereas a significant difference was found in their trait anxiety score means (p < 0.001). After the training, the mean state anxiety score of expectant mothers decreased from 33.96±7.98 to 28.20±5.97 (p<0.001), and the mean state anxiety score of expectant fathers decreased from 30.26±7.31 to 27.30±6.83 (p<0.001). The trait anxiety score of expectant mothers did not show a significant decrease (p>0.05), while the trait anxiety score of expectant fathers decreased significantly (from 38.16±6.31 to 35.40±7.09; p=0.003). A moderate positive correlation was observed between the state anxiety scores of expectant mothers before and after the education (r = 0.486, p = 0.007), indicating a statistically significant relationship. However, for expectant fathers, the correlation was weaker (r = 0.330, p = 0.074), and this relationship did not reach statistical significance at the 0.01 level. In terms of trait anxiety, the correlation for expectant mothers before and after the education was relatively weak (r = 0.220, p = 0.244), and for expectant fathers, it was even lower (r = 0.164, p = 0.386). **Conclusion:** The educational program had a positive impact on reducing state anxiety in expectant mothers, while it did not significantly affect trait anxiety in either parent. It is recommended that future prenatal education programs should place a greater emphasis on addressing both state and trait anxiety among expectant parents.

Keywords: Prenatal education, anxiety, midwife, parents, couples

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INTRODUCTION

Pregnancy is not merely a biological process for expectant parents; it is also a significant life experience with psychological, social, and cultural dimensions (1) This phenomenon is particularly salient for first-time parents, who often report elevated levels of anxiety during the transition from pregnancy to the postpartum period (2). This heightened anxiety can be attributed to the numerous uncertainties, novel responsibilities, and transformative roles that characterise this phase of life. For expectant mothers, the physiological changes associated with pregnancy, the birthing process, and concerns about the baby's health are among the sources of anxiety during the prenatal period (3). For expectant fathers, increasing responsibilities, financial concerns, and the process of preparing for parenthood are among the sources of anxiety during the prenatal period (4).

Anxiety experienced during pregnancy has been demonstrated to exert a detrimental influence not only on the mental health of parents but also on the pregnancy and birth process (5). High anxiety levels have been demonstrated to exacerbate the perception of pain during labor, increase the rate of invasive births, and augment the risk of postpartum depression (3). It has been demonstrated that this phenomenon can have adverse consequences on mother-baby bonding, thereby impeding the adjustment process to the parenting role during the postpartum period (6). High anxiety in expectant fathers has been demonstrated to reduce parenting motivation and self-confidence, which can result in strain within family relationships (4). Therefore, the early recognition of anxiety during the prenatal period, in conjunction with appropriate management, is imperative for the health of both parents and infants (7).

Prenatal education programs have been demonstrated to contribute to a reduction in anxiety stemming from uncertainty by increasing the knowledge level of expectant mothers and fathers (8). These programs, which encompass a broad array of subjects, encompass physiological and psychological changes during pregnancy, preparation for birth, postpartum care, breastfeeding, and newborn health (9). The objective of these programs is to encourage more informed parental involvement in the process (10). The extant literature consistently highlights the efficacy of prenatal education in mitigating anxiety among parents, facilitating their adaptation to the parenting role, and fostering a positive perspective on birth (11). The findings suggest that prenatal education plays a protective and strengthening role in mental health (8).

In the contemporary context, the significance of customised healthcare approaches has been accentuated, with private midwifery services assuming a prominent role in this regard. Private midwifery offers continuous, reliable, and personalised care for expectant parents from the

onset of pregnancy through the postpartum period, allowing couples to experience the process in a more supportive and informed manner. Private midwifery services offer distinct advantages for first-time parents, including the provision of immediate answers to questions, direct addressing of concerns, and personalised education tailored to their needs. In this regard, private midwifery services are regarded as a more efficacious approach for reducing anxiety levels than conventional prenatal education.

In this context, the examination of the impact of prenatal education on the anxiety levels of first-time parents is imperative for supporting their psychological well-being and facilitating adaptation to birth and parenthood. This study examines the impact of prenatal education on anxiety levels in first-time parents and provides an updated assessment within the context of private midwifery services.

MATERIALS AND METHODS

Research Methodology

The research is a pre-test and post-test, semi-experimental intervention study planned to determine the effect of prenatal education given to first-time parents on prenatal state and trait anxiety levels.

Data Collection Tools

The following data collection tools were utilised to gather the necessary information for the research study:

1. Expectant Mother Introduction Form: The researcher prepared a 47-item form to ascertain the participants' sociodemographic data, marital status, relationship with their spouse, environmental influences, maternal role, perception of pregnancy and birth, history of family planning method use, pregnancy-birth-postpartum support status, receipt of prenatal information, experience in baby care among first-time mothers, and sexual activity during pregnancy.

2. Expectant Father Introduction Form: The researcher prepared a 42-item form to ascertain the socio-demographic data, marital status, harmony with spouse and environment, fatherhood role, perception of pregnancy and birth, history of using family planning methods, status of pregnancy-birth-postpartum support, whether or not prenatal information was received,

whether or not first-time fathers have experience in baby care for the prospective fathers to be included in the study.

3. State-Trait Anxiety Inventory: The scale was utilised to assess the anxiety levels of individuals who were about to embark on their first parental journey, both prior to and following the education program, during the prenatal period. The State-Trait Anxiety Inventory, adapted to Turkish culture by Öner and Le Compte (12), has been the subject of validity and reliability studies, as well as normative studies. The inventory consists of a 40-item State Anxiety Scale (20 items) and a 20-item Trait Anxiety Scale (20 items). The State Anxiety Scale is a psychometric instrument that assesses the intensity and experience of anxiety in individuals in specific situations or contexts. The scale requires respondents to describe their feelings in relation to the circumstances and to respond to items by considering their emotions regarding the present situation. Conversely, the Trait Anxiety Scale is designed to assess an individual's anticipated emotional state. Reliability coefficients, as determined by alpha correlations—a generalised form of the Kuder-Richardson 20 formula—were found to range between 0.83 and 0.87 for the Trait Anxiety Scale and between 0.94 and 0.96 for the State Anxiety Scale. The obtained data suggest that Turkish scales exhibit high item homogeneity and internal consistency. The "Item Remainder" correlation technique, which provides detailed information about the reliability and validity of the items constituting the scale, revealed that the item reliability correlations of the Turkish form ranged from 0.34 to 0.72 for the Trait Anxiety Scale and from 0.42 to 0.85 for the State Anxiety Scale. The reliability coefficients obtained from the test-retest method of the scale demonstrated that they ranged from 0.71 to 0.86 for the Trait Anxiety Scale and from 0.26 to 0.68 for the State Anxiety Scale. The adaptation of the State and Trait Anxiety Scales into Turkish was carried out using two separate techniques: experimental concept validity and criterion validity (12).

4. 'Expectant Mother-Father Education Booklet'and'Illustrated Guide for Pregnancy Counselling for Expectant Parents': The Booklet and Illustrated Guide provided a personalised education program designed to address the specific needs of couples. The program involved answering questions from expectant mothers and their partners, and offering counselling in an interactive format tailored to their home environment. Sessions last an average of 4 hours, focusing on both the physical and emotional changes that occur during the prenatal period. The education covered a wide range of topics, including physiological and psychological changes experienced by expectant mothers and fathers, such as sensitivity to odours, gastrointestinal issues like nausea and heartburn, changes in appetite, weight gain,

fatigue, back and joint pain, anxiety, and Couvade Syndrome. Additionally, the program addressed common emotional changes, nutrition, the impact of substance use (such as smoking and alcohol), and medication use. Practical advice was given on personal hygiene, including bathing, dental care, and appropriate clothing. The education also included guidelines on exercise, travel, sexual activity, and preparing for childbirth. Furthermore, the program provided crucial information on breastfeeding and the benefits of breast milk, ensuring that expectant parents were well-informed and prepared for the upcoming changes.

Place and Time of the Study

The study was conducted in a health centre area of Bornova District, Izmir Province, from May 8, 2006, to October 25, 2006. The study population consisted of all expectant mothers and their spouses registered at a health centre in Bornova District, Izmir Province, between May 8, 2006, and October 25, 2006.

Study Sample

The study population consisted of pregnant women and their registered spouses at a health centre in the Bornova district of Izmir Province. The sample size for the study was determined by using G*Power Version 3.1.9.4. A matched t-test approach was used to calculate the sample size for the pre-test and post-test, single-group (couples) sample. Accordingly, at a 95.0% confidence interval ($\alpha = 0.05$) and 90% power, the minimum sample size required to achieve Cohen's medium effect size ($dz = 0.5$) was calculated to be 28.

All expectant mothers and their spouses who registered at a health centre in the Bornova District of Izmir Province between May 8, 2006, and October 25, 2006, and who were determined to be pregnant during the study period and underwent prenatal follow-up at a health centrein Izmir Province, were included in the study. The study population consisted of women who were pregnant for the first time, aged between 20 and 35, and who were first-time mothers, as well as their spouses. Participants were contacted and invited to take part in the study. They were informed of the study's purpose and provided with both verbal and written consent.

Data Collection

The researcher employed a one-on-one interview method to collect the data. The researcher conducted the initial home visit to interact with the expectant parents, who were selected based on their documented history of utilising health centres during pregnancy. The researcher clarified the study's objective, obtained written consent from the participants, and scheduled an

interview date. On the designated interview day, the expectant parents were interviewed in their homes. The expectant mother and their spouses were administered the Expectant Mother Introduction Form, the Expectant Father Introduction Form, and the State-Trait Anxiety Inventory (STAI). Following the application of the forms and scales, expectant mothers and their spouses underwent education using 'the Expectant Mother Education Booklet' and 'the Illustrated Guide to Pregnancy Counselling for Expectant Parents', developed by the researcher based on relevant literature. In addition to the education, the expectant parents were informed about topics of their interest or deemed necessary for their education. At the conclusion of the interview, the State-Trait Anxiety Inventory was re-administered to evaluate the impact of education on anxiety levels. To assess the comprehensibility and usability of the prepared Mother and Father Candidate Introduction Forms, a pilot study was conducted with 10 couples who met the study's inclusion criteria at another health centre, located outside the research area. The data collection forms were reorganised. The data from the pilot study were not included in the analysis.

Statistical Analysis

The analysis of the data obtained from the study was conducted using the Statistical Package for the Social Sciences for Windows (SPSS) 15.0 software package. In the following analysis of the research findings, it is essential to consider the following points: The manual scoring method was employed to calculate the pre-education state-trait anxiety mean scores of the expectant mothers and their spouses, as well as the post-education state-trait anxiety mean scores. The findings concerning the descriptive characteristics of expectant mothers and their spouses are presented as numerical data and percentage distributions. The mean state-trait anxiety scores of the expectant mothers were compared in dependent groups using a t-test to determine the impact of education on anxiety levels before and after childbirth. The expectant fathers' state-trait anxiety mean scores were compared in dependent groups using a t-test, with the pre- and post-education state-trait anxiety mean scores serving as the dependent variables. The mean state-trait anxiety scores of the expectant mothers and their spouses were compared in independent groups using a t-test. The mean scores of states and trait anxiety, both before and after education, for the expectant mothers and their spouses were compared in independent groups using a t-test. The present study examined the relationship between the pre- and post-education state and trait anxiety score differences of the expectant mothers and their spouses using a two-way correlation analysis.

Ethics

Before conducting this research, the study design and data collection tools were evaluated and approved by the relevant ethics committee. Ethical approval of the research was obtained from the Ege University Ethics Committee (Date:30 March 2006, Decision No:341). Moreover, the necessary written institutional permissions for implementing the research were obtained from the Izmir Provincial Health Directorate, where the study was conducted. All participants were informed, both verbally and in writing, of the purpose and scope of the study, what was expected of them during the process, and that the information obtained would be kept confidential and used solely for scientific purposes. The participants were informed that their involvement in the study was entirely voluntary and that they could withdraw from the study at any time without providing a reason. Informed written consent was obtained from all participants. The data obtained in the study were protected, allowing access only to the researcher, and the confidentiality and anonymity of personal data were meticulously ensured. The participants' identities were kept confidential and were not disclosed to third parties or included in the reports.

RESULTS

A thorough review of Table 1 indicates that the majority of expectant mothers (63.3%) were married between the ages of 20 and 24, while 56.7% of expectant fathers were married between the ages of 25 and 29. It was reported that all of the expectant mothers indicated that they had entered marriage willingly and that this was their first marriage. A significant proportion of the expected fathers, specifically 90%, were in their inaugural marriage, while a mere 10% were in their second. A substantial proportion of the sample, approximately half, reported having been married for a period ranging from one to 12 months. The predominant proportion of participants reported having both official and religious marriages (70.0%), and the nuclear family structure was found to be the most common family type (93.3%). The results of the study indicated that the compatibility levels of expectant mothers were distributed equally between "always" and "usually compatible." In contrast, the majority of expectant fathers self-reported being "always compatible" (76.7%). Regarding their compatibility with the environment, the majority of expectant mothers and their spouses reported it was “usually compatible."

As illustrated in Table 1, data regarding smoking and alcohol use during pregnancy are available for expectant mothers and their spouses. A survey of expectant mothers revealed that 10% of the participants reported smoking, while 90% did not. The study found that 60% of

expectant fathers smoked, while 40% did not. In the context of an examination of alcohol use, it was reported by all expectant mothers that they had not consumed alcohol. A survey of expectant fathers revealed that 20% of respondents reported consuming alcohol, while the remaining 80% did not.

Table 1. Distribution of some characteristics related to marriage

Characteristics	Expectant Mother (n=30)		Expectant Father (n=30)	
	n	%	n	%
Age at marriage				
20-24 years	22	73.4	7	23.3
25–29 years	7	23.3	17	56.7
30 and above	1	3.3	6	20.0
Duration of marriage				
0–1 year	14	46.7	14	46.7
1–2 years	10	33.3	10	33.3
2 years and above	6	20.0	6	20.0
Marital status				
Civil marriage	8	26.7	8	26.7
Religious marriage	1	3.3	1	3.3
Both	21	70.0	21	70.0
Family type after marriage				
Nuclear family	28	93.3	28	93.3
Extended family	2	6.7	2	6.7
Harmony with spouse				
Always harmonious	15	50.0	23	76.7
Mostly harmonious	15	50.0	7	23.3
Harmony with the environment				
Always harmonious	10	33.3	14	46.7
Mostly harmonious	20	66.7	16	53.3
Smoking status				
Smoking	3	10.0	18	60.0
Not smoking	27	90.0	12	40.0
Alcohol consumption				
Drinking	-	-	6	20.0
Not drinking	30	100.0	24	80.0

As illustrated in Table 2, the expectant mothers and their spouses' sexual lives and obstetric characteristics are documented during the period of pregnancy. All participants in the study who were expecting a child reported that they had an open dialogue with their partners regarding issues related to their sexuality. A significant proportion of expectant fathers, approximately 90%, reported that they were able to share these concerns with ease. The proportion of respondents who reported a decline in the frequency of sexual intercourse due to pregnancy was 83.3% for expectant mothers and 93.3% for their spouses. The most frequently reported changes in sexual behaviour among expectant mothers were "no change" (50.0%), "less pleasure" (16.7%), and "complete withdrawal" (10.0%). Among expectant fathers, the most common changes were "no change" (50.0%), "less pleasure" (16.7%), and "complete withdrawal" (10.0%). The partner's reaction to the refusal of sexual intercourse was

predominantly positive, with 96.7% of expectant mothers and 80.0% of their spouses receiving favourable responses. The predominant rationale for declining sexual intercourse was the apprehension of inflicting harm upon the infant (83.3% for mothers; 100% for fathers). A subsequent examination of the distribution of gestational weeks revealed that 50.0% of the expectant mothers were between 25 and 40 years of age. It was ascertained that the body mass index (BMI) of the subjects prior to pregnancy ranged from 18 to 22. A subsequent investigation of the pre-pregnancy body mass index revealed that the preponderance of expectant mothers was of normal weight (70.0%).

Table 2. Distribution of expectant mothers and fathers according to their sexual life and obstetric characteristics during pregnancy

Variables	Expectant Mother (n=30)		Expectant Father (n=30)	
	n	%	n	%
Ability to comfortably share sexual topics with partner				
Yes	30	100.0	27	90.0
No	-	-	3	10.0
Decrease in frequency of sexual intercourse due to pregnancy				
Decrease observed	25	83.3	28	93.3
No decrease	5	16.7	2	6.7
Changes in sexual behaviour				
No change	15	50.0	22	73.3
Experiencing more pleasure during intercourse	4	13.3	-	-
Experiencing less pleasure during intercourse	9	30.0	3	16.7
Completely avoiding sexual intercourse	2	6.7	5	10.0
Engagement in sexual intercourse because the spousedesired it				
Yes	7	23.3	5	16.7
No	23	76.7	25	83.3
Partner's reaction when sexual intercourse was refused				
Positive response	29	96.7	24	79.9
Angry	-	-	2	6.7
Sulking	-	-	2	6.7
No such experience	1	3.3	2	6.7
Reasons for refusing sexual intercourse*				
Physical discomfort	23	76.7	-	-
Fear of harming the baby	25	83.3	30	100.0
Reduced sexual desire compared to before	12	40.0	7	23.3
Feeling that the mother has lost her attractiveness	3	10.0	-	-
Lack of experience related to pregnancy	6	20.0	12	40.0
Reasons unrelated to pregnancy	2	6.7	2	6.7
Advice from healthcare professionals	11	36.7	18	60.0
Advice from individuals other than healthcare professionals	-	-	4	13.3
Gestational week				
1–12 weeks	7	23.3		
13–24 weeks	8	26.7		
25–40 weeks	15	50.0		
Pre-pregnancy BMI				
Underweight (18.49 kg/m² or below)	4	16.7		
Normal (18.5–24.9 kg/m²)	21	70.0		
Overweight (25.0–29.9 kg/m²)	5	13.3		

**More than one option was selected.*

As indicated by the findings presented in Table 3, 80% reported making a deliberate decision to conceive. This phenomenon was even more pronounced among expectant fathers, with a reported rate of 93.3%. The predominant emotion experienced upon learning of pregnancy was happiness and positive feelings (70.0%) among expectant mothers, and a comparable level of happiness (83.3%) among expectant fathers. A significant majority of expectant mothers (86.7%) and a substantial proportion of expectant fathers (93.3%) expressed a sense of readiness for the onset of motherhood. A significant proportion of expectant mothers (73.3%) and fathers (76.7%) considered pregnancy-related physical changes to be "normal." The predominant sentiment expressed by expectant parents regarding childbirth was a combination of stress and happiness, with 50.0% of expectant mothers and 60.0% of expectant fathers reporting this sentiment. A majority of participants (80.0%) indicated that the gender of the healthcare professional attending the birth was not a salient factor. A survey of expectant mothers and fathers revealed that 76.7% of the former and 56.7% of the latter reported receiving information from various sources prior to education. The most prevalent source of information was the mass media. A majority of participants expressed a desire to receive prenatal education (86.7% of mothers and 73.3% of fathers).

An examination of the support received by expectant mothers and their spouses is provided in Table 3. A significant majority of expectant mothers (93.3%) and expectant fathers (96.7%) reported receiving support from their spouses. Most expectant mothers (76.7%) reported receiving the most support from their spouses during pregnancy, while 33.3% of expectant fathers reported receiving support from extended family members. The percentage of expectant mothers who reported having someone to support them with postpartum care was 86.7% and 93.3%, respectively. The percentage of expectant mothers and fathers who desired the presence of their spouses during childbirth was 76.7% and 93.3%, respectively.

Table 3. Distribution of expectant mothers and fathers according to their emotional states and receiving support

Variables	Expectant Mother (n=30)		Expectant Father (n=30)	
	n	%	n	%
Desire for pregnancy				
Planned/Wanted	24	80.0	28	93.3
Unplanned/Unwanted	6	20.0	2	6.7
Feelings when first learning about the pregnancy				
Unable to comprehend anything	8	26.7	4	13.3
Sadness and negative emotions	1	3.3	1	3.3
Happiness, joy, and positive emotions	21	70.0	25	83.4
Feeling prepared for motherhood/fatherhood				
Feels prepared	26	86.7	28	93.3
Does not feel prepared	-	-	-	-
Not sure	4	13.3	2	6.7
Perception of physical changes due to pregnancy				
Poor/Very poor	3	10.0	-	-
Normal	22	73.3	23	76.7
Good/Very good	5	16.7	7	23.3
Thoughts about childbirth				
Painful and frightening	7	23.3	3	10.0
Joyful and normal	6	20.0	5	16.7
Stressful but joyful	15	50.0	18	60.0
Unable to describe emotions	2	6.7	4	13.3
Opinions about the gender of the birth attendant				
Gender is important	6	20.0	6	20.0
Gender is not important	24	80.0	24	80.0
Obtaining information from other sources before the education provided by the researcher				
Yes	23	76.7	17	56.7
No	7	23.3	13	43.3
Sources of information*				
Mass media (TV/radio/internet/books/magazines, etc.)	20	66.7	12	40.0
Prenatal preparation classes	2	6.7	1	3.3
Elder family members	7	23.3	4	13.3
Midwife/Nurse	11	36.7	3	10.0
Doctor	5	16.7	7	23.3
Desire to receive education in prenatal preparation classes				
Yes	26	86.7	22	73.3
No	4	13.3	8	26.7
Father's support forthe mother				
Supported	28	93.3	29	96.7
Not supported	2	6.7	1	3.3
Individuals providing support during pregnancy				
Spouse	23	76.7	9	30.0
Family elders	2	6.7	10	33.3
Friends	1	3.3	1	3.3
Health personnel	4	13.3	8	26.7
No support	-	-	2	6.7
Presence of individuals who can support in baby care after birth				
Present	26	86.7	28	93.3
Absent	4	13.3	2	6.7
Desire for spouse's presence during delivery				
Wants	7	23.3	28	93.3
Does not want	23	76.7	2	6.7

**More than one option was selected*

As indicated by the findings presented in Table 4, no significant difference was observed between spouses in mean state anxiety scores before and after the education (p>0.05). The mean state anxiety score for expectant mothers decreased from 33.96 ± 7.98 before the education to 28.20 ± 5.97 following the education. This decrease was found to be statistically significant (p<0.001). For expectant fathers, the mean score decreased from 30.26 ± 7.31 before the education to 27.30 ± 6.83 after the education, and this difference was also found to be statistically significant (p<0.001).A significant difference was found between spouses in mean trait anxiety scores both before and after the education (p=0.005, p=0.000). A decrease in trait anxiety scores was observed in expectant mothers, from 42.63 ± 5.64 before the education to 41.76 ± 5.32 after the education. However, this decrease was not statistically significant (p>0.05). For expectant fathers, the mean score decreased from 38.16 ± 6.31 before education to 35.40 ± 7.09 after education, and this difference was found to be statistically significant (p = 0.003) (Table 4).

Table 4. Comparison of the mean state–trait anxiety scores of expectant mothers and fathers before and after education

Variables		Before Education Mean ± SD	After Education Mean ± SD	t*	p
State Anxiety Mean Score					
Expectant mother		33.96 ± 7.98	28.20 ± 5.97	5.616	0.000
Expectant father		30.26 ± 7.31	27.30 ± 6.83	4.111	0.000
	t**	1.871	0.543		
p		0.066	0.589		
Trait Anxiety Mean Score					
Expectant mother		42.63 ± 5.64	41.76 ± 5.32	1.710	0.098
Expectant father		38.16 ± 6.31	35.40 ± 7.09	3.222	0.003
	t**	2.889	3.932		
p		0.005	0.000		

**t-test for dependent groups ** t-test for independent groups*

Table 5 presents the relationships between the state and trait anxiety scores of expectant mothers and their spouses before and after education. A moderate positive correlation was observed between the state anxiety scores of expectant mothers before and after the education (r = 0.486, p = 0.007), indicating a statistically significant relationship. However, for expectant fathers, the correlation was weaker (r = 0.330, p = 0.074), and this relationship did not reach statistical significance at the 0.01 level. In terms of trait anxiety, no significant correlations were observed for either expectant mothers or fathers. The correlation for expectant mothers before and after the education was relatively weak (r = 0.220, p = 0.244), and for expectant fathers, it was even lower (r = 0.164, p = 0.386). Both relationships were found to be statistically non significant (Table 5).

Table 5. Relationship between state–trait anxiety mean scores of expectant mothers and fathers before and after education

	State Anxiety		Trait Anxiety	
Variables	**Before Education**	**After Education**	**Before Education**	**After Education**
r*	0.486	0.330	0.220	0.164
p**	0.007	0.074	0.244	0.386

** Pearson's moment correlation coefficient analysis**p<0.01*

DISCUSION

This study examined the effects of prenatal education on anxiety levels in first-time parenting couples, providing essential insights into the psychological adjustment processes of expectant mothers and their spouses. Findings indicate that prenatal education significantly reduces state anxiety in both expectant mothers and expectant fathers. The significant decrease in state anxiety in expectant mothers is consistent with previous studies confirming that anxiety can be managed with information and psychosocial support during pregnancy. The more limited reduction in anxiety in expectant fathers suggests that the anxiety experienced by men during the prenatal period may stem from different psychosocial dynamics. This highlights the importance of designing prenatal interventions that consider gender-specific needs.

The study also assessed the expectant mothers' and fathers' experiences during pregnancy, changes in their sexual lives, and psychological perceptions. The result that all expectant mothers report being able to share sexuality with their spouses comfortably lends support to the hypothesis that open communication during pregnancy reduces anxiety. The result that most expectant fathers exhibited a comparable pattern of communication suggests that the couple's psychosocial adjustment is strengthened. The decline in sexual activity due to pregnancy was perceived differently by expectant mothers and their spouses and emerged as a significant variable that may be associated with anxiety (13). The positive response of the partner to the refusal of sexual intercourse further emphasises the importance of family support mechanisms(14). This result demonstrates that mutual trust and support systems play a critical role in reducing anxiety in couples' preparation for birth (15).

The prevalence of positive sentiments among expectant parents regarding pregnancy serves to amplify the efficacy of prenatal education. A significant majority of expectant mothers (86.7%) and expectant fathers (93.3%) reported feeling prepared for their respective roles. This result suggests that prenatal education is not merely the transmission of information but also the enhancement of perceptions of self-efficacy regarding the parenting role. Moreover, the predominance of participants' expressed desire for prenatal education underscores the necessity

for comprehensive preparation, encompassing both cognitive and emotional dimensions, to optimise parental readiness for childbirth (16). The predominance of mass media as the primary source of information prior to educational interventions underscores the deficiencies of existing information acquisition methodologies and highlights the necessity for structured prenatal education programs (17).

The results concerning smoking and alcohol use illustrate gender-related inconsistency in health behaviours. The observed deprivation from alcohol and low smoking rates among expectant mothers indicate a heightened level of health awareness prior to pregnancy (18). The elevated rates of smoking and alcohol use observed among expectant fathers indicate the necessity for enhanced educational interventions, incorporating strategies that facilitate behavioural modification (19). These results imply that prenatal education programs should focus not only on anxiety and knowledge levels but also on health behaviours (8).

The observed fluctuations in anxiety scores suggest that both state and trait anxiety levels are subject to differential alterations. The absence of a substantial decline in trait anxiety among expectant mothers indicates that one-time education sessions may not adequately address long-term anxiety, suggesting the necessity for prolonged or repeated interventions (20). The substantial decline in trait anxiety observed among expectant fathers indicates that the psychological effects of education in this population may be manifesting more rapidly in certain domains (21). This discrepancy highlights the need for meticulously designed prenatal education programs that account for gender-related disparities (22).

The correlation between the anxiety scores of expectant mothers and their spouses suggests that couples' psychological experiences can influence each other. The strategic planning of educational programs tailored to individual couples has been demonstrated to elicit a synergistic effect, thereby reducing anxiety levels (23). Moreover, the high prevalence of family support mechanisms suggests that social support plays a significant role in enhancing psychological adjustment during the prenatal period (24). These results indicate that prenatal care necessitates a family-based approach, rather than a solely individual one (25).

In this study, while state anxiety demonstrated a moderate and statistically significant relationship for expectant mothers, trait anxiety did not show a significant correlation for either group. The findings suggest that while education had an observable effect on the state anxiety scores of expectant mothers, it had a weaker or no effect on the trait anxiety levels of both expectant mothers and fathers.

It is stated in the literature that education given in the prenatal period is effective in reducing state anxiety and improving parents' adaptation and preparation for the pregnancy process.

Actually, education planned within the scope of specialised midwifery services has the potential to support parents' psychosocial well-being and increase their level of preparedness for birth (26). This study emphasises the importance of prenatal care, encompassing not only physical health but also psychological and social preparation.

Our findings, while state anxiety demonstrated a moderate and statistically significant relationship for expectant mothers, trait anxiety did not show a significant correlation for either group. The findings suggest that while education had an observable effect on the state anxiety scores of expectant mothers, it had a weaker or no effect on the trait anxiety levels of both expectant mothers and fathers. More comprehensive research should be conducted.

Limitations: The study's limited participation was due to its focus on individuals registered in the relevant health centre area. The difficulty in reaching some participants simultaneously due to their work conditions, and the inability to contact others in the subsequent process due to migration, led to data loss. In addition, two villages in the area were excluded from the study due to difficulties in accessing them.

CONCLUSION

This study provides evidence supporting the hypothesis that prenatal education is an effective intervention in reducing state anxiety levels in first-time parents. The educational intervention appeared to have a more significant effect on lowering state anxiety in expectant mothers, with a notable, though smaller, reduction observed in fathers. However, the changes in trait anxiety were more limited across both groups. In conclusion, the educational program had a positive impact on reducing state anxiety in expectant mothers, while it did not significantly affect trait anxiety in either parent. These findings suggest that incorporating strategies to address trait anxiety into future structured midwifery education programs could enhance their effectiveness in supporting the psychosocial well-being and adjustment of expectant mothers and fathers.

It is recommended that future prenatal education programs should place a greater emphasis on addressing both state and trait anxiety among expectant parents. While the current intervention was effective in reducing state anxiety, especially in mothers, the more limited impact on trait anxiety suggests the need for a broader approach.

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REFERENCES

1. Ramiro-Cortijo D, de la Calle M, Gila-Díaz A, Moreno-Jiménez B, Martin-Cabrejas MA, Arribas SM, vd. Maternal resources, pregnancy concerns, and biological factors associated to birth weight and psychological health. J Clin Med. 10 Şubat 2021;10(4):695. https://doi.org/10.3390/jcm10040695
2. Seyed Karimi S, Khodabakhshi-Koolaee A, Falsafinejad MR. Psychological challenges of transition to parenthood in first-time parents. Practice in Clinical Psychology. 2021;9(2):81-92. https://doi.org/10.32598/jpcp.9.2.758.1
3. Karnwal R, Sharmila K. Perspective view of stress, anxiety, and depression among pregnant women: a review. Journal of Ecophysiology and Occupational Health. 2024;24(1):7-19.
4. Gemayel DJ, Wiener KKK, Nic Giolla Easpaig B, Saliba AJ. A qualitative exploration of fathers' antenatal and postnatal challenges. Journal of Family Issues. 2022;43(7):1898-921. https://doi.org/10.1177/0192513X211030060
5. Ramiro-Cortijo D, de la Calle M, Gila-Díaz A, Moreno-Jiménez B, Martin-Cabrejas MA, Arribas SM, vd. Maternal resources, pregnancy concerns, and biological factors associated to birth weight and psychological health. Journal of Clinical Medicine. 2021;10(4):1-14. https://doi.org/10.3390/jcm10040695
6. Bianciardi E, Ongaretto F, De Stefano A, Siracusano A, Niolu C. The mother-baby bond: role of past and current relationships. Children. 2023;10(3):412.

https://doi.org/10.3390/children10030421

7. Kukora SK, Branche T, Miller ER, Henner N, Kapadia V, Haward MF. Supporting parents' emotional and mental health in the antenatal consultation. Journal of Perinatology. 2025;45(6):705-12. https://doi.org/10.1038/s41372-024-02156-2
8. Hong K, Hwang H, Han H, Chae J, Choi J, Jeong Y, vd. Perspectives on antenatal education associated with pregnancy outcomes: Systematic review and meta-analysis. Women and Birth. 2021;34(3):219-30. https://doi.org/10.1016/j.wombi.2020.04.002
9. Zaman A, Fadlalmola HA, Ibrahem SE, Ismail FH, Abedelwahed HH, Ali AM, vd. The role of antenatal education on maternal self-efficacy, fear of childbirth, and birth outcomes: A systematic review and meta-analysis. European Journal of Midwifery. 2025;9(March):1-16. https://doi.org/10.18332/ejm/200747
10. Davies A, Larkin M, Willis L, Mampitiya N, Lynch M, Toolan M, vd. A qualitative exploration of women's expectations of birth and knowledge of birth interventions following antenatal education. BMC Pregnancy and Childbirth. 2024;24(1). https://doi.org/10.1186/s12884-024-07066-x
11. McCarthy M, Houghton C, Matvienko-Sikar K. Women's experiences and perceptions of anxiety and stress during the perinatal period: a systematic review and qualitative evidence synthesis. BMC Pregnancy and Childbirth. 2021;21(1):1-12. https://doi.org/10.1186/s12884-021-04271-w
12. Oner N, Compte A Le. State-Trait Anxiety Inventory Manual. Boğaziçi University Publications; 1983. 1-26 s.
13. Tavares IM, Barros T, Rosen NO, Heiman JR, Nobre PJ. Is expectant couples' similarity in attitudes to sex during pregnancy linked to their sexual well-being? a dyadic study with response surface analysis. Journal of Sex Research. 2022;59(2):160-72. https://doi.org/10.1080/00224499.2021.1946672
14. Bedrov A, Gable SL. Thriving together: the benefits of women's social ties for physical, psychological and relationship health. Philosophical Transactions of the Royal Society B: Biological Sciences. 2023;378(1868). https://doi.org/10.1098/rstb.2021.0441
15. Sutcliffe KL, Levett K, Dahlen HG, Newnham E, Mackay LM. How do anxiety and relationship factors ınfluence the application of childbirth education strategies during labor and birth: a bowen family systems perspective. International Journal of Women's Health. 2023;15:455-65. https://doi.org/10.2147/IJWH.S399588
16. Alizadeh-Dibazari Z, Abbasalizadeh F, Mohammad-Alizadeh-Charandabi S, Jahanfar S, Mirghafourvand M. Childbirth preparation and its facilitating and inhibiting factors from

the perspectives of pregnant and postpartum women in Tabriz-Iran: a qualitative study. Reproductive Health . 2024;21(1):1-18. https://doi.org/10.1186/s12978-024-01844-8

17. Mohammed M, Gwarzo SM. Information needs and seeking strategies of antenatal patients for enhancing healthcare service delivery in rural areas of Northeastern Nigeria. Library and Information Perspectives and Research. 2024;6(1):193-206. http://doi.org/10.47524/lipr.v6i1.194
18. Hayes L, McParlin C, Azevedo LB, Jones D, Newham J, Olajide J, vd. The effectiveness of smoking cessation, alcohol reduction, diet and physical activity interventions in improving maternal and infant health outcomes: A systematic review of meta-analyses. Nutrients. 2021;13(3). http://doi.org/10.3390/nu13031036
19. Khanal S, Miani C, Finne E, Zielke J, Boeckmann M. Effectiveness of behavior change interventions for smoking cessation among expectant and new fathers: findings from a systematic review. BMC Public Health. 2023;23(1):1-20. http://doi.org/10.1186/s12889-023-16713-5
20. Wallace K, Araji S. An overview of maternal anxiety during pregnancy and the post-partum period. Journal of Mental Health & Clinical Psychology. 2020;4(4):47-56.
21. Ghaffari SF, Elyasi F, Mousavinasab SN, Shahhosseini Z. A systematic review of clinical trials affecting anxiety, stress and fear of childbirth in expectant fathers. Nursing Open. 2021;8(4):1527-37. http://doi.org/10.1002/nop2.681
22. Leiferman JA, Farewell C V., Jewell J, Lacy R, Walls J, Harnke B, vd. Anxiety among fathers during the prenatal and postpartum period: a meta-analysis. Journal of Psychosomatic Obstetrics and Gynecology. 2021;42(2):152-61. http://doi.org/10.1080/0167482X.2021.1885025
23. Falconier MK, Kim J, Lachowicz MJ. Together–A couples' program integrating relationship and financial education: A randomized controlled trial. Journal of Social and Personal Relationships. 2023;40(1):333-59. https://doi.org/10.1177/02654075221118816
24. Chen Z, Li Y, Chen J, Guo X. The mediating role of coping styles in the relationship between perceived social support and antenatal depression among pregnant women: a cross-sectional study. BMC Pregnancy and Childbirth. 2022;22(1):1-11. https://doi.org/10.1186/s12884-022-04377-9
25. Sanghvi T, Nguyen PH, Ghosh S, Zafimanjaka M, Walissa T, Karama R, vd. Process of developing models of maternal nutrition interventions integrated into antenatal care services in Bangladesh, Burkina Faso, Ethiopia and India. Maternal and Child Nutrition.

2022;18(4):1-18. https://doi.org/10.1111/mcn.13379

26. Tabib M, Humphrey T, Forbes-McKay K. The influence of prenatal relaxation classes on perinatal psychological wellbeing and childbirth experiences: a qualitative study. J Journal of Reproductive and Infant Psychology. 2024;00(00):1–19. https://doi.org/10.1080/02646838.2024.2369937