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Development of a Birthing Class Model for Prenatal Couple Education Program in Indonesia

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ABSTRACT

Objective: Participation in antenatal classes prepares the mother and her partner for childbirth. Research to develop a birthing class learning design for pregnant women and partners carried out in 2022. This research aims to obtain a birthing class model for pregnant women and partners.

Methods: The design of this research is research and development. The product that was developed is birthing class model. Study conduct in Bali Province-Indonesia. The limited model testing stage was attended by 6 pregnant women and their partners. All participan and facilitator birthing class, selected as samples. Data collection used focus group discussion (FGD) and in depth interview. Data analysis using a qualitative method.

Results: The Birthing Class model consist of two training courses: Childbirth concept and Birth plan. Birthing Class held in three days and average meeting time for each meeting is 120 minutes. Results of qualitative analysis of user opinions on the model birthing class found 5 themes: learning materials, learning activities, learning media, learning time and class arrangements. Informants think there are too many meetings in childbirth classes.

Conclusion: The birthing class model needs to be improved in terms of the learning time. One evening meeting per week for three consecutive weeks is recommended for improving the birthing class model. Learning materials, learning activities, learning media, and classroom arrangement in the birthing class model are acceptable.

Keywords: Prenatal education, couples, childbirth

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Introduction

Pregnancy and childbirth is an important period in a woman's life. Women will remember this experience throughout their lives. Anxiety about childbirth may be experienced by pregnant women (Arfaie, Nahidi, Simbar, & Bakhtiari, 2017; Molgora et al., 2018; Rondung, Thomtén, & Sundin, 2016). This condition can develop into stress and depression which will affect a woman's life (Erkaya, Karabulutlu & Çalık, 2017; Wallace & Araji, 2020).

Antenatal classes can prevent and reduce anxiety about childbirth. Antenatal classes are an educational program to increase community empowerment and improve health status, especially for pregnant women. The aim of this activity is to increase knowledge, change the attitudes and behavior of pregnant women about pregnancy, childbirth, postpartum, postpartum contraception and newborns (Hassanzadeh, Abbas-Alizadeh, Meedya, Mohammad-Alizadeh-Charandabi & Mirghafourvand, 2020).

Antenatal classes provide many benefits. Participation in antenatal classes is not only beneficial for the mother but also her partner. Research in various countries around the world shows that participation in antenatal classes can increase self-confidence in facing childbirth, reduce anxiety (Erkaya et al., 2017), facilitate the closeness of the baby and parents as well as partner involvement (Gümüşsoy, Dönmez & Alp Dal, 2023) reduce the intensity of pain during the first and second stages (Douglas & Bateson, 2017; El-Kurdy, Hassan, Hassan, & El-Nemer, 2017; Hassanzadeh et al., 2020; Timmermans, 2019)

Preparation for childbirth for fathers is also very important. Fathers who are less prepared for childbirth tend to have negative experiences (Johansson, Wells & Thies-Lagergren, 2021; Moran, Bradshaw, Tuohy & Noonan, 2021). Being in an unfamiliar environment and the uncertainty of the birth process causes insecurity for fathers (Ledenfors & Berterö, 2016), there are reports of anxiety and posttraumatic stress disorder symptoms (PTSS) (Zerach & Magal, 2017). Childbirth preparation classes are not only important for mothers, but also fathers (Ghaffari, Elyasi, Mousavinasab & Shahhosseini, 2021).

The maternal class education program has been implemented in primary health facilities initiated by the Indonesian government since 2009. There are 4 meetings with the duration of each meeting being 2 hours. Education about childbirth and postpartum is provided at the 2nd meeting. The study material related to childbirth provided are signs of labor and the labor process (Kemenkes, 2014). Study material about childbirth is very limited.

The involvement of fathers or partners in maternal class programs in Indonesia is still low. In the program, the father or partners are expected to be present at least once during the class (Kemenkes, 2014). The presence of fathers or partners in maternal class programs in Indonesia is only 20.2% (Kemenkes, 2016). There is a growing assumption that maternal classes are only intended for mothers and not fathers or partners.

Research to develop a learning design for birthing classes for pregnant women and couples (prenatal couples) was carried out in 2022. The research aims to develop a learning design based on the needs of couples and testing internal validity. Research needs to be continued to develop birthing class models in prenatal couple education programs and test the product on a limited group (Easterday, Rees Lewis & Gerber, 2018; Gustiani, 2019).

This research purpose is to develop birthing class models that can be applied to prenatal couple education programs. The stages that are carried out in this research are to develop the birthing class model, test the model in a limited group, find out the opinions of pregnant women, fathers and facilitators about the model and make improvements to the birthing class model according to the trial results.

Methods

This research design is research and development with 10 steps by Borg and Gall (Borg & Gall, 1984). The product that developed is a birthing class model for the prenatal couple education program. A qualitative research approach was used to test the birthing class model. The research stages that conduct are as follows: 1) Develop preliminary form of product, 2) Preliminary field testing, 3) main product revision. The birthing class model was developed from a design that had been prepared in 2022. Meanwhile, the model testing stage for a wider group could not be implemented in this research. The model development and testing was carried out at Griya Kamini, a non-government health facility, which is located in Bali Province, Indonesia. The limited model testing stage was carried out in 1 class. Birthing classes model participants consisting of 6 pregnant woman and partners, in accordance to the results of previous research (Purnamayanti & Dewi, 2023). Birthing Class invitations are distributed via social media. Pregnant women and partners who responded to the invitation were selected by researchers as birthing class participants. The criteria for model birthing class participants are: at least secondary education level, maternal age 20-35 years, first pregnancy, gestational age ≥28 weeks, single pregnancy. Participants were given an explanation of the stages of the research and signed an informed consent. The birthing class

participants who had completed all meetings were selected as respondents. Participants (pregnant women and partners) and birthing class facilitator give opinions after attending birthing classes. Data collection on informants' opinions used focus group discussion (FGD) and in-depth interviews. All data was recorded. Researchers used qualitative analysis with thematic analysis as proposed by Clarke and Braun (Braun & Clarke, 2006; Clarke & Braun, 2017). This analysis has been widely used including in health and wellbeing qualitative research (Braun & Clarke, 2019; Vaismoradi, Jones, Turunen & Snelgrove, 2016). This method uses 6 systematic steps to obtain themes in data related to what informants opinion about birthing classes model; 1) more familiar with the data, including transcribing data, reading and re-reading data, and finding initial ideas; 2) Compiling initial codes that are relevant to what informants opinion about birthing classes, and collecting data related to each code; 3) codes are sorted into potential themes; 4) compiling a thematic map; 5) defining the name of each theme (5 themes are found: learning materials, learning activities, learning media, learning time and class arrangements) and compiling the whole story from the results of the analysis; 6) re-linking the results of the analysis to the research questions, providing examples of quotes that strengthen the themes that have been compiled(Braun & Clarke, 2006). The research has received ethical approval from the Health Research Ethics Commission Poltekkes Kemenkes Denpasar, Ethical Approval No: LB.02.03/EA/KEPK/ 0584 /2023.

Results

The development of the birthing class model in this research is based on the class design from previous research in 2022 (Purnamayanti & Dewi, 2023). There are 2 training courses, birth concepts and birth plans. Materials, methods, media, time, and evaluation of each training subject were developed in this research. The learning plans for the two training courses are explained in Table 1.

The birthing class participants consisted of 6 pregnant women and their partners. Data on the characteristics of birthing class participants are as in table 2. From table 2 it can be seen that all of participants are worker and most of them have higher education. The classroom measures are 7 x 8 m (56 m^2). The classroom facilitates learning activities for 6 pregnant women and their partners. Lighting uses natural sunlight as well as artificial lighting. The room temperature is set at 20-22^{0}C with air conditioning. The room arrangements for practical learning are arranged in a circle as shown in Figure 1. The distance between participants is set to allow movement of pregnant women and their partners. The classroom arrangement for theoretical learning is in a half circle.

Facilitator and participants face each other. The distance between the facilitator and participants is 2 meters. Participants occupy a mat or sitting pillow. Learning media is use in theory and practical session. Learning media is provided for each participant during practical learning. Classes start at 10.00 local time. The average meeting time for each meeting is 120 minutes, as shown in table 3.

Table 1.
Learning Plan for Birthing Class model in Prenatal Couple Education Program

Training Courses	Childbirth concept
Time	90 Minutes
Description	The training course provides knowledge for mothers and partners regarding the philosophy of childbirth, preparation for labor starting during pregnancy, signs of labor, stages and mechanisms of labor, monitoring and examinations required during the labor process, as well as various aspects related to early initiation of breastfeeding. This training course also builds a couple's self-confidence to go through childbirth.
Learning objectives	**Learning Outcome** Mothers and partners build confidence in being able to go through the birthing process.
	Learning Outcome Indicators After following the training courses, mothers and partners are able to: 1. Understand the philosophy of childbirth 2. Know the preparation for childbirth during pregnancy 3. Recognize the signs of labor 4. Explain the stages and mechanisms of labor 5. Know the various examinations and monitoring during the birthing process 6. Realize the importance of first contact between mother and baby through early breastfeeding initiation
Study Materials	1. Childbirth philosophy 2. Preparation for childbirth during pregnancy 3. Signs of labor 4. Stages and mechanisms of labor

	5. Examination and monitoring during the birthing process 6. Early breastfeeding initiation
Method	Interactive lecturer Brainstorming
Media	Laptop and projector Model of the pelvis and fetal head Model of the uterus Cervical dilation model
Evaluation	Written test
Reference	JNPKKR (2017) Asuhan Persalinan Normal. 5th edn, Asosiasi Unit Pelatihan Klinik Organisasi Profesi. Jakarta: Perkumpulan Obstetri dan Ginekologi Indonesia.
Training Courses	**Birth plan**
Time	180 Minutes
Description	This training course provides mothers and partners with the ability to understand the mother's needs during the birth process, to be able to practice various skills to meet the mother's physical and psychological needs during birth assisted by a partner, including various methods of labor pain management, as well as various complementary methods that can be applied at the birthing process. In this training course, couples will also be guided to be able to make a birth plan.
Learning objectives	**Learning Outcome** Mothers and partners can practice how to meet the mother's needs during labor and can prepare a birth plan.
	Learning Outcome Indicators After participating in this training course participants will be able to: 1. Understand the mother's needs during the birthing process 2. Understand the role of the partner during the birthing process 3. Demonstrate various techniques to reduce labor pain 4. Demonstrate complementary techniques in childbirth 5. Develop a birth plan
Study Materials	1. Mother's needs during the birthing process a. Physical (nutrition, elimination, position and movement, personal hygiene, comfort) b. Psychological 2. The role of the husband during the birthing process 3. Techniques to reduce labor pain a. Masses b. Breathing techniques 4. Complementary techniques in childbirth a. Birthing ball b. Spinning baby 5. Develop a birth plan
Method	Interactive lecturer Role play Practice Coaching
Media	Laptop and projector — Scenario role play Practice guide — Mattress Block — Birthing ball (size 65 cm) Peanut ball — Balance ball (9 inch size) Ice block — Diffuser and essential oil
Evaluation	Written test Observation of performance
Reference	JNPKKR (2017) Asuhan Persalinan Normal. 5th edn, Asosiasi Unit Pelatihan Klinik Organisasi Profesi. Jakarta: Perkumpulan Obstetri dan Ginekologi Indonesia. Ekajayanti, Parwati, Astiti, Lindayani (2021) Pelayanan Kebidanan Komplementer, Aceh: Syiah Kuala University Press

Table 2.
Characteristics of Birthing Class Participants

No	Pregnant mother				Husband/Partner		
	Age	Education	Work	GA	Age	Education	Work
I	29	Bachelor	employee	36 w	30	Bachelor	employee
2	27	Bachelor	employee	32 w	31	Bachelor	employee
3	28	Bachelor	employee	30 w	28	Bachelor	employee
4	24	Senior high school	Civil servants	28 w	26	Bachelor	Police
5	23	3 years Diploma	Civil servants	32 w	36	Bachelor	employee
6	34	Bachelor	employee	28 w	33	Bachelor	employee

Figure 1. Classroom arrangement

Informant opinions on the model birthing *class* are outlined below.

Informants perceive learning materials as things that are listened to, discussed, understood, and carried out during birthing class activities to achieve certain goals. The informant stated that the reason for joining the birthing class program was because he wanted to know what happened during the birthing process.

"A friend who just gave birth said the process took two days, is that true? How long has it taken?" (I.2)

"…what I read on the internet is that the process can vary. Just want to know how the process works, don't end up making the wrong decision because you don't know." (S.1)

"I was worried that I wouldn't be able to go through labor smoothly. I often hear that labor is very painful. Other people can do it, are there any tips to make it less painful during childbirth? Want to know more." (I.3)

"...We are far from our parents, so we want to make good preparations." (S.6)

Table 3.
Birthing Class Schedule

Time		Activity
Day 1	10.00 - 10.05	Opening
	10.05 – 10.10	Pretest
	10.10 – 10.40	Yoga
	10.40 – 12.00	Childbirth concept
Day 2	10.00 – 10.30	Yoga
	10.30 – 12.00	Birth Plan
Day 3	10.00 – 10.30	Yoga
	10.30 – 12.00	Birth Plan
	12.00 – 12.05	Post test and evaluation
	12.05 – 12.10	Closing

The content of promotional media used to invite class participants also influences the expectations of prospective participants. The use of class names became a concern for informants and short descriptions were added to promotional media. Terms such as "active birth class" or "positive birth class" can be used and provide an overview of class activities.

"Pregnant women and partners, especially those in their first pregnancy, generally cannot imagine the birth process. The use of class names is important to build participant expectations. "The term active birth or positive birth has a good impression and can attract participants' interest." (F.1)

The informant shared the material studied in birthing *class* and provided an overview of the birthing process encountered. The breadth and depth of learning material is stated in the study materials. The birth concept training course provides training participants with an understanding of the philosophy of childbirth, signs of labor, stages and mechanisms of labor, monitoring and examination during the labor process, as well as early initiation of newborns with the mother and family. Birth planning courses train pregnant women and their partners to have the ability to meet the mother's physical and psychological needs during birth assisted by a partner, including various methods of dealing with labor pain, as well as various complementary methods that can be applied to assist the birth process and comprehensively develop a birth plan.

"The explanation is complete. Some have read about it on the internet, such as labor pain as a sign that labor has started. But here it is explained in more detail how it hurts, where, how often. So you are more confident that you will be able to differentiate them..." (R.I1)

"Actually, I don't know what else I want to learn about...because of my first experience. But from taking this class I feel more confident about childbirth." (R.S6)

The total time used in training activities was 6 hours in 3 meetings. The material delivery time is 90 minutes per meeting and 30 minutes are filled with physical exercise. Time is important to ensure learning objectives can be achieved. Informants felt that the time allocated for learning activities is too long. The reason given by the informant was because it was difficult to arrange time to attend the next class. Informants prefer one meeting even though the meeting time is longer.

"..I think three meetings is too many." (S.3)

"At first I was hesitant about joining. But because I was curious, I finally joined in. Afraid of not being able to come as scheduled. Even though the schedule is Saturday, xxx (my husband)'s holiday schedule doesn't fit on Saturday..." (I.1)

"I prefer one meeting, even if the meeting time is longer". (Q.4)

"It seems that if you do a lot of practice like yesterday's class, it's okay to take a long time. It's hard to find holidays together again" (S.2)

"In my opinion, theory learning time can be cut. Participant were less interested in listening for long periods of time. With visual media it will be easier to provide understanding so there is no need for a lot of explanation. Here the time can be shorter." (F.1)

The learning activities designed are related to learning methods. The learning method for the birth concept training course is implemented using interactive lectures, case simulations and brainstorming. Learning methods for childbirth planning courses are practice using role play and coaching methods. Suitability of learning methods and materials is important so that it can facilitate the learning process so as to obtain optimal learning results. An interesting learning atmosphere is needed to increase participants' desire to learn.

"It suits the learning activities and is not boring, especially practice session" (S.6)

"I like explanations accompanied by demonstrations. Like explaining the birth process, it makes it easier to understand how the baby is born" (I.2)

"Practice is also interesting. So you can imagine what the birthing process is like. With this practice, I understand what to do during the birthing process." (S.5)

"I like the relaxed learning atmosphere. Maybe because not many people take the class so you can freely ask questions. But the midwife is also good at carrying it." (I.4)

"As much as possible, bring a relaxed learning atmosphere during theory and practicum. Visualization is really necessary, especially for certain materials such as the birthing process. However, other material is more suitable for case simulations, such as signs of labor and when it is best to come to the birth center. For practical work, you have to try. So every pair should try as much as possible. Sometimes you can't succeed in one try so you have to repeat it. Here you can also see the couple's mastery of skills. So the number of participants is not large." (F.1)

Learning media make it easier for participants to understand learning material. Learning media is adapted to learning methods and materials. Some learning media are shared but some media are provided for each participant. The suitability and availability of these learning aids ultimately makes it easier to achieve learning goals.

"There is a lot of equipment provided. At first I was a bit confused too. But later found out...oh this is used too. It's really good... it makes it easier to understand." (I.5)

"Thankfully, there were reading materials to take home. It would be better if it were in book form. The birth is still a few months away." (S.3)

"For training we are given one piece of equipment. So you can try it straight away as soon as it's demonstrated." (I.6)

"Most of the learning media are appropriate. It's just that when preparing a birth plan and simulating cases you may need media to visualize. So it can describe the journey to the birthing place at each stage of labor and what the mother and partner can do. It looks like it could be cooler." (F.1)

The arrangement of the study room is also important to maintain a learning atmosphere. Several important things that need to be considered in arranging a study room are light, temperature and circulation, distance between participants, cleanliness of the room and supporting suggestions such as toilets, pillows/sitting mats.

"I like the classroom" (I.2)

"The room is bright enough, not hot, the situation is good, clean" (S.4)

"Toilets are also close by. Lately I often urinate so I don't have to go far to look for a toilet" (I.1)

"There are sitting cushions so it's quite comfortable." (I.3)

"I think the distance between the participants is sufficient. It's not too tight either." (S.6)

Results of qualitative analysis of user opinions on the model birthing *class* found 5 themes; learning materials, learning activities, learning media, learning time and class arrangements, as show in Figure 2.

Discussion

The results of the research found that the breadth and depth of learning material could meet the informants' expectations. The informant believes that the learning objectives can be achieved.

Learning material is the knowledge, attitudes and skills needed to achieve learning goals (Sabarudin, 2018). Learning material consists of a set of facts, concepts, principles, values/attitudes and certain procedures (Sabarudin, 2018). The breadth and depth of learning material is reflected in the study material contained in the learning plan (Kementerian Pendidikan dan Kebudayaan Republik Indonesia, 2020). The study materials formulated in the birthing class model consist of 11 study materials summarized in two training courses; birth concepts and birth plans (Purnamayanti & Dewi, 2023).

The learning activities designed are related to learning methods. The learning method used in the birthing class model developed is adapted to the characteristics of the learning material. Learning methods are a way to achieve learning objectives (Jeronen, Palmberg & Yli-Panula, 2017). Learning methods are chosen according to the characteristics of the learning material to facilitate learning outcomes (Kementerian Pendidikan dan Kebudayaan Republik Indonesia, 2020).

The results of this research show that the method chosen for learning activities is appropriate and meets the informants' expectations. The methods used in the birthing class model are summarized in theoretical learning, namely interactive lectures, discussions and brainstorming. Meanwhile, in practical learning, the methods used are simulation and coaching.

Lectures are a method that has been applied for a long time in learning. Even though it is a method that is more centered on teachers/lecturers/facilitators, it is still implemented to introduce new concepts to students. The lecture method is the delivery of information orally using language. The effectiveness of the lecture method can be increased by using appropriate learning media (Wirabumi, 2020).

The discussion and brainstorming method is a student-centered method. This method encourages students to express opinions and look for solutions or problems according to the topic raised in the lesson. Because it encourages participants to actively express opinions, this can be a theoretical learning method of choice(Trinidad, 2019).

The simulation or role play method is a method for achieving attitudes and skills. Students will be given certain scenarios that are appropriate to everyday conditions or that they may experience. This method develops students' ability to make decisions regarding the situations they experience and take appropriate action (Hidayati & Pardjono, 2018; Moreno-Guerrero, Rodríguez-Jiménez, Gómez-García, & Navas-Parejo, 2020).

The results of this research show that the media used in the birthing class model is appropriate to the material being studied, with sufficient amounts to facilitate learning outcomes. Learning media is related to learning methods and activities. The media used for theoretical learning consists of broadcast media and demonstration models (pelvic and fetal models, uterus models and cervical models). The use of this model makes it easier to convey concepts with visualization (Fleming, Sadaghiani, Stellon & Javan, 2020; Marpanaji, Mahali & Putra, 2018). Learning media for simulation and performance methods uses a set of equipment that supports activities according to the learning material. The availability of sufficient media is also a concern considering that performance simulation activities are carried out by each participant. The availability of sufficient media will also have an impact on the success of the learning process. Class settings that received attention from informants in implementing the birthing class model was room temperature, lighting, air circulation, participant distance, supporting facilities and room cleanliness. The room temperature is set to 20-22^{0}C and received a good response from the informant. Room temperature increases students' comfort during learning. In accordance with Indonesian National Standard (SNI 03-6572-2001), the appropriate room temperature in Indonesia is 20.5-22.8^{0}C. The temperature is in the comfortably cool category (Sarinda, Sudarti & Subiki, 2017). Study room facilities are one of the supporting factors for learning that need attention. Appropriate facilities and physical environment can support a better learning atmosphere (Andrianto, Helmi, Purwantono & Indrawan, 2020; Asmara & Nindianti, 2019)Learning time of childbirth classes are various, between 2-4 meetings (Gluck et al., 2020; Hands, Clements-Hickman, Davies & Brockopp, 2020; Mueller, Webb & Morgan, 2020).

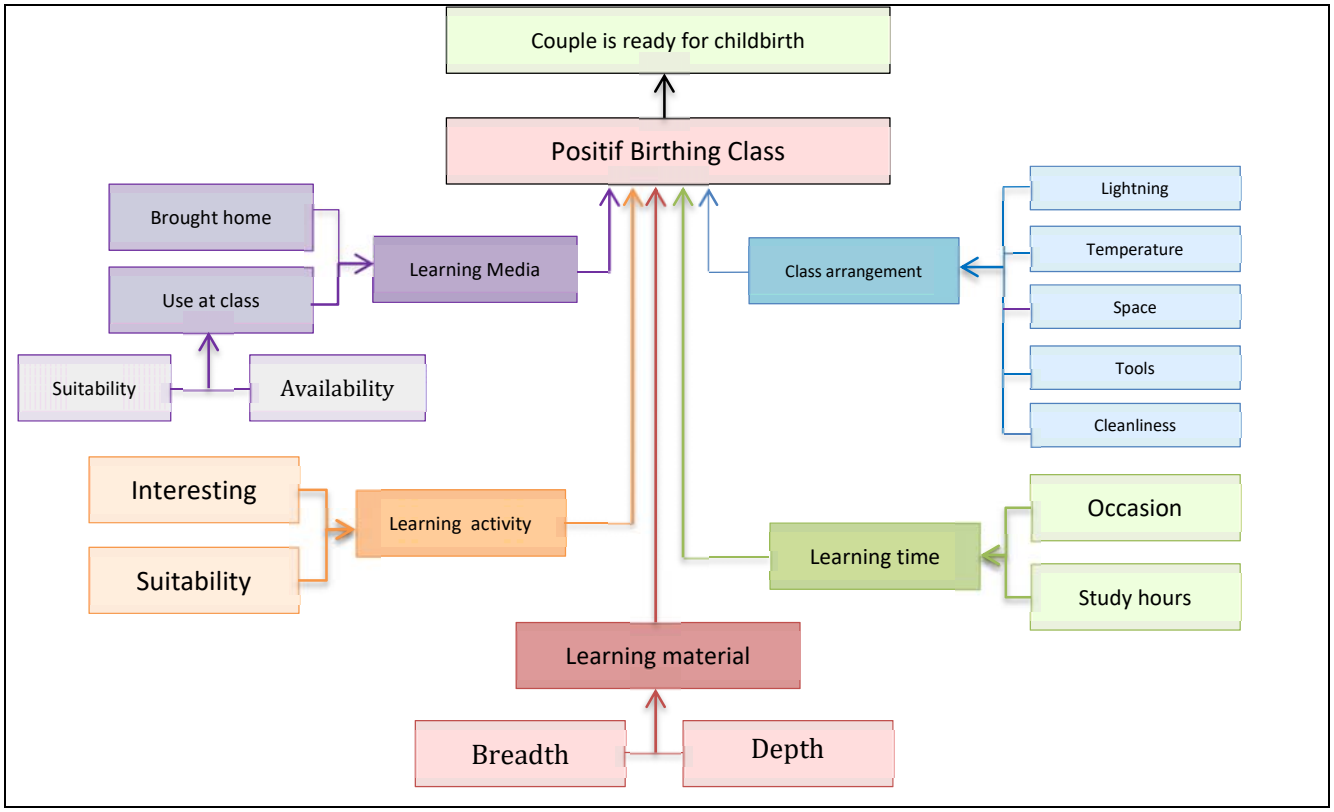

Figure 2. Thematic analysis of informant opinions on the birthing class model

This birthing class model is scheduled in 3 meetings, 2 hours for each meeting. Informants think the learning time is too many. This is related to the opportunity to follow the class schedule because of other responsibilities or activities. Informants find it difficult to follow the schedule of study activities and this can increase the tendency not to attend classes in full.

Conclusion and Recommendations

The birthing class model was formed based on the learning plan prepared in previous research in 2022. The birthing class model needs to be improved in terms of the learning time. Learning materials, learning activities, learning media, and classroom arrangement are acceptable. One evening meeting per week for three consecutive weeks is recommended for improving the birthing class model. Further research is recommended for trials on larger subjects with variety characteristics.

Ethics Committee Approval: Ethics committee approval was received for this study from the Health Research Ethics Commission Poltekkes Kemenkes Denpasar (Date: May 29 2023, Number: LB.02.03/EA/KEPK/0584 /2023)
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The Effect of Post-Mastectomy Concept Map Education on Patients' Discharge Training Satisfaction Levels: A Randomized Controlled Study

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ABSTRACT

Objective: To determine the effect of the education given with the concept map after mastectomy on the satisfaction level of the patients' discharge training.
Methods: The research was carried out in the Breast and Endocrine Surgery Clinic of the University Hospital located in a province in eastern Türkiye. The research was conducted using a randomized controlled experimental research model. 66 patients (33 experimental group, 33 control group) were included in the study. The patients in the experimental group were given discharge training with a concept map. “Descriptive Characteristics Form” and “Discharge Training Satisfaction Scale” were used to collect data. In the evaluation of the data; number, percentage, mean, standard deviation, chi-square, independent sample t-test and Cronbach Alpha Confidence Coefficient were used.
Results: There was no significant difference between the groups in terms of introductory features. In the study, it was determined that 57.6% of the patients in the experimental group were married, 81.8% had a nuclear family structure, 69.7% of the patients in the control group were married and 72.7% had a nuclear family structure. The mean scores of the patients in the experimental group were found to be significantly higher than the patients in the control group (p<.05).
Conclusion: It was found that the average score of the discharge training satisfaction scale of the patients who received discharge training with the concept map was higher than the control group. For this reason, it is recommended to expand the use of the discharge training given with the concept map after mastectomy.
Keywords: Mastectomy, concept mapping, patient satisfaction, patient discharge, patient education as topic

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Introduction

Breast cancer is the most common type of cancer among women, and according to Globacan statistics, one in four women diagnosed with cancer worldwide is reported to have breast cancer (Bray et al., 2024). Similar to global trends, the incidence of breast cancer in Türkiye has been increasing over the years (Koçan & Gürsoy, 2016).

In breast cancer, patients undergo treatments such as surgery, radiotherapy, chemotherapy, and hormonal therapies, which can cause significant stress (Liu et al., 2021). Although radical mastectomy is now a last-resort option in breast cancer treatment due to advancements in technology and surgical techniques, breast reconstruction emerges as an important procedure in cases where mastectomy is performed (Alhan et al., 2012). Mastectomy, one of the treatment methods for breast cancer, is an intervention that disrupts women's body image (Gülşen & Akansel, 2018). Additionally, the diagnosis and treatment of breast cancer affect the psychological, physical, spiritual, and social aspects of patients' lives (Okanlı, 2011). Therefore, postoperative care and discharge training are highly significant. To ensure that patients benefit more from their care processes, it is crucial to accurately identify and plan their learning needs, as well as to meet their informational requirements for adherence to post-discharge treatment (Naoum et al., 2020). After mastectomy, patients require information and education to participate in decisions regarding their health, manage symptoms related to their treatment, and cope with cancer (Kazanç et al., 2023). To facilitate patients' adaptation to the postoperative period and reduce surgery-related stress and uncertainties, the process should be supported with discharge training tailored to patient needs (Hashemi et al., 2020; Topuz et al., 2021). Increased patient satisfaction through discharge training enhances patients' adaptation to the hospital environment and positively influences their belief in recovering through the healthcare services they receive (Galvin et al., 2017). Therefore, ensuring the physical, psychological, and social well-being of patients after mastectomy requires comprehensive discharge training and a well-planned care strategy provided by clinical nurses (Büyükakincak et al., 2013; Ursavaş et al., 2014).

In nursing, the goal is to concretize and teach the education provided in patient care so that evidence-based knowledge can transform into skills. Visual and auditory tools used during education enhance its permanence and effectiveness (Yutmaz, 2018). To this end, there are various teaching methods that assist nursing students and nurses in accurately managing the information they need. One of these methods is the "concept map" (Dil & Öz, 2014). Concept maps strengthen memory by organizing, encoding, and presenting information in a schematic and visual manner. This teaching technique helps establish cause-and-effect relationships between concepts, enabling better understanding and application (Erdem et al., 2017).

The use of concept maps in nursing education has been shown to enhance nurses' critical thinking and communication skills (Cook et al., 2012). In a study conducted by Gerdeman and colleagues, it was found that cases prepared using concept maps improved clinical judgment skills among nursing students (Gerdeman et al., 2013). When the studies are examined, it can be stated that the use of education provided with concept maps in nursing education is highly significant in terms of developing critical thinking and communication skills.

The use of concept maps in nursing education facilitates a systematic approach to patient care, making the connections and relationships between disease and health management, treatment, and the nursing process more comprehensible. Additionally, concept maps, when integrated with the critical thinking process in nursing, can contribute to transferring holistic patient care into clinical practice (Aein & Aliakbari, 2017). This study was conducted to examine the effect of education provided through concept maps on patients' satisfaction levels with discharge training after mastectomy. This study will serve as a pioneering effort in utilizing concept maps in patient education and will contribute to the literature. The hypotheses of the research are as follows:

H1: Education provided through concept maps after mastectomy has an effect on patients' satisfaction levels with discharge training.

Methods

Type of the Study

This study was designed and conducted as a randomized controlled experimental type.

Place and Time of the Study

This study was conducted with patients who had undergone mastectomy at the Breast and Endocrine Surgery Clinic of a University Hospital located in the eastern part of Türkiye, between April 2020 and November 2021. The clinic has a bed capacity of 24. The rooms are designed for single, double, or triple occupancy. After mastectomy, patients typically stay in the hospital for an average of 3 days.

Population and Sample of the Study

The population of the study consisted of patients hospitalized at the Breast and Endocrine Surgery Clinic of a University Hospital located in the eastern part of Türkiye, during the specified dates. In this study, prior to starting the research, an a priori power analysis was conducted using G*Power software, version 3.0.1, to determine the sample size (Faul et al., 2007). According to Cohen (Cohen, 2013), with a medium effect size of 0.5, a 0.05 error margin level, and a 95% confidence interval, it was determined that there should be a total of 50 patients, with 25 patients in each group. To account for potential data losses, an additional approximately 25% backup sample was included, and the study was completed with a total of 66 patients, 33 in the experimental group and 33 in the control group, during the specified dates. To assess the adequacy of the sample size, a post hoc power analysis was conducted after the study was completed. The power analysis showed that the effect size of the study was 2.44, with a power of 0.99, at a significance level of 0.05 and a 95% confidence interval. These values indicate that the sample size was adequate (Çapık, 2014).

The inclusion criteria for the study were as follows: female patients who were on the first postoperative day after mastectomy, aged between 18 and 75, literate, willing to participate in the study, without mental or communication problems, and without visual or hearing perception issues.

The exclusion criteria for the study were as follows: illiterate patients, those with mental or communication problems, those with visual or hearing perception issues, patients who withdrew from the study at any stage, and patients who developed complications in the early postoperative period.

The reporting of the study was conducted according to the CONSORT (Consolidated Standards of Reporting Trials) guidelines for randomized controlled trials, and the CONSORT flowchart of the study is presented in Figure 1.

Instruments

Descriptive Characteristics Form' and "Discharge Training Satisfaction Scale" were used to collect the data.

Descriptive Characteristics Form: It consists of a total of five questions including age, marital status, educational status, family type, number of children if married (Alacacıoğlu et al., 2014; Kurt et al., 2013).

Discharge Training Satisfaction Scale: It was developed by Meşe and Köşgeroğlu (Meşe & Köşgeroğlu, 2021). The Discharge Training Satisfaction Scale is a five-point Likert-type scale consisting of 21 items in total: three items related to the discharge process, three items related to personal information, seven items related to home care, three items related to infection, and five items related to follow-up. The Cronbach's Alpha (α) reliability coefficient of the scale is .91. The scoring of the scale items is as follows: (5) completely satisfied, (4) satisfied, (3) somewhat satisfied, (2) dissatisfied, and (1) completely dissatisfied. The scale does not contain any negative items. The lowest possible score from the scale is 21, and the highest possible score is 105. As the scale score increases, the patient's satisfaction with the discharge training increases. In this study, the Cronbach's Alpha (α) reliability coefficient is .95.

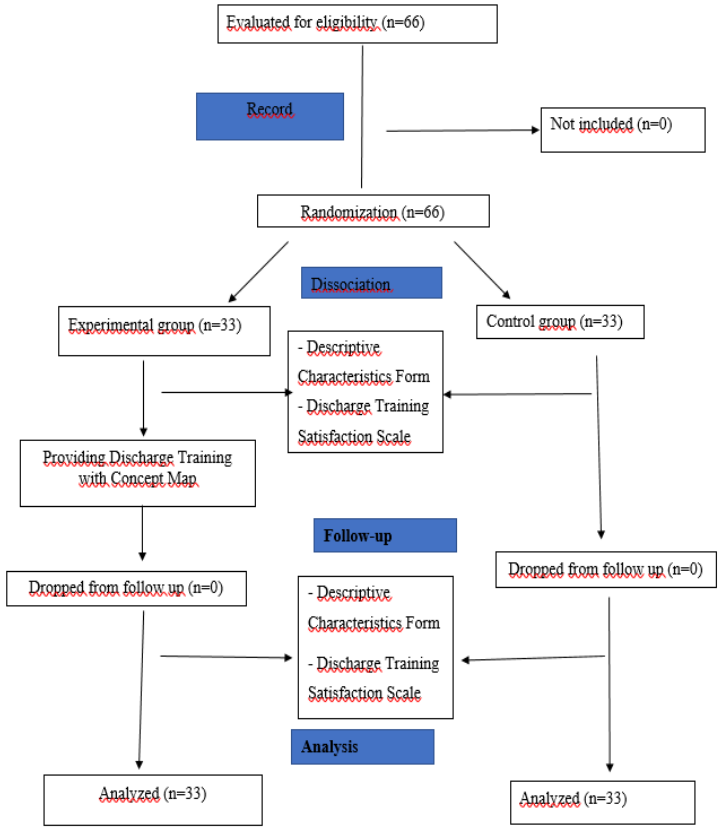

Figure 1. Consort 2010 Research Application Flowchart

Data Collection

On the first postoperative day following mastectomy, patients who agreed to participate in the study were assigned to either the control or experimental group through cluster randomization using the website www.randomizer.org. Patients were assigned to either the experimental or control group using a random number generator with two-block randomization (random.org). This randomization method continued until the required sample size was reached for both groups. The researcher assigned individuals to the research groups. No blinding was applied for either the patients or the researchers throughout the study.

The experimental and control group patients were asked to fill out the descriptive characteristics form. Both groups received routine discharge training, lasting approximately 15 minutes, on postoperative care from the ward nurses on the first postoperative day. The experimental group additionally received discharge training schematized with a concept map, provided by the researcher. A pilot study was conducted with 10 patients to evaluate the clarity and understandability of the concept map prepared by the researcher. The training was conducted in the patient's room for an average of 30 minutes using a concept map created by reviewing the literature about what patients should do for care, exercise and protection after mastectomy, and especially about the problems and complications they will encounter after surgery. The training was conducted in a way that patients could understand, allowing patients to ask questions and using an encouraging approach to ask questions if they did not understand (Kimiafar et al., 2016; Yeşilyurt & Fındık, 2016). The control group was not provided with any training by the researcher. The discharge training satisfaction scale was administered to both groups of patients prior to discharge.

Figure 2 shows the discharge training for post-mastectomy patients schematised with a concept map.

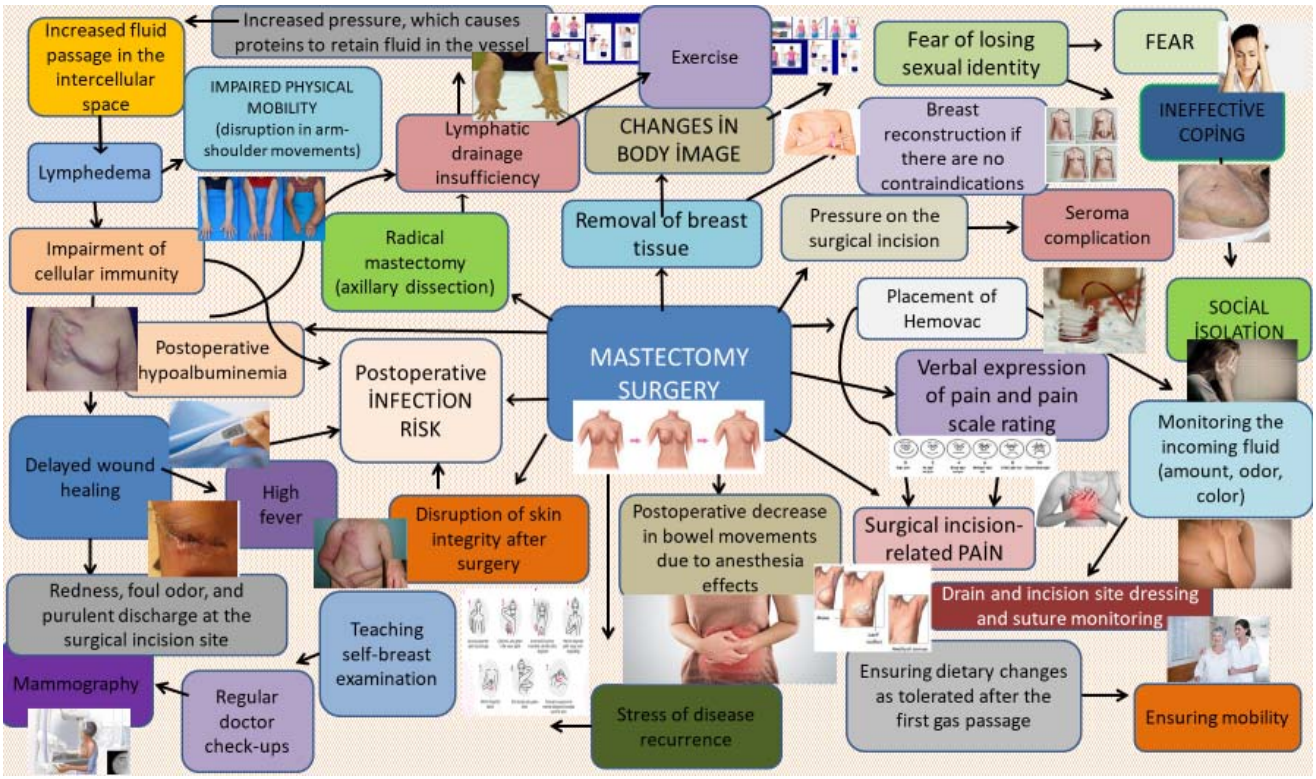

Figure 2. Concept map

Statistical Analysis

The SPSS 21.0 package programme was utilised for the purpose of conducting a statistical analysis of the data. The reliability of the measurement tools was ascertained by means of the Cronbach α coefficient. The skewness and kurtosis values were analysed in order to ascertain whether the measurements were normally distributed. It was determined that skewness and kurtosis values in the range of +3 and -3 indicated that the measurements showed a normal distribution (Pallant, 2020). The evaluation of the data was conducted by employing a range of statistical methodologies, including number, percentage, mean, standard deviation, chi-square, and independent sample t-test. The calculation of effect size was facilitated by Cohen's d value, with the following classification system being employed: effect size $0.10 \leq d \leq 0.24$= small level, $0.25 \leq d \leq 0.39$= medium level, and $0.40 \leq d$= large level (Çapık, 2014). The significance level of the tests was evaluated at $p<.05$.

Ethical Aspects of the Research

The research was subject to approval from the Ataturk University Ethics Committee (decision no. 2020-3/1, date: 06.04.2020) and written permission from the hospital where the research was conducted. Verbal and written consent

was obtained from the patients participating in the research. In accordance with the Helsinki Declaration of Human Rights, individual rights were protected during the study.

Results

It was determined that there was no statistically significant difference between the experimental and control groups in terms of descriptive characteristics and the groups were similar (p>.05) (Table 1).

The mean scores of the sub-dimensions of the Discharge Training Satisfaction Scale for the groups are compared in Table 2. A statistically significant difference was identified between the mean scores of the discharge training satisfaction scale sub-dimension and total scores of the patients in the experimental and control groups. In addition, the mean score of the discharge training satisfaction scale of the experimental group was higher than that of the control group (p<.05).

Table 1.
Comparison of the Descriptive Characteristics of the Patients in the Experimental and Control Groups

Variables	Experimental (n=33)		Control (n=33)	
	n	%	n	%
Age				
18-38	5	15.2	3	9.1
39-59	27	81.8	22	66.7
60 ve üzeri	1	3.0	8	24.2
$\chi2$= 6.455, p=.400				
Marital status				
Single	14	42.4	10	30.3
Married	19	57.6	23	69.7
$\chi2$= 1.048, p=.306				
Education Status				
Literate	16	48.5	15	45.5
Secondary education	12	36.4	12	36.4
Higher education	5	15.2	6	18.2
$\chi2$= .123, p=.940				
Family Type				
Nuclear family	27	81.8	24	72.7
Extended family	6	18.2	9	27.3
$\chi2$= .776, p=.378				
Having Children				
Yes	32	97	32	97
No	1	3	1	3
$\chi2$= .000, p=1.000				
$\chi2$= Chi-squared test				

Discussion

This is the first study to examine the effect of discharge training with concept map on discharge satisfaction after mastectomy. In this study, the findings obtained were interpreted and discussed in line with the literature and studies in the neighbouring group, since there were no studies directly related to the subject.

Table 2.
Comparison of the Mean Scores of the Sub-Dimensions of the Discharge Training Satisfaction Scale of the Groups

	Experimental Group $\bar{X}\pm SS$	Control Group $\bar{X}\pm SS$	Statistical Analysis
Discharge Training Satisfaction Scale			
Home Care	33.54±1.54	23.42±5.65	t=-9.925 p<.001 cohen d=2.44
Infection	14.36±0.69	10.03±2.83	t=-8.529 p<.001 cohen d=2.10
Controls	23.06±1.14	17.36±4.82	t=-6.597 p<.001 cohen d=1.62
Discharge Process	13.78±0.73	11.30±2.24	t=-6.044 p<.001 cohen d=1.48
Personal information	12.93±1.17	11.33±2.16	t=-3.755 p<.001 cohen d=0.92
Total	97.69±1.87	73.45±14.20	t=-9.71 p<.001 cohen d=2.39

In this study, when the findings of the descriptive characteristics of the experimental and control group patients were compared, it was found that there was no statistical significance between the marital status. educational status, family type and having children; the groups were similar in terms of these characteristics. The similarity of the groups is important in terms of the effectiveness and reliability of the application.

In the learning process, concept maps are used in clinical applications. case presentations and lectures. In the study conducted by Saeidifard et al., with medical students in which concept maps were used in teaching evidence-based education subjects, the total score of the experimental

group was higher than the control group. In their study, Saeidifard et al., stated that case presentations discussed with concept maps had positive effects on students' comprehension and critical thinking achievements (Saeidifard et al., 2014).

The correct discharge training of patients ensures that they are more ready for discharge and therefore discharge training is important in meeting patient needs. Discharge training provides patient-centred communication by involving patients in the discharge process. Concept maps enable information to be schematised and presented in a visual way and strengthen memory. In nursing, concept maps are used as a guide in planning work (Dil & Oz, 2016; Gümüş et al., 2020)

Mastectomy surgeries cause women to lose their self-esteem and cause physical and psychosocial problems (Neto et al., 2013; Odigie et al., 2010). In the literature, it is reported that symbols such as aesthetics. femininity. motherhood and sexuality are perceived as loss in women after mastectomy. Therefore. in order to prevent the emergence of these problems, it is necessary to inform women on issues such as body perception, skin care, and reconstruction. In the study, the mean scores of the discharge training satisfaction scale of the patients who received personalised information in the experimental group were significantly higher. Pourbalouch et al. (2019) argued that educational interventions can enable patients to confidently participate in the decision-making process and improve their problem-solving skills related to their health status (Pourbalouch et al., 2019). In Coşkun et al. (2016) study, it was suggested that both written and oral discharge training increased the knowledge levels of patients and helped them solve the problems they experienced after discharge. In this study. it was found that the patients in the experimental group who received concept map-based training had higher discharge training satisfaction scale scores compared to the control group (Coskun et al., 2018). This finding shows that the study is supported by the literature and that the experimental group patients who received education with concept maps were better informed than the control group patients. In the study conducted by Şahin et al., it was determined that patients who underwent colorectal cancer surgery needed information on treatment, complications and activities of daily living before discharge (Şahin et al., 2015). Especially after the surgical procedure, patients need more personal information, which makes discharge training very important. For this reason, it is thought that education with concept maps will be positively effective in the disease process and in the management of the disease.

Today, especially postoperative patients need home care needs. For this reason, nurses should provide discharge training to patients and their relatives for home care needs (Bilik, 2017). In the study, the mean scores of the home care sub-dimension of the discharge training satisfaction scale were found to be statistically significantly higher in the experimental group patients. In the randomised controlled study conducted by Mohammadi, Zabolypour, Ghaffari, and Arazi in Iran, when the discharge planning programme was applied to the families of stroke patients, the level of care readiness of the families in the experimental group was found to be high and it was observed that they experienced less stress (Mohammadi et al., 2019). In a study conducted by Ben-Morderchai et al., with orthopaedic patients who received discharge training. it was found that patients' home care needs and surgery-specific anxiety decreased, while patient satisfaction increased (Ben-Morderchai et al., 2010). In a study conducted by Hu et al. with kidney transplant patients who received individualised discharge training and telephone follow-up for one month, the readiness for discharge of the experimental group was found to be significantly higher (Hu et al., 2020). The mean scores of patients' readiness for discharge and home care were found to be statistically significant with the updated discharge training application by Waniga et al. (Waniga et al., 2016). Patients stated that they were satisfied with the discharge training given. As seen in the studies, it was found that patients who received discharge training had reduced home care needs and concerns, and had higher levels of patient satisfaction and readiness for discharge. The findings of the study support the literature.

In the study, it was found that the mean score of the discharge training satisfaction scale controls sub-dimension of the experimental group patients was statistically higher than the control group patients. Symptoms that were not present in the hospital may occur at home after discharge. Patients should be able to distinguish whether these symptoms are a normal part of recovery or whether they indicate the development of a complication. For this reason, nurses should check whether patient education is adequate before discharge and whether it is well understood by patients (Soyer et al., 2018).

Studies have found that discharge training increases satisfaction (Bol et al., 2015; Fırat & Öztunç, 2019; Tuna & Celik, 2014). In the study, the high mean scores of the patients in the experimental group on the discharge training satisfaction scale related to the discharge process coincide with the studies conducted.

In the study, it was found that the mean score of the experimental group was higher than that of the control group in the infection signs and symptoms sub-dimension of the discharge training satisfaction scale. Faydalı and Bayraktar found that patients receiving burn treatment and their relatives lacked information about dressing. exercise, drug use, position, Bathing, clothing needs, protection from infection and signs of infection after discharge and wanted to receive more information on these issues (Faydalı & Bayraktar, 2011). As a result of the study, it was found that providing education to patients on signs and symptoms of infection had a positive effect on patient satisfaction.

The findings of this study are similar to the literature and confirm the hypothesis *"H1: Post-mastectomy training with concept map has an effect on patients"* satisfaction level with discharge training.

Study Limitations

The results obtained in the study are limited to the answers given to the scale used and the self-reports of the patients. In addition, the pre-preparation of the concept map by the researcher was determined as the limitations of the study.

Conclusion and Recommendations

In the study, it was found that the total and sub-dimension mean scores of the discharge training satisfaction scale in the experimental group patients who received discharge training with concept map were higher and statistically significant compared to the control group patients.

Nurses use various methods to increase the effectiveness of patient education and patient satisfaction in the preoperative and postoperative period in clinics. In this study. discharge training with concept maps was found to be effective in increasing patient satisfaction and it is recommended to be used in discharge training of mastectomy patients. In the future, it is recommended to use patient education with concept maps in different patient groups and to evaluate its effectiveness.

Ethics Committee Approval: Ethics committee approval for this study was received from Atatürk University (Date: 6 April 2020, Number: 2020-3/1).
Informed Consent: Verbal and written consent was obtained from the patients participating in the study.
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The Effects of Mothers' Anxiety Level and Obsessive and Compulsive Behaviors Regarding Baby Care on Breastfeeding Motivation in the Postpartum Period

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ABSTRACT

Objective: The study was planned to investigate the relationship between mothers' anxiety and obsessive and compulsive behaviours related to baby care and breastfeeding motivation in the postpartum period.

Methods: The sample of the descriptive and correlational study consisted of 367 mothers who applied to the pediatric clinic of a state hospital in the Central Anatolia region between November 2022 and June 2023 for control purposes. The data were collected using Personal Information Form, Primiparous Breastfeeding Motivation Scale (PBMS), Postpartum Specific Anxiety Scale (PSAS) and Obsessive and Compulsive Behaviours of Mothers Towards Baby Care in the Postpartum Period Scale (PPOCBS). Descriptive statistics, independent groups t test, One-Way ANOVA test and Pearson correlation analysis were used to analyse the data.

Results: The mean scores of PSAS and PPOCBS the mothers who participated in the study were 112.33±3.90, and 26.36±10.80, respectively. The mean scores of the value ascribed to breastfeeding, self- effectiveness, midwife support and expectation of success sub-dimensions of the PBMS scale were 77.19±17.43, 41.71±9.71, 20.19±7.64 and 10.84±6.20, respectively. It was determined that there was a significant relationship between the total mean score of the PSAS and the sub-dimension scores of value ascribed to breastfeeding and success expectation levels of the PBMS. It was found that there was a significant relationship between the mean score of the mothers' PPOCBS and the mean score of the value ascribed to breastfeeding sub-dimension of PBMS.

Conclusion: In the postpartum period, as value ascribed to breastfeeding increases, anxiety increases and success expectancy decreases. As the PPOCBS increases, value ascribed to breastfeeding decreases.

Keywords: Breastfeeding motivation, obsessive compulsive disorder, postpartum anxiety

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Introduction

The postpartum period is a transition period in which psychological changes occur following the pregnancy and birth process of a woman (Aydın et al., 2022). This period includes postpartum recovery, transitioning into the role of motherhood, assuming new parenting responsibilities, and adapting to overall life changes. Adjusting to these changes can negatively impact the mother's mental health, leading to anxiety (Zappas et al., 2021). Anxiety is one of the most common psychological problems in the postpartum period, and its prevalence rate varies between 13-40% (Field, 2018). Postpartum anxiety may have negative consequences on both maternal and infant health, such as inability to adapt to the maternal role, mother-infant attachment problems, sleep disorders, depression and breastfeeding problems (Bayrı Bingöl & Demirgöz Bal, 2021; Field, 2018).

Another psychological problem that the mother may experience in the postpartum period is the development of obsessive-compulsive behaviours (Russell et al., 2013). Obsessive-compulsive disorder (OCD) is a psychiatric disorder characterised by obsessions and compulsions. While obsessions are defined as involuntary, recurring and distressing thoughts, images or impulses, compulsions are defined as repetitive behaviours or mental actions (Tahir & Fatima, 2018; Tharwat et al., 2022). The prevalence rate of OCD in women in the postpartum period is between 2.43-9% (Ferra et al., 2024), which is approximately 1.5-2 times higher than women in the general population (Russell et al., 2013). Obsessive-compulsive behaviours that occur in the postpartum period are generally more common in primiparous mothers (Fairbrother et al., 2021). The most common obsessive thought in this period is the fear of harming the baby, while the most common compulsions are safety-oriented behaviours such as online information search and cleaning (Garcia et al., 2023). During this period, the woman tries to get away from her baby with the thought that she will harm her baby. For this reason, women's breastfeeding motivation during the postpartum period, and consequently breastfeeding rates, may be negatively affected (Challacombe et al., 2016; Kurt & Söyler, 2022). In a study, breastfeeding rates were found to be lower in mothers with OCD (Challacombe et al., 2016). Motivation is defined as the mobilising force (Pinto et al., 2016). Breastfeeding motivation is an important factor in initiation and maintenance of breastfeeding (Dağlı & Reyhan, 2023). The literature lacks studies examining the effect of maternal anxiety and obsessive-compulsive behaviors related to infant care on breastfeeding motivation during the postpartum period. Therefore, this research was planned to examine the relationship between mothers' anxiety and obsessive and compulsive behaviours towards infant care and breastfeeding motivation in the postpartum period.

Questions of the Study

1. What is the anxiety level of mothers in the postpartum period?
2. What is the level of obsessive and compulsive behaviour of mothers towards infant care in the postpartum period?
3. What is the level of breastfeeding motivation of mothers in the postpartum period?
4. Is there a relationship between mothers' anxiety level and breastfeeding motivation in the postpartum period?
5. Is there a relationship between mothers' obsessive and compulsive behaviours towards infant care and breastfeeding motivation in the postpartum period?

Methods

Type of the Study

This study is descriptive and correlational.

Setting and Time of the Study

The study data were collected between November 2022 and June 2023 in a state hospital in Central Anatolia. The objective of the study was explained to the mothers and their verbal and written consents were obtained. The mothers who agreed to participate in the study completed the data collection forms within 10-15 minutes on average. The study data were collected in the breastfeeding and infant care room of the hospital, paying attention to privacy.

Universe and Sampling of the Study

The universe of the study was composed of women who applied to the paediatric service of a state hospital in the Central Anatolia region for control purposes, who were between the 2nd-8th week in the postpartum period and who were mothers for the first time. The sample size of the study was calculated as 367 people by selecting 1 unit difference from the known mean score, 0.95 power, 0.05 alpha level and two-way hypothesis options with the G-power 3.1.9.7. programme, based on the mean score of PPOCBS (17.77±5.28) (Faul et al., 2007; Faul et al., 2009; Üstüngör, 2022).

Mothers who were 18 years of age or older, could speak and understand Turkish, gave birth for the first time between 37-42 weeks of gestation, were between 2-8 weeks postpartum, and had no diagnosis of psychiatric illness were included in the study. Mothers who were diagnosed with

OCD and whose infants had health problems were not included in the study.

Data Accumulation Tools

Research data were collected based on self-report using Personal Information Form, Primiparous Breastfeeding Motivation Scale (PBMS), Postpartum Specific Anxiety Scale (PSAS) and Obsessive and Compulsive Behaviours of Mothers Towards Baby Care in the Postpartum Period Scale (PPCOBS).

Personal Information Form

The Personal Information Form consists of 12 questions including the sociodemographic characteristics of the mothers and their spouses and 11 questions including the obstetric characteristics of the mothers (Bayrı Bingöl & Demirgöz Bal, 2021; Yalçın & Kaya, 2020).

Primiparous Breastfeeding Motivation Scale (PBMS)

The scale, whose Turkish validity and reliability study was conducted by Akçay and Demirgöz-Bal in 2020, was developed by Stockdale et al. in 2013 to determine the factors affecting breastfeeding motivation in primiparous women (Akçay & Demirgöz-Bal, 2020; Stockdale et al., 2013). The scale has a total of 29 items and a 7-point Likert type with four sub-dimensions: the value ascribed to breastfeeding, self-effectiveness, midwife support and expectation of success sub-dimensions (Akçay & Demirgöz Bal, 2020). There is not any cut-off value and total score in the evaluation of the scale. In the scale, the scores obtained in each subscale are totalled and evaluated. As the score obtained from each subscale increases, the level of breastfeeding motivation for that subscale also increases (Stockdale et al., 2013; Akçay & Demirgöz Bal, 2020). In the internal consistency analysis of the scale, Cronbach's alpha reliability coefficient was found to be α=0.884 for the sub-dimension of the value ascribed to breastfeeding, α=0.825 for the self-effectiveness sub-dimension, α=0.686 for the midwife support sub-dimension and α=0.873 for the expectation of success sub-dimension (Akçay & Demirgöz Bal, 2020). In this study, the Cronbach's alpha reliability coefficient of the scale was α=0.948 for the sub-dimension of the value ascribed to breastfeeding, α=0.925 for the self-effectiveness sub-dimension, α=0.919 for the midwife support sub-dimension and α=0.729 for the expectation of success sub-dimension.

Postpartum Specific Anxiety Scale (PSAS)

The scale, whose Turkish validity and reliability study was conducted by Bayrı Bingöl et al. (2019) was developed by Fallon et al. (2016) to evaluate anxiety symptoms in the first month of the postpartum period (Bayrı Bingöl et al., 2019; Fallon et al., 2016). The scale is a 4-point Likert-type scale consisting of 44 items and four sub-dimensions: maternal competence and attachment anxieties, infant safety and welfare anxieties, practical infant care anxieties, and psychosocial adjustment to motherhood. A minimum of 44 and a maximum of 176 points can be obtained from the scale. High scores obtained from the scale indicate that anxiety symptoms are more intense (Bayrı Bingöl et al., 2019). In the validity and reliability study of the scale, the Cronbach's alpha reliability coefficient of the total score was 0.95. The Cronbach's alpha reliability coefficients of the sub-dimensions of the scale are: maternal competence and attachment anxieties 0.90; infant safety and welfare anxieties 0.89; practical infant care anxieties 0.84; and psychosocial adjustment to motherhood 0.84. In this study, Cronbach's alpha reliability coefficient of the scale was found to be 0.97.

Obsessive and Compulsive Behaviours of Mothers Towards Baby Care in the Postpartum Period Scale (PPOCBS)

PPOCBS is a 5-point Likert-type scale consisting of nine items and a single dimension developed by Özdemir et al. (2020) to determine mothers' obsessive and compulsive behaviours related to infant care, which can be applied between the 2nd and 8th week in the postpartum period. Each item in the scale is scored between 1 and 5. High scores obtained from the scale indicate that mothers in the postpartum period exhibit more obsessive and compulsive behaviours related to infant care. The Cronbach's alpha reliability coefficient of the scale was 0.75 (Özdemir et al., 2020). In this study, Cronbach's alpha reliability coefficient of the scale was found to be 0.93.

Ethical Considerations of the Study

Ethics committee approval was obtained from Selcuk University Non-Interventional Research Ethics Committee (Approval Date: 03/11/2022; Approval No:2022/1080), institutional permission was obtained from the hospital where the study was conducted, and verbal and written informed consent was obtained from the women participating in the study. All steps of the study were carried out in accordance with the Declaration of Helsinki.

Data Analysis

Statistical analysis of the data obtained was performed with Statistical Package for Social Science 25.0 package programme (IBM SPSS Corp., Armonk, NY, USA). Descriptive variables were administered using numbers, percentages, and normally distributed data, mean, and standard deviation (SD). The appropriateness of the variables for

normal distribution was determined by the Skewness and Kurtosis values between −1.5 and +1.5 (Tabachnick et al., 2013). In the intergroup comparisons of PSAS, PPOCBS and PBMS sub-dimensions scores, independent samples t test was used for paired groups and One-Way ANOVA test was used for multiple groups. The relationship between PSAS and PPOCBS and PBMS sub-dimensions was evaluated by Pearson correlation analysis. Statistical significance level was accepted as $p<.05$.

Results

The mean age of the mothers participating in the study was 24.37±3.91 years, the mean age of the spouses was 27.13±4.12 years and the mean duration of marriage was 1.93±1.23 years. The total mean score of the PSAS was 112.33±3.90 and 34.9% of the participants had high anxiety level. When the PSAS sub-dimensions were examined, the mean score of the maternal competence and attachment anxieties sub-dimension was 35.33±2.26, the mean score of the infant safety and welfare anxieties sub-dimension was 31.68±2.03, the mean score of the practical infant care anxieties sub-dimension was 28.45±2.69, and the mean score of the psychosocial adjustment to motherhood sub-dimension was 16.88±1.69. The mean score of PPOCBS was 26.36±10.80. Among the PBMS sub-dimensions, the mean score of the value ascribed to breastfeeding sub-dimension was 77.19±17.43, the mean score of the self-effectiveness sub-dimension was 41.71±9.71, the mean score of the midwife support sub-dimension was 20.19±7.64 and the mean score of the expectation of success sub-dimension was 10.84±6.20 (Table 1).

Table 2 presents information on the sociodemographic and obstetric characteristics of the participants.

In Table 3, the comparison of the mean scores of PSAS total and sub-dimensions, PPOCBS total and PBMS sub-dimensions according to the sociodemographic characteristics of the participants is given. It was determined that there was a statistically significant difference between the educational level of the participants and the mean score of PSAS total ($p=.035$) and infant safety and welfare anxietiessub-dimension ($p<.001$), PPOCBS total ($p<.001$), value ascribed to breastfeeding ($p=.003$), self- effectiveness ($p=.015$), midwife support ($p=.028$) and expectation of success ($p=.032$) sub-dimensions of PBMS. It was determined that there was a statistically significant difference between the participants' family type and the mean scores of psychosocial adjustment to motherhood ($p=.010$) and the value ascribed to breastfeeding ($p=.037$) sub-dimensions. It was determined that there was a statistically significant difference between the participants' perception of income status and the mean scores of PPOCBS total ($p<.001$) and midwife support ($p=.015$) sub-dimension. It was determined that there was a statistically significant difference between the level of education of the spouses of the participants and the mean scores of the infant safety and welfare anxieties sub-dimension ($p=.020$) and PPOCBS total ($p<.002$). There was a statistically significant difference between the employment status of the spouses of the participants and the mean scores of PSAS ($p=.012$) and PPOCBS total ($p=.004$). It was determined that there was a statistically significant difference between the participants' health insurance and PSAS total ($p=.038$) and the practical infant care anxieties sub-dimension ($p=.023$) and PPOCBS total ($p=.001$) mean scores. It was determined that there was a statistically significant difference in terms of the mean scores of PPOCBS total ($p=.001$) and the value ascribed to breastfeeding sub-dimension ($p=.025$) with the smoking of the spouses of the participants (Table 3).

Table 1.
Certain Characteristics of the Participants and the Mean Scores of the PSAS and Its Sub-Dimensions, PPOCBS, and PBMS Sub-Dimensions (n=367)

Characteristics	Minimum	Maximum	Mean	Standard Deviation
Age	18	42	24.37	3.91
Age of the spouse	18	48	27.13	4.12
Duration of marriage	1	10	1.93	1.23
PSAS	101	129	112.33	3.90
PSAS sub-dimensions				
Maternal competence and attachment anxieties	27	45	35.33	2.26
Infant safety and welfare anxieties	26	38	31.68	2.03
Practical infant care anxieties	23	37	28.45	2.69
Psychosocial adjustment to motherhood	9	22	16.88	1.69
PPOCBS	9	45	26.36	10.8
PBMS sub-dimensions				
Value ascribed to breastfeeding	13	91	77.19	17.43
Self-effectiveness	7	49	41.71	9.71
Midwife support	4	28	20.19	7.64
Expectation of success	5	35	10.84	6.20

PSAS: Postpartum Specific Anxiety Scale; PPOCBS: Obsessive and Compulsive Behaviours of Mothers Towards Baby Care in the Postpartum Period Scale; PBMS: Primiparous Breastfeeding Motivation Scale

Table 2.
Sociodemographic and Obstetric Characteristics of the Participants

Characteristics	n	%
Educational level		
Primary	72	19.6
High school	157	42.8
College and over	138	37.6
Family type		
Nuclear	310	84.5
Extended	57	15.5
Employment status		
Yes	53	14.4
No	314	85.6
Perceived income level		
Income less than expenses	118	32.2
Income equal to expenses	206	56.1
Income more than expenses	43	11.7
Spouse's educational level		
Primary	103	28
High school	136	37.1
College and over	128	34.9
Spouse's employment status		
Yes	343	93.5
No	24	6.5
Health insurance		
Yes	310	84.5
No	57	15.5
Smoking status		
Yes	30	8.2
No	337	91.8
Spouse's smoking status		
Yes	212	57.8
No	155	42.2
Number of Pregnancies		
Primary pregnancy	323	88.0
2 and over	44	12.0
Number of miscarriages		
Never had a miscarriage	323	88.0
1 and over	44	12.0
Planned pregnancies		
Yes	327	89.1
No	40	10.9
Pregnancy desired		
Yes	360	98.1
No	7	1.9
Participating in pregnancy training sessions		
Yes	90	24.5
No	277	75.5
Type of birth		
Vaginal	205	55.9
C-section	162	44.1
Postpartum week		
Weeks 2 to 4	322	87.7
Weeks 5 to 8	45	12.3
History of psychiatric disorders		
Yes	12	3.3
No	355	96.7
Experiencing difficulties in daily tasks during the postpartum period		
Yes	321	88.8
No	41	11.2
In the postpartum period difficulties in daily work		
Housework is difficult and too much	155	42.0
Difficulties in caring for the baby	88	24.0
Difficulty in cooking with baby care	170	46.3
Difficulty in eating with baby care	121	33.0
Lack of spousal support	27	7.4
Other	4	1.1
Adjustment to the role of motherhood		
Yes	357	97.3
No	10	2.7

In Table 4, the comparison of the mean scores of PSAS total and sub-dimensions, PPOCBS total and PBMS sub-dimensions according to the obstetric characteristics of the participants is given. It was determined that there was a statistically significant difference between the planned pregnancy of the participants and the mean scores of psychosocial adaptation to motherhood sub-dimension (p=.023) and midwife support (p<.001). It was found that there was a statistically significant difference in terms of the sub-dimensions of maternal competence and attachment anxieties (p=.020) and the expectation of success (p=.041) with the participants having a desired pregnancy. It was detected that there was a statistically significant difference in the mean score of the sub-dimension of midwife support (p=.009) with the participants' participation in the pregnancy training sessions. It was determined that there was a statistically significant difference in terms of the mean score of the psychosocial adjustment to motherhood (p=.001) sub-dimension with the participants' experiencing difficulties in daily tasks during the postpartum period.

Table 3.
Comparison of PSAS Total and Sub-dimensions, PPOCBS Total and PBMS Sub-dimensions Score Averages according to Sociodemographic Characteristics of the Participants (n=367)

Characteristics	PSAS Total Mean±SD	Maternal competence and attachment anxieties Mean±SD	Infant safety and welfare anxieties Mean±SD	Practical infant care anxieties Mean±SD	Psychosocial adjustment to motherhood Mean±SD	PPOCBS Total Mean±SD	Value ascribed to breastfeeding Mean±SD	Self-effectiveness Mean±SD	Midwife support Mean±SD	Expectation of success Mean±SD
Educational level										
Primary[a]	111.40±2.85	35.51±1.76	30.74±1.78	27.97±2.42	17.18±1.79	30.04±12.16	70.92±22.63	38.93±12.47	20.21±7.58	12.19±6.79
High school[b]	112.83±4.44	35.53±2.34	31.73±1.97	28.69±2.84	16.89±1.62	26.73±10.30	78.78±16.72	42.93±9.17	21.29±7.45	9.97±5.78
College and over[c]	112.25±3.62	35.01±2.36	32.12±2.06	28.42±2.64	16.71±1.71	24.02±10.01	78.64±14.20	41.76±8.35	18.91±7.74	11.12±6.22
F; p	F= 3.391 **p=.035 a<b**	F= 2.278 p=.104	F=11.680 **p<.001 a<b, c**	F=1.761 p=.173	F=1.844 p=.160	F=7.786 **p<.001 c<a**	F=5.956 **p=.003 a<b, c**	F=4.266 **p=.015 a<b**	F=3.615 **p=.028 c<b**	F=3.465 **p=.032 b<a**
Family type										
Nuclear	112.43±3.40	35.25±2.30	31.69±2.06	28.53±2.78	16.97±1.64	26.45±10.82	78.16±16.48	42.15±9.29	20.43±7.61	10.55±6.03
Extended	111.79±3.29	35.79±1.91	31.63±1.88	28.02±2.18	16.35±1.87	25.88±10.78	71.86±21.24	39.32±11.53	18.86±7.71	12.40±6.86
t; p	t=1.145 p=.253	t=-1.679 p=.094	t=0.190 p=.850	t=1.543 p=.126	t=2.579 **p=.010**	t=0.367 p=0.714	t=2.126 **p=.037**	t=1.751 p=.084	t=1.427 p=.154	t=-1.907 p=.060
Employment status										
Yes	111.85±3.71	34.92±2.18	32.06±2.21	28.13±2.22	16.74±1.62	27.17±11.24	79.47±14.08	42.38±7.88	20.13±7.61	11.70±7.69
No	112.41±3.93	35.40±2.26	31.61±1.20	28.50±2.77	16.90±1.70	26.22±10.74	76.80±17.92	41.59±9.99	20.19±7.66	10.69±5.91
t; p	t=-0.976 p=.330	t=-1.416 p=.158	t=1.470 p=.142	t=-1.074 p=.286	t=-0.659 p=.511	t=0.590 p=.556	t=1.033 p=.302	t=0.544 p=.587	t=-0.055 p=.956	t=1.091 p=.276
Perceived income level										
Income less than expenses[a]	112.52±3.58	35.19±2.14	31.47±2.05	28.81±2.62	17.06±1.54	29.10±10.29	75.10±19.83	40.79±11.22	18.67±8.17	10.36±5.99
Income equal to expenses[b]	112.26±4.16	35.42±2.29	31.71±1.93	28.28±2.72	16.85±1.75	24.14±10.71	78.45±16.25	42.19±9.12	21.17±7.24	11.03±6.44
Income more than expenses[c]	112.16±3.45	35.30±2.46	32.12±2.35	28.26±2.74	16.49±1.76	29.47±10.30	76.84±15.56	41.88±7.84	19.63±7.43	11.23±5.58
F; p	F=0.223 p=.800	F=0.396 p=.673	F=1.680 p=.188	F=1.619 p=.200	F=1.850 p=.159	F=10.441 **p<.001 b<a, c**	F=1.399 p=.248	F=0.794 p=.453	F=4.221 **p=.015a< b**	F=0.528 p=.590
Spouse's educational level										
Primary[a]	112.17±3.87	35.49±2.04	31.23±2.00	28.30±2.65	17.16±1.54	29.25±11.31	74.44±21.23	40.93±11.83	21.34±7.71	11.06±6.53
High school[b]	112.51±4.13	35.40±2.38	31.74±1.96	28.53±2.77	16.84±1.77	26.11±10.03	79.02±15.30	42.89±8.53	19.97±7.26	11.08±6.73
College and over[c]	112.27±3.67	35.13±2.29	31.97±2.07	28.48±2.67	16.70±1.71	24.30±10.75	77.45±15.94	41.07±8.92	19.48±7.92	10.41±5.28
F; p	F=0.251 p=.778	F=0.847 p=.430	F=3.929 **p=.020 a<c**	F=0.222 p=.801	F=2.186 p=.114	F=6.239 **p=.002 c<a**	F=2.063 p=.129	F=1.618 p=.200	F=1.776 p=.171	F=0.479 p=.620
Spouse's employment status										
Yes	112.43±3.95	35.35±2.19	31.72±2.03	28.46±2.72	16.91±1.67	25.93±10.70	77.29±17.44	41.72±9.70	20.13±7.68	10.65±5.98
No	110.88±2.67	35.04±3.04	31.13±1.92	28.29±2.35	16.42±1.95	32.50±10.68	75.67±17.46	41.46±10.04	21.04±7.20	13.50±8.42
t; p	t=2.660 **p=.012**	t=0.647 p=.518	t=1.385 p=.167	t=0.292 p=.771	t=1.383 p=.167	t=-2.910 **p=.004**	t=0.441 p=.659	t=0.129 p=.897	t=-0.568 p=.571	t=-1.628 p=.116
Health insurance										
Yes	112.51±3.94	35.31±2.31	31.75±2.07	28.58±2.72	16.86±1.64	25.55±10.54	77.63±16.68	41.81±9.30	20.24±7.59	10.82±6.10
No	111.35±3.54	35.42±1.93	31.26±1.75	27.70±2.46	16.96±1.94	30.77±11.24	74.77±21.01	41.12±11.76	19.89±7.99	10.93±6.73

t; p	t=2.079 ***p*=.038**	t=-0.332 *p*=.740	t=1.687 *p*=.092	t=2.286 ***p*=.023**	t=-0.425 *p*=.671	t=-3.404 ***p*=.001**	t=1.138 *p*=.256	t=0.493 *p*=.623	t=0.312 *p*=.755	t=-0.120 *p*=.905
Smoking status										
Yes	112.37±5.01	35.67±2.61	31.90±2.54	28.43±2.64	16.37±2.34	29.33±9.76	78.67±12.73	42.93±6.86	22.33±7.26	11.70±5.34
No	112.33±3.79	35.30±2.22	31.66±1.98	28.45±2.70	16.92±1.61	26.09±10.86	77.05±17.92	41.60±9.92	19.99±7.65	10.76±6.27
t; p	t=0.050 *p*=.960	t=0.854 *p*=.394	t=0.507 *p*=.615	t=-0.029 *p*=.977	t=-1.274 *p*=.212	t=1.577 *p*=.116	t=0.485 *p*=.628	t=0.722 *p*=.471	t=1.611 *p*=.108	t=0.794 *p*=.428
Spouse's smoking status										
Yes	112.24±4.11	35.31±2.33	31.53±2.09	28.51±2.68	16.88±1.74	27.93±10.86	75.53±19.33	41.05±10.65	20.23±7.86	10.99±6.61
No	112.46±3.59	35.35±2.16	31.88±1.92	28.35±2.72	16.88±1.63	24.21±10.37	79.45±14.17	42.60±8.20	20.12±7.35	10.64±5.59
t; p	t=-0.555 *p*=.579	t=-0.182 *p*=.855	t=-1.633 *p*=.103	t=0.559 *p*=.576	t=0.000 *p*=1.000	t=3.310 ***p*=.001**	t=-2.244 ***p*=.025**	t=-1.573 *p*=.117	t=0.134 *p*=.893	t=0.544 *p*=.587

SD: Standard Deviation; t=Independent sample t-test; F=One way variance analysis (one-way ANOVA)
PSAS: Postpartum Specific Anxiety Scale; PPOCBS: Obsessive and Compulsive Behaviours of Mothers Towards Baby Care in the Postpartum Period Scale; PBMS: Primiparous Breastfeeding Motivation Scale

It was found that there was a statistically significant difference between the mean scores of the participants in terms of adjustment to the maternal role and the sub-dimensions of self-effectiveness (*p*=.010) and expectation of success (*p*=.001) (Table 4).

In Table 5, the correlation coefficients between the PSAS and PPOCBS scores of the participants and the PBMS sub-dimension scores are given. It was determined that there was a very weak, positive and statistically significant relationship (*p*=.039) between the total score of the PSAS and the sub-dimension score of the value ascribed to breastfeeding. It was found that there was a very weak, negative (*p*=.008) and statistically significant relationship between the participants' PSAS total score and expectation of success sub-dimension score. It was determined that there was a very weak, negative and statistically significant relationship (*p*=.020) between the total score of PPOCBS and the sub-dimension score of the value ascribed to breastfeeding.

Discussion

This research contains information to determine the relationship between mothers' anxiety and obsessive and compulsive behaviours towards infant care and breastfeeding motivation in the postpartum period. In the present study, it was determined that mothers had high levels of postpartum anxiety. In previous studies, the fact that mothers have high levels of anxiety in the postpartum period supports the findings of the study (Bayrı Bingöl & Demirgöz Bal, 2021; Yalçın & Kaya, 2020). Unlike the findings of this study, in a study conducted by Kılıç Doğan and Cesur (2023) (Kılıç Doğan & Cesur, 2023) and another study conducted by Duran and Kaynak (2021), it was observed that mothers had moderate anxiety (Duran & Kaynak, 2021). According to the findings of the study, the postpartum anxiety level of high school graduate mothers was higher than that of primary school graduate mothers. Similar to the findings of the present study, in a study conducted by Kılıç Doğan and Cesur (2023), it was reported that mothers with high school graduates had higher postpartum anxiety levels than mothers with primary education graduates (Kılıç Doğan & Cesur, 2023). This result can be interpreted as women with higher education level have more awareness and therefore experience more anxiety. Unlike the findings of the study, in the study conducted by Bayrı Bingöl and Demirgöz Bal (2021), there was not a significant difference between mothers' education level and anxiety levels (Bayrı Bingöl & Demirgöz Bal, 2021). In the present study, anxiety levels of mothers whose spouses were not working and had no social security were found to be higher. In contrast to these findings, in a study conducted by Kılıç Doğan and Cesur (2023), it was reported that the anxiety levels of mothers with social security were higher (Kılıç Doğan & Cesur, 2023).

In the present study, it can be expressed that the mean PPOCBS score of women was at a moderate level. The fact that the mean PPOCBS scores of women in conducted studies were at a moderate level supports the findings of the present study (Kabul & Çınar, 2023; Kırca et al., 2022).

Table 4.
Comparison of PSAS Total and Sub-dimensions, PPOCBS Total and PBMS Sub-dimensions Score Averages according to Obstetric Characteristics of the Participants (n=367)

Characteristics	PSAS Total Mean±SD	Maternal competence and attachment anxieties Mean±SD	Infant safety and welfare anxieties Mean±SD	Practical infant care anxieties Mean±SD	Psychosocial adjustment to motherhood Mean±SD	PPOCBS Total Mean±SD	Value ascribed to breastfeeding Mean±SD	Self-effectiveness Mean±SD	Midwife support Mean±SD	Expectation of success Mean±SD
Number of miscarriages										
1 and over	112.86±4.76	35.50±2.50	32.02±2.05	28.36±2.51	16.98±1.55	26.98±11.47	76.02±17.76	41.20±9.80	20.02±7.26	9.64±5.61
Never had a miscarriage	112.26±3.77	35.31±2.23	31.63±2.02	28.46±2.72	16.86±1.71	26.28±10.72	77.34±17.40	41.77±9.71	20.21±7.70	11.00±6.26
t; p	t=0.807 *p*=.423	t=0.533 *p*=.594	t=1.201 *p*=.230	t=-0.218 *p*=.827	t=0.417 *p*=.677	t=0.404 *p*=.687	t=-0.471 *p*=.638	t=-0.365 *p*=.716	t=-0.150 *p*=.881	t=-1.374 *p*=.170
Planned pregnancies										
Yes	112.38±3.86	35.34±2.20	31.67±2.03	28.39±2.68	16.98±1.55	26.21±10.88	77.38±17.53	41.83±9.81	20.78±7.45	10.80±6.20
No	111.97±4.19	35.25±2.72	31.78±2.04	28.90±2.82	16.05±2.44	27.58±10.17	75.63±16.64	40.68±8.92	15.33±7.50	11.20±6.25
t; p	t=0.614 *p*=.540	t=0.237 *p*=.813	t=-0.319 *p*=.750	t=-1.128 *p*=.260	t=2.351 ***p*=.023**	t=-0.754 *p*=.452	t=0.599 *p*=.549	t=0.711 *p*=.478	t=4.367 ***p*<.001**	t=-0.390 *p*=.697
Pregnancy desired										
Yes	112.34±3.86	35.29±2.22	31.70±2.01	28.45±2.68	16.90±1.66	26.35±10.86	77.22±17.54	41.74±9.78	20.29±7.61	10.75±6.18
No	112.00±5.71	37.29±3.30	30.71±2.63	28.14±3.76	15.86±2.91	26.86±7.27	75.57±10.69	40.14±4.56	14.71±7.91	15.57±5.74
t; p	t=0.228 *p*=.820	t=-2.331 ***p*=.020**	t=1.272 *p*=.204	t=0.301 *p*=.763	t=0.942 *p*=.382	t=-0.181 *p*=.862	t=0.247 *p*=.805	t=0.430 *p*=.668	t=1.920 *p*=.056	t=-2.049 ***p*=.041**
Participating in pregnancy training sessions										
Yes	112.30±3.49	35.43±2.25	31.87±1.97	28.11±2.38	16.89±1.84	26.70±11.05	75.02±18.15	41.18±9.87	21.90±6.83	10.71±5.57
No	112.34±4.03	35.30±2.26	31.62±2.04	28.56±2.78	16.87±1.64	26.25±10.74	77.89±17.16	41.88±9.67	19.63±7.82	10.88±6.39
t; p	t=-0.091 *p*=.928	t=0.501 *p*=.616	t=1.014 *p*=.311	t=-1.363 *p*=.174	t=0.074 *p*=.941	t=0.344 *p*=.731	t=-1.357 *p*=.176	t=-0.593 *p*=.553	t=2.642 ***p*=.009**	t=-0.226 *p*=.822
Type of birth										
Vaginal	112.17±3.75	35.26±2.27	31.61±2.02	28.48±2.77	16.81±1.86	26.51±10.80	77.54±17.21	41.83±9.74	20.32±7.73	11.12±6.20
C-section	112.54±4.08	35.42±2.24	31.77±2.04	28.40±2.60	16.96±1.46	26.17±10.83	76.74±17.74	41.55±9.69	20.02±7.55	10.49±6.21
t; p	t=-0.921 *p*=.358	t=-0.680 *p*=.497	t=-0.730 *p*=.466	t=0.288 *p*=.773	t=-0.800 *p*=.424	t=0.304 *p*=.761	t=0.434 *p*=.665	t=0.274 *p*=.784	t=0.371 *p*=.711	t=0.966 *p*=.335
History of psychiatric disorders										
Yes	111.42±4.06	35.83±2.62	30.92±2.35	28.17±3.16	16.50±1.98	28.58±11.54	79.00±11.66	43.33±5.57	20.58±7.90	13.33±6.95
No	112.36±3.89	35.31±2.24	31.70±2.01	28.46±2.68	16.89±1.68	26.28±10.78	77.12±17.60	41.65±9.82	20.17±7.64	10.75±6.16
t; p	t=-0.827 *p*=.409	t=0.786 *p*=.432	t=-1.325 *p*=.186	t=-0.366 *p*=.715	t=-0.786 *p*=.432	t=0.725 *p*=.469	t=0.366 *p*=.714	t=0.590 *p*=.556	t=0.183 *p*=.855	t=1.420 *p*=.157
Experiencing difficulties in daily tasks during the postpartum period										
Yes	112.33±3.97	35.32±2.29	31.75±2.06	28.46±2.72	16.80±1.73	26.65±10.77	77.15±17.45	41.62±9.75	20.22±7.67	10.80±6.13
No	112.37±3.25	35.39±1.95	31.15±1.67	28.34±2.54	17.49±1.14	24.02±10.92	77.44±17.41	42.39±9.44	19.88±7.45	11.126.76
t; p	t=-0.058 *p*=.954	t=-0.182 *p*=.856	t=1.789 *p*=.074	t=0.266 *p*=.791	t=-3.391 ***p*=.001**	t=1.471 *p*=.142	t=-0.099 *p*=.921	t=-0.478 *p*=.633	t=0.273 *p*=.785	t=-0.310 *p*=.757
Adjustment to the role of motherhood										
Yes	112.39±3.90	35.30±2.25	31.70±2.04	28.47±2.72	16.91±1.64	26.19±10.79	77.48±17.20	41.92±9.55	20.21±7.63	10.67±6.10
No	110.40±3.24	36.50±2.12	30.80±1.40	27.50±1.43	15.60±2.88	32.40±9.64	66.70±22.73	33.90±12.54	19.30±8.45	17.00±6.63
t; p	t=1.593 *p*=.112	t=-1.668 *p*=.096	t=1.391 *p*=.165	t=1.128 *p*=.260	t=1.438 *p*=.184	t=-1.799 *p*=.073	t=1.937 *p*=.054	t=2.598 ***p*=.010**	t=0.371 *p*=.711	t=-3.229 ***p*=.001**

SD: Standard Deviation; t=Independent sample t-test; F=One way variance analysis (one-way ANOVA)
PSAS: Postpartum Specific Anxiety Scale; PPOCBS: Obsessive and Compulsive Behaviours of Mothers Towards Baby Care in the Postpartum Period Scale; PBMS: Primiparous Breastfeeding Motivation Scale

Table 5.
Correlation Coefficients of PSAS and PPOCBS Scores of the Participants with the Scores Obtained from PBMS Sub-dimensions (n=367)

	Value ascribed to breastfeeding	Self-effectiveness	Midwife support	Expectation of success
PSAS				
r	0.108	0.100	-0.003	-0.139
p	**.039**	.055	.952	**.008**
PPOCBS				
r	-0.121	-0.092	0.017	0.100
p	**.020**	.077	.739	.057

r: Pearson correlation analysis
PSAS: Postpartum Specific Anxiety Scale; PPOCBS: Obsessive and Compulsive Behaviours of Mothers Towards Baby Care in the Postpartum Period Scale; PBMS: Primiparous Breastfeeding Motivation Scale

Unlike the findings of the study, Üstüngör (2022) reported that the mean PPOCBS scores of women were at a mild level (Üstüngör, 2022). According to the findings of the present study, it was found that women with primary education and their spouses had higher mean PPOCBS scores than women with university and higher education and their spouses. Similar to the findings of the study, Kabul and Çınar (2023) reported that women who graduated from secondary school had higher mean PPOCBS scores (Kabul & Çınar, 2023). Unlike the findings of the study, in the study of Kırca et al. (2022), it was reported that the mean PPOCBS scores of mothers who were university graduates were higher (Kırca et al., 2022). In the study of Kurt et al. (2023), there was not any significant difference between the level of education and the mean PPOCBS scores (Kurt et al., 2023). According to the findings of the present study, it was determined that the mean PPOCBS scores of mothers who stated that their income was equal to their expenses were lower than those of mothers who stated that their income was less and more than their expenses. It was determined that the mean PPOCBS scores of women whose spouses were unemployed, who were without health insurance and whose spouses smoked were higher. In contrast to the findings of the study, Kabul and Çınar (2023) reported that there was not a significant difference between perception of income level, employment status of the spouse and having social security and PPOCBS mean scores (Kabul & Çınar, 2023). In general, although the results obtained from the studies are contradictory, it can be expressed that obsessive-compulsive behaviours are more common in sociodemographically disadvantaged groups.

In this study, it was determined that the mean score of the PBMS sub-dimension of the value ascribed to breastfeeding was at a high level. Similar to the findings of the study, in a study conducted by Akçay (2019), it is seen that the value ascribed to breastfeeding sub-dimension scores are at a high level (Akçay, 2019). Unlike the findings of the study, Dağlı and Reyhan (2023) reported that the value scores ascribed to breastfeeding in the control group were at a moderate level (Dağlı & Reyhan, 2023). In the present study, the value ascribed to breastfeeding sub-dimension scores of mothers with higher education level, who lived in nuclear families and whose spouses were non-smokers were higher. In Akçay's (2019) study, the higher value ascribed to breastfeeding sub-dimension scores of mothers with higher education level and nuclear family supported the findings of the study (Akçay, 2019). According to our opinion, mothers with a higher level of education have a higher level of awareness about the benefits of breastfeeding and therefore they value it more. Considering that women living in large families have many domestic responsibilities, it may be thought that they do not spare enough time and value breastfeeding.

In the present study, it was determined that the mean score of PBMS self-effectiveness sub-dimension was at a high level. In a study conducted by Akçay (2019), the high level of PBMS self- effectiveness sub-dimension scores supports the findings of the study (Akçay, 2019). In Dağlı and Reyhan's (2023) study, self-effectiveness sub-dimension scores in the control group were at a moderate level, which differs from the findings of the study (Dağlı & Reyhan, 2023). In the study, it was determined that the self-effectiveness sub-dimension scores of mothers with high school education level were higher. Unlike the findings of the study, Akçay (2019) reported that there was not a difference between the level of education and self-effectiveness sub-dimension scores (Akçay, 2019). In the study, it was found that the self-effectiveness scores of mothers who felt themselves compatible with the motherhood role were higher. In our opinion, this may make mothers more confident about breastfeeding and increase their motivation to breastfeed.

In the present study, it was determined that the mean score of PBMS midwife support sub-dimension was at a high level. Similar to the study findings, in a study conducted by Akçay (2019), it was stated that the midwife support sub-dimension scores were at a high level (Akçay, 2019). Unlike the findings of the study, Dağlı and Reyhan (2023) found that the midwife support sub-dimension scores were low in the control group (Dağlı & Reyhan, 2023). In the study, it was determined that mothers with high school education level had higher midwife support sub-dimension scores than mothers with university and graduate education level. Unlike the findings of the study, Akçay (2019) reported that there was no difference between the mothers' level of education and midwife support sub-dimension scores (Akçay, 2019). In the study, it was determined that the midwife support sub-dimension scores of mothers who stated that their income was less than their expenses were lower than those of mothers who stated that their income was equal to their expenses. In Akçay's (2019) study, there was not any difference between perceived income perception and midwife support sub-dimension scores, which is different from the findings of the study (Akçay, 2019). In the study, it was found that the midwife support sub-dimension scores of mothers who planned their pregnancy and participated in the pregnant education class were higher. Unlike the findings of the study, Akçay (2019) found that there was not a difference between pregnancy planning and midwife support sub-dimension scores (Akçay, 2019).

In this study, it was determined that the mean score of the PBMS expectation of success sub-dimension was low. The low scores of PBMS expectation of success sub-dimension in conducted studies are similar to the findings of the study (Akçay, 2019; Dağlı & Reyhan, 2023). In the study, it was found that mothers with high school education level had lower scores in the sub-dimension of the PBMS expectation of success than mothers with primary education level. Unlike the findings of the study, in Akçay's (2019) study, it was determined that there was not a difference between the level of education and PBMS expectation of success sub-dimension scores (Akçay, 2019). In this study, it was found that mothers who desired their pregnancy and felt themselves compatible with the role of motherhood had lower scores in the expectation of success sub-dimension of the PBMS.

In the present study, it was found that there was a significant relationship between the postpartum anxiety levels of mothers and the value ascribed to breastfeeding and expectation of success. As the postpartum anxiety levels increased, it was observed that the level of value ascribed to breastfeeding increased and the level of expectation of success decreased. The findings of the study reveal that anxiety experienced in the postpartum period negatively affects the value women ascribed to the breastfeeding process and their expectations of breastfeeding success. In this study, it was determined that there was a significant relationship between the PPOCBS level of mothers and the level of value ascribed to breastfeeding and the level of value ascribed to breastfeeding decreased as the PPOCBS level increased. The results of the study show that women with obsessive-compulsive symptoms in the postpartum period reduce negative feelings about breastfeeding and the value given to this process. In the literature, there is not any study examining the relationship between the levels of postpartum anxiety, value ascribed to breastfeeding and expectation of success and PPOCBS levels of mothers. In this context, it is thought that the research will contribute to the literature.

Limitations of the Study

The study included first-time mothers in the 2nd to 8th weeks of the postpartum period who visited the pediatric department of a public hospital in the Central Anatolia region for routine check-ups. Therefore, the results obtained can only be generalised to mothers who applied to this centre and gave their first birthThe limited number of studies conducted with the scales we used constituted a limitation in terms of comparing the article with other research results while writing the discussion section.

Conclusion and Recommendations

As a result, it was determined that first-time mothers had high levels of postpartum anxiety, moderate levels of obsessive and compulsive behaviours towards infant care, high levels of value ascribed to PBMS breastfeeding, self-effectiveness and midwife support and low levels of expectation of success. In the postpartum period, it was found that as the value ascribed to breastfeeding increased, the anxiety level of mothers increased and the expectation of success decreased. It was found that increased levels of obsessive and compulsive behaviours towards infant care decreased the value ascribed to breastfeeding. In line with these results, midwives should support and counsell women about breastfeeding in the postpartum period.

Ethics Committee Approval: The Ethics Committee for Non-Interventional Research Ethics of Health Sciences Faculty at Selcuk University (Date: November 3, 2022, Decision no: 2022/1080).
Informed Consent: Informed consent was obtained from the mothers in the study, both verbally and in writing.
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The Reliability and Validity of the Turkish Body Mass Anxiety Scale: A Methodological Study

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ABSTRACT

Objective: This research aims to translate the Body Mass Anxiety Scale (BMAS) into Turkish and evaluate its reliability and validity.
Methods: Data from 647 adult volunteers in Türkiye were gathered online for this methodological study. Two forms, the demographic information form (7 items) and the Body Mass Anxiety Scale (20 items), were used in the study. A reliability analysis was conducted, along with confirmatory factor analysis, to assess the scale's construct validity. The research was completed with the stages: The Body Mass Anxiety Scale is translated into Turkish and then back into English, a team of experts tests its content validity, and psychometric analysis (item-total correlation, validity coefficient, and factor analysis) is performed.
Results: Factor analyses revealed that the scale has a two-factor structure: weight gain and loss anxiety. The scale was deemed highly reliable with a Cronbach's alpha internal consistency coefficient of 0.92.
Conclusion: This study demonstrates the validity and reliability of the Turkish version of the Body Mass Anxiety Scale (BMAS), a novel instrument with a two-factor structure to assess body mass anxiety.

Keywords: Body mass anxiety, validity, reliability, Turkish adaptation

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Introduction

Nutrition, which is a physiological requirement, has gone beyond meeting the metabolic needs of many people today. Diets have become important to frequently discussed topics worldwide (Anderson, 2023). Eating habits are complicated and impacted by both environmental and biological variables. Social pressure regarding physical appearance is acknowledged by etiological models, which include environmental elements, as a contributing factor to the development of eating disorders (Gorwood et al., 2016). It was discovered that society's ideal body weight standards were linked to two distinct motivational orientations for body weight: the desire to attain a thin figure and the fear of gaining weight. These incentives may cause people to restrict their food intake and adopt unhealthy eating patterns, which can have an impact on their body weight (Styk et al., 2023).

The stigma associated with being overweight or underweight has expanded widely and has negative social and psychological effects. Because of this stigmatization, social pressure exists to meet conventional beauty standards (Major et al., 2014). Today, individuals are frequently confronted with implicit and explicit messages surrounding idealized versions of body shape and appearance. For women, these messages present unattainable ideals of beauty, often reflecting a tall, flawless complexion and a relatively thin appearance. For men, these unrealistic body ideals tend to portray an ultra-muscular physique with deficient body fat. Body dissatisfaction and excessive worries about weight might result from internalizing these ideals of physical attractiveness, which can cause people to have a negative body image (perception, thoughts, and feelings about one's body) (Vuong et al., 2021). According to Crocq (2015), anxiety is an unpleasant emotional state that is typified by worry, fear, stress, and suffering (Crocq, 2015). One of the most researched psychological problems in the literature on body image disorders is body dissatisfaction, which is defined as the difference between one's idealized and actual body (Stice & Shaw, 2002). Overweight anxiety is linked to body dissatisfaction and plays a role in the emergence of eating disorders (Smith et al., 2020). The sociocultural model suggests that finding one's appearance inadequate due to physical appearance comparison leads to disordered eating behaviors (Jiotsa et al., 2021). Sociocultural models suggest that internalizing the thin ideal and feeling pressured to conform contribute to body dissatisfaction. This dissatisfaction, in turn, fosters maladaptive behaviors, such as dietary restrictions and strict dieting, which can lead to eating pathology (Stice & Shaw, 2002).

While research has traditionally concentrated on one aspect of weight-related anxiety—the fear of gaining weight—recently, attention has shifted to another dimension, known as weight loss anxiety, which involves the fear of being perceived as too thin (Gruszka et al., 2022). This type of anxiety occurs much less frequently. Despite the lower attention given to stigmatization due to being very thin, dislike of a thin figure and fear of weight loss should not be overlooked (Tantleff-Dunn et al., 2009). Negative social perceptions of underweight people ought to be regarded as just as upsetting and hurtful. Psychosocial problems reported by underweight women are comparable to those reported by overweight women (Lox et al., 1998). Men's body image is similarly impacted by stigmatization associated with low body weight. For example, much like overweight women, slim males also feel anxious and unsatisfied with their appearance. Thin young males are dissatisfied with their bodies (Liyanage et al., 2021).

The two dimensions of body mass anxiety—weight gain anxiety and weight loss anxiety—exhibit distinct characteristics and interactions that are influenced by various psychological, social, and cultural factors. Weight gain and the overvaluation of weight and shape are central to the psychopathology of bulimia nervosa, indicating that weight loss anxiety can drive unhealthy weight control behaviors (Styk et al., 2023). The psychological impact of weight loss can be significant; individuals may experience increased anxiety and depression if they fail to achieve their weight loss goals, which can perpetuate a cycle of unhealthy behaviors and emotional distress (Jackson et al., 2014). The interaction between weight gain and weight loss anxiety is particularly evident in how these anxieties can influence each other. For example, individuals with high weight gain anxiety may engage in extreme dieting or exercise regimens to prevent weight gain, leading to weight loss anxiety when they perceive their efforts as insufficient. This interplay can create a feedback loop where anxiety about weight gain drives behaviors that increase anxiety about weight loss, further complicating an individual's relationship with their body and eating habits (Lewandowska et al., 2023).

The term "Body Mass Anxiety" (BMA) refers to the psychological distress associated with concerns about one's body weight and composition. It encompasses two primary dimensions: anxiety related to weight gain and anxiety related to weight loss. These dimensions reflect the individual's fears and concerns about their body mass, which can significantly impact their mental health and behaviors. Understanding BMA requires distinguishing it from related concepts such as body perception, body dissatisfaction, and body schema (Yiu et al., 2017). Body perception involves how individuals perceive their bodies, which societal

standards and personal experiences can influence. It is a broader concept that includes weight, shape, size, and overall appearance.

In contrast, body dissatisfaction specifically refers to negative evaluations of one's body, often leading to a desire for change. Body Mass Anxiety, while related to these concepts, is more focused on the emotional responses—fear and anxiety—triggered by thoughts of gaining or losing weight. For instance, individuals with high BMA may experience intense fear of gaining weight, which can lead to disordered eating behaviors, while those with weight loss anxiety may feel pressured to conform to societal ideals of thinness, resulting in unhealthy dieting practices (Narulita et al., 2018; Yu & Jung, 2018). The interaction between BMA and body dissatisfaction is particularly noteworthy. Research indicates that body dissatisfaction can exacerbate body mass anxiety, creating a vicious cycle where negative body image leads to increased anxiety about weight, which in turn reinforces body dissatisfaction (Grammer et al., 2018; Staiano et al., 2016). This relationship is evident in populations vulnerable to eating disorders, where individuals often exhibit both high levels of body dissatisfaction and significant body mass anxiety (Levinson et al., 2017). Cultural and social contexts also play a crucial role in shaping body mass anxiety. Different cultures have varying ideals regarding body weight and shape, which can influence how individuals experience BMA. For example, in cultures that valorize thinness, individuals may be more prone to weight loss anxiety. In contrast, those in cultures that embrace larger body sizes may experience less pressure regarding weight gain (Zhou et al., 2022).

Furthermore, social factors such as peer influence and media representation can exacerbate body dissatisfaction and body mass anxiety, particularly among adolescents (Lloyd et al., 2020). Consequently, common psychosocial risk factors across eating disorder diagnoses include concerns about body shape and weight, along with dietary restraint. Anorexia Nervosa involves an extreme desire for weight loss, often accompanied by a distorted body image and pathological anxiety about gaining weight (Conceição et al., 2023).

Body Mass Anxiety significantly impacts individuals' social lives, work environments, and educational experiences. This anxiety manifests as a psychological response to concerns about body weight and composition, leading to various social and emotional consequences. Understanding the implications of BMA requires examining how it affects interpersonal relationships, professional life, and academic performance (Çakmak et al., 2024). In social contexts, individuals experiencing high levels of BMA may withdraw from social interactions due to fears of judgment or negative evaluation based on their body image. This withdrawal can lead to social isolation, which further exacerbates feelings of anxiety and depression. For instance, individuals with body image concerns often report lower self-esteem and increased anxiety in social situations, which can hinder their ability to form and maintain relationships (Griffiths et al., 2016; Yeşilyurt & Kendirkıran, 2024). Research indicates that individuals with body image issues may avoid social gatherings or activities that involve body exposure, such as swimming or exercising in public, leading to a diminished quality of life and increased feelings of loneliness (Yeşilyurt & Kendirkıran, 2024). Furthermore, the stigma associated with body weight can lead to discrimination and adverse treatment in social settings, reinforcing the cycle of anxiety and isolation (Haddad et al., 2021).

Both anxiety related to being overweight and anxiety related to weight loss can lead to pathological behaviors in pursuit of a specific figure. The "Body Mass Anxiety Scale (BMAS-20)" is a two-dimensional measure that was created by Styk et al. to diagnose anxiety related to body weight (Styk et al., 2023). The scale is intended as a screening tool to identify individuals who may require psychological support at an early stage, aiming to prevent the onset of eating disorders. The absence of a valid and reliable scale to measure body weight-related anxiety in the Turkish literature highlights the importance of this study in filling a gap in the national literature. This study aims to adapt the Body Mass Anxiety Scale into Turkish and examine the validity and reliability of the scale. The research questions are:

- Is the Turkish version of BMAS-Tr a valid measurement tool?
- Is the Turkish version of BMAS-Tr a reliable measurement tool?

Methods

This methodological study was conducted between 25/10/2023 and 25/01/2024. A survey link was created via Google Surveys, and data were collected online throughout Türkiye through social media and WhatsApp by snowball sampling. After explaining to the participants about voluntary participation and using the data obtained for scientific purposes, informed consent forms were obtained from them (Data were collected after the individuals filled in the “I agree to participate in the study” section). No specific method was adopted to determine the sample. Before data collection, permission was obtained from both the authors who developed the scale and the relevant ethics committee. At every stage of the investigation, the Declaration of

Helsinki was followed. Participants' informed consent papers were acquired, and it was explained to patients that they would participate voluntarily and that the data obtained would be used for scientific purposes.

Participants: The study was completed with 647 participants aged between 18-60. During data collection, individuals who agreed to participate, had no diagnosed psychiatric disorders, and used smartphones were included. Given that the scale consists of 20 items, 200 data points would be sufficient (Tavşancıl, 2014). The study's sample size is 32,35 times the total number of items on the scale.

Stages of the Research: The study was finished in three stages: (1) translating the Body Mass Anxiety Scale into Turkish and then back into English; (2) having an expert group test the content validity; and (3) doing psychometric analysis (item-total correlation, validity coefficient, and factor analysis).

Translation Process and Content Validity: Two natural English speakers who were bilingual and bicultural and knowledgeable about the grammatical and cultural nuances of the language translated the scale into Turkish. Each translator completed this step separately. After combining the translations into a single format, the researchers expressed their thoughts and assessments. Ultimately, two translators unfamiliar with the original scale translated it into English.

To combine the translation outcomes, the two translators shared their thoughts. A single translation was produced by synthesizing the materials while accounting for the translators' translations. Until both versions were finished, the translators did not talk about doing any more translations. Finally, the translators debated the discrepancies until they agreed on a version that was shorter, more accurate in syntax and phrasing, more likely to be understood by the intended audience, and closer to the original.

Content Validity: After the translation process was finished, the scale was shown to the expert panel, which was made up of ten academic dietitians. Experts contacted via email evaluated the scale items for cultural appropriateness and comprehensibility. Based on professional judgments, Davis' approach was applied to the content validity. The experts evaluated the items of the scale as non-compliant (1), needing to be appropriately revised (2), appropriate but needing slight change (3), and very appropriate (4) according to Davis' method, where quadruple grading was used. The total of the first two ratings was divided by the number of experts, and the content validity index (CVI) was obtained after this evaluation. CVI is considered sufficient in terms of the content validity of the item if the CVI is more significant than 0.90.

Pilot Application: The scale was applied to 44 who were asked to evaluate the items regarding clarity, fluency, and other issues that attracted their attention at this stage.

Data Collection Tools: Two forms, the demographic introduction form and Body Mass Anxiety Scale, were used in the study. The English-Turkish translation of the scale items was determined. In the first stage of the scale, Exploratory Factor Analysis was conducted with 647 participants.

***Demographic introduction form*:** The researchers used the literature to prepare the sociodemographic information questionnaire. The questionnaire consists of 5 questions.

***Body Mass Anxiety Scale*:** The Body Mass Anxiety Scale, developed by Styk et al. (2023), serves as a screening tool to identify individuals who may need psychological support at an early stage to help prevent the development of eating disorders. The scale consists of 20 items, each scored on a 7-point scale from 1 (Does not worry me at all) to 7 (Worries me a lot).

There are two subscales:

- Fear of Gaining Weight: Items 2, 3, 5, 6, 10, 13, 14, 15, 16, and 17.
- Fear of Weight Loss: Items 1, 4, 7, 8, 9, 11, 12, 18, 19, and 20.

The degree of body mass anxiety rises in proportion to the scale's score (Styk et al., 2023).

Ethical Considerations of the Study

Ethics committee approval was received for this study from the ethics committee of Erzurum Technical University (Date: October 19, 2023. Number: 11/2). This study is faithful to the Declaration of Helsinki.

Evaluation of the Data: The data were analyzed using SPSS for Windows 22 and AMOS 25 package software. Numbers, percentages, minimum and maximum values, mean and standard deviations as well as the Davis method, sample adequacy, and suitability of the data set for factor analysis, KMO, and Bartlett's tests, explanatory factor analysis, confirmatory factor analysis, Cronbach's α coefficient, item-total correlation, were used in the analysis of the data as mentioned above in the content validity. A "p" value less than 0.05 was accepted as statistically significant.

Limitations: The fact that this study was collected online is a limitation of the study.

Results

The validity and reliability of the Turkish version of the BMAS were evaluated using data obtained from 647 adults; it was determined that 74.3% of the individuals were female, 72.6% were single, 72.8% did not smoke, 88.7% did not drink alcohol, 38.5% ate three meals a day and their average age was 26.48±8.76 (Table 1).

Table 1.
Descriptive Characteristics of Individuals (n=647)

Characteristics		n	%
Gender	Female	481	74.3
	Male	166	25.7
Marital Status	Married	177	27.4
	Single	470	72.6
Smoking	Yes	176	27.2
	No	471	72.8
Number of meals	Two meals a day	189	29.2
	Three meals a day	249	38.5
	Four meals a day	106	16.4
	Five meals a day	84	13.0
	Six meals a day	19	2.9
	$\overline{X}$ ±SD (Min-Max)		
Age (Year)	26.48±8.76 (18-60)		

Factors, items, factor loadings, and explained variance for the Body Mass Anxiety Scale are presented in Table 2. Looking at Table 2, it can be seen that the Body Mass Anxiety Scale exhibits a two-sub-dimension structure, which is similar to the original structure. Factor loads of all items are above 0.30, and the total variance explained is 64.985%. Therefore, no items were removed from the scale at this stage, and a two-sub-dimensional structure was accepted. The scales in the study were then subjected to confirmatory factor analysis and structural equation modeling to obtain more precise findings following exploratory factor analysis.

Table 3 presents the item averages, item-total correlations, and Cronbach's α coefficients if each Body Mass Anxiety Scale item is deleted. The overall Cronbach's α coefficient for the scale is 0.92, indicating high internal consistency. All items show positive item-total correlations, and the removal of any item does not lead to a significant increase in the Cronbach's α coefficient. For this reason, no items were removed from the scale at this stage (Table 3).

A confirmatory factor analysis was conducted following the exploratory factor analysis to validate the scale structure. Chi-squared fit indices for the scale were significant (x2/df = 4.879). The following additional fit indices were discovered: RMSEA=.077, AGFI=.85, IFI=.942, and CFI=.942 (Table 4).

Table 2.
Factor Analysis Result of the Body Mass Scale

Items	Sub-Dimension	Faktor Load
BMAS-Tr 1	Fear of Weight Loss	0.653
BMAS-Tr 2	Fear of Gaining Weight	0.535
BMAS-Tr 3	Fear of Gaining Weight	0.707
BMAS-Tr 4	Fear of Weight Loss	0.782
BMAS-Tr 5	Fear of Gaining Weight	0.780
BMAS-Tr 6	Fear of Gaining Weight	0.687
BMAS-Tr 7	Fear of Weight Loss	0.823
BMAS-Tr 8	Fear of Weight Loss	0.788
BMAS-Tr 9	Fear of Weight Loss	0.808
BMAS-Tr 10	Fear of Gaining Weight	0.405
BMAS-Tr 11	Fear of Weight Loss	0.762
BMAS-Tr 12	Fear of Weight Loss	0.845
BMAS-Tr 13	Fear of Gaining Weight	0.491
BMAS-Tr 14	Fear of Gaining Weight	0.707
BMAS-Tr 15	Fear of Gaining Weight	0.782
BMAS-Tr 16	Fear of Gaining Weight	0.768
BMAS-Tr 17	Fear of Gaining Weight	0.753
BMAS-Tr 18	Fear of Weight Loss	0.808
BMAS-Tr 19	Fear of Weight Loss	0.822
BMAS-Tr 20	Fear of Weight Loss	0.805
Explained variance (%)		%64.985

Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were applied to determine the construct validity of the Body Mass Anxiety Scale. Two subject-matter experts, two scale development experts, and two Turkish-English linguists reviewed the scale items for language considerations. The scale items were translated from English to Turkish. Exploratory Factor Analysis was performed on 647 people in the scale's initial stage. The EFA results indicated two sub-dimensions as in the original scale: weight gain anxiety (items 2. 3. 5. 6. 10. 13. 14. 15. 16. and 17) and body weight loss anxiety (items 1. 4. 7. 8. 9. 11. 12. 18. 19. and 20). In this study, the KMO value for the scale was found to be 0.943. and Bartlett's Sphericity Test yielded a value of χ^2 = 10994.469. df = 190, p <.05 (Figure 1).

The Cronbach Alpha internal consistency and split-half reliability coefficients were computed for the scale's reliability analysis. The value of Cronbach's alpha was 0.92. Likewise, the split-half dependability coefficients for the first and second parts were determined to be 0.841 and 0.863, respectively. It was discovered that the Guttman Split-Half Coefficient value was 0.929. For the reliability analysis of the scale, the Cronbach Alpha internal consistency coefficient and split-half reliability coefficient were calculated. Cronbach's alpha value was found to be 0.92.

Table 3.
Total Item Correlations and Values of Cronbach's Alpha of Turkish Version of Body Mass Anxiety Scale

Items	Mean	SD	Average of scale if item is deleted	Adjusted item-total score correlation	When the item deleted coefficient Cronbach's Alpha
1	3.57	2.21	43.76	0.532	0.919
2	2.04	1.64	45.30	0.421	0.921
3	1.78	1.47	45.56	0.431	0.921
4	3.00	2.11	44.34	0.68	0.916
5	1.90	1.57	45.44	0.397	0.921
6	1.81	1.55	45.53	0.425	0.921
7	2.68	2.07	44.66	0.717	0.915
8	2.37	2.02	44.97	0.698	0.915
9	2.70	2.04	44.64	0.731	0.914
10	1.80	1.47	45.54	0.601	0.918
11	3.11	2.11	44.23	0.655	0.916
12	2.97	2.17	44.37	0.726	0.914
13	2.31	1.79	45.03	0.479	0.920
14	1.76	1.53	45.58	0.503	0.92
15	1.84	1.60	45.50	0.444	0.921
16	1.74	1.55	45.59	0.516	0.919
17	1.60	1.38	45.74	0.506	0.92
18	2.87	2.15	44.47	0.687	0.915
19	2.69	2.13	44.64	0.74	0.914
20	2.79	2.19	44.55	0.686	0.915
Cronbach's Alpha					0.922

Similarly, the split-half reliability coefficients were determined to be 0.841 for the first part and 0.863 for the second part, with the Guttman Split-Half Coefficient value calculated at 0.929.

Table 4.
Fit Index Values. Normal and Acceptable Values for Body Mass Anxiety Scale

Index	Normal values	Acceptable Values	Determined Values
X2/SD	<2	<5	4.87
GFI	>0.95	>0.90	0.94
AGFI	<0.89	>0.80	0.85
CFI	>0.95	>0.90	0.942
RMSEA	<0.05	<0.08	0.077
SRMR	<0.05	<0.08	0.065

Discussion

This study was conducted to adapt the Body Mass Anxiety Scale into Turkish to examine the validity and reliability of the scale.

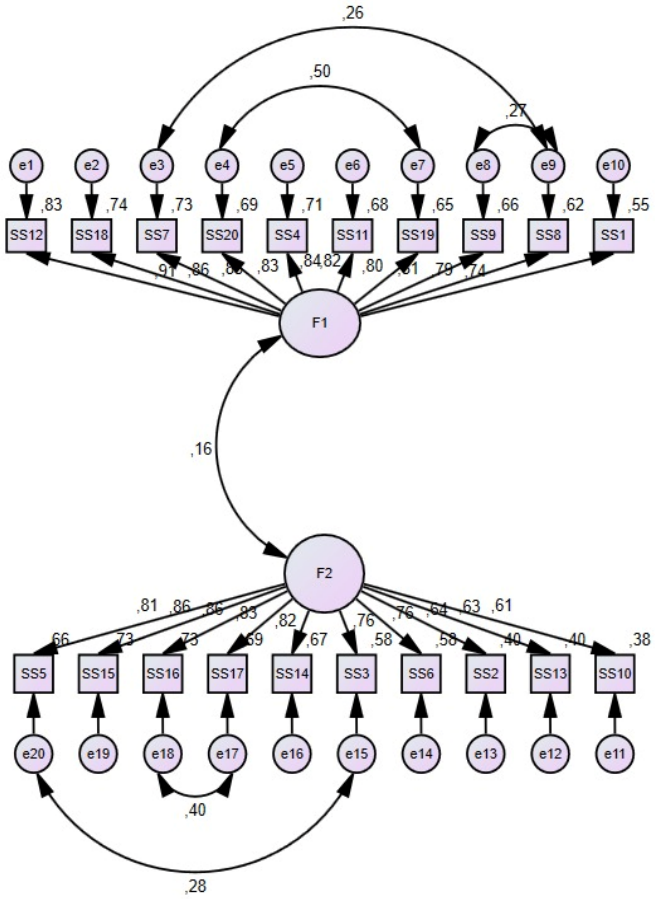

Figure 1. Body mass anxiety scale CFA results

This research aimed to validate and assess the reliability of the Body Mass Anxiety Scale, creating a foundation for future studies on attitudes within Turkish society. It is a frequently used technique to translate the scales created for specific target groups into a different language and adapt them to a new culture. It is recommended in the literature that two or more independent people know the source language of the scale and the cultural and linguistic characteristics of the target language well. Then, a translation method is applied by an expert who does not know the original version of the scale, and it is finalized according to the expert's opinions (Bölükbaş & Göl, 2021). The content validity of the scales included in the expert panel is performed using the Davis method. The Content Validity Index (CVI) score is determined by comparing the scores obtained using this method. The calculated content validity index is expected to be >0.80 in a panel of 10 experts (Esin, 2014). The Body Mass Anxiety Scale was e-mailed to 6 experts who had experience in scale development or adaptation studies working in the field of dietitians in this study. It was determined that one item had a score of 0.8, one had a score of 0.9, and the remaining 20 had a complete score (1.0) due to the evaluation. No items were excluded from the scale since all items meet the requirement of >0.80

specified in the literature. Factor analysis is one of the most widely used methods for demonstrating construct validity (Esin, 2014; Karakoç & Dönmez, 2014). Factor analysis uses two methods: explanatory factor analysis and confirmatory factor analysis (Esin, 2014; Kılıç & Koyuncu, 2017). In factor analysis, a higher explained variance indicates a better measurement of the relevant behavior or dimension (Özdamar, 2016). Factor loads are recommended to be 0.30 and above (Yilmaz, et al., 2017.). As a result of the factor analysis conducted in this research. It was determined that the scale has a two-factor structure. It was determined that the factor loads of the items at the same time. These results were interpreted as the scale showing desirable characteristics in explanatory factor analysis. Confirmatory factor analysis (CFA) is another construct validity analysis that examines whether the data obtained are consistent with the theoretical structure. The results of the fit index obtained from the analysis show the model's suitability to the theory. When the fit index results are examined, the chi-square value is expected to be two or less when divided by the degrees of freedom. GFI, AGFI, and CFI values are between 0 and 1. These index results are considered normal if they have a value above 0.95. AGFI value is interpreted as an acceptable fit between 0.80 and 0.89 (Çapık, 2014; Tavşancıl, 2014). If RMSEA has a value less than 0.05, it corresponds to normal; if it has a value less than 0.08, it corresponds to an acceptable fit (Çapık, 2014; Esin, 2014). x^2 /SD value was determined to be within the ranges evaluated as usual as 4.87. GFI as 0.94, AGFI as 0.85, CFI as 0.942, RMSEA as 0.077, and SRMR as 0.065 when we consider the fit indices of the Body Mass Anxiety Scale (Figure 1). The path diagram and associated t-values obtained from confirmatory factor analysis were also examined. If the t-values obtained are above 1.96, it is considered significant at the 0.05 level (Çapık, 2014). It was found that all values were more significant than 1.96 when the path diagrams and t-values of the scale were examined. It was concluded that there is a statistically significant relationship between the items and factors of the Body Mass Anxiety Scale at the 0.05 level. It was concluded that the Body Mass Anxiety Scale provided the necessary construct validity when the analyses were examined. Reliability is a feature required for the standardization of measurement tools. A scale is considered useless. and its scientific value is low if unreliable (Esin, 2014). Internal validity analysis was performed to ensure the reliability of the Body Mass Anxiety Scale.

The reliability of a measurement refers to the extent to which a score is accurate, consistent, and can be repeated (Kyriazos & Stalikas, 2018). Internal consistency is a key criterion for evaluating the reliability of a scale and its sub-dimensions. The parameters used to evaluate internal consistency include the item-total score correlation coefficient, split-half reliability. Kuder-Richardson coefficient, and Cronbach's α value. Among these. Cronbach's α is the most commonly used (Bonett & Wright, 2015; Heale & Twycross, 2015). Cronbach's α coefficient is considered unreliable if it is between 0.00 and 0.40, low reliable if it is between 0.40 and 0.60, highly reliable if it is between 0.60 and 0.80, and highly reliable if it is between 0.80 and 1.00 (Bonett & Wright, 2015; Tabachnick et al., 2013). The original study reported a Cronbach's α value of 0.92. In this study, the Cronbach alpha value for the total scale was 0.96, indicating that the scale is highly reliable. The item-total score correlation was examined as another method of evaluating internal consistency. With this method. It is decided whether to make a change when evaluating the suitability of each item in the scale. It is emphasized that they should be 0.30 and above, even though the correlation coefficients are different in the literature (Çapık, 2014; Esin, 2014). The item-total score correlation ranged from 0.66 to 0.92 in the original study, while in this study, the item-total score correlation values of the scale were between 0.493-0.847. The items were retained on the scale as their values exceeded the 0.30 threshold specified in the literature.

Conclusion and Recommendations

This study successfully adapted the Body Mass Anxiety Scale into Turkish and demonstrated its validity and reliability, supporting its applicability in Turkish society. The scale has been effective in measuring weight gain and weight loss anxiety. Future research can investigate the effect of body mass anxiety on different demographic groups. This study contributes to the development of effective strategies to reduce body mass anxiety by providing a valid and reliable scale in Turkish for future studies to determine the factors that may be associated with body mass anxiety.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Erzurum Technical University (Date: October 19, 2023. Number: 11/2).
Informed Consent: Informed consent was obtained from all subjects involved in the study.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept - IU; Design- IU, AC; Supervision- IU; Resources- IU, AC; Data Collection and/or Processing- AC; Analysis and/or Interpretation- IU; Literature Search- IU, AC; Writing Manuscript- IU, AC; Critical Review- IU.
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Examining the Effect of Health Communication Problems on Healthcare System Distrust: A Cross-Sectional Study

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ABSTRACT

Objective: This study investigates the impact of communication problems between patients and healthcare professionals on distrust in the healthcare system, as inpatients perceive.

Methods: The research was conducted as a cross-sectional study, and criterion sampling was used to select participants. The study sample comprised individuals aged 18-65 who had received treatment and care services in the inpatient units of a Training and Research Hospital in Türkiye at least once in the past year. Data were collected using the "Individual Identification Information Form," the "Health Communication Problems Scale," and the "Healthcare System Distrust Scale."

Results: Patients' perceptions of health communication problems were measured at an average level of $\bar{X}$=2.59±0.71, while their perceptions of distrust towards the healthcare system averaged $\bar{X}$=2.75±0.74. Additionally, health communication problems accounted for 19% of the variance in explaining distrust in the healthcare system (R=0.43; R^2=0.19).

Conclusion: The findings indicate that inpatients experienced relatively low communication problems with healthcare professionals and held moderate levels of distrust towards the healthcare system. The research concluded that health communication problems positively impact distrust in the healthcare system.

Keywords: Communication, health communication, health communication problems, health system distrust, trust

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Introduction

Communication challenges represent a significant issue within contemporary healthcare systems. Numerous studies have demonstrated that communication barriers between patients and healthcare professionals can result in adverse outcomes. Such challenges may hinder patients' adherence to their treatment plans. For instance, Beck et al. (2002) highlighted that patients might struggle to follow treatment recommendations when they do not receive adequate information from healthcare providers or possess insufficient knowledge about available treatment options. Similarly, Saha et al. (2008) found that patient satisfaction diminishes without effective communication. Moreover, research indicates that miscommunication or informational gaps between patients and healthcare professionals can lead to inaccurate diagnoses or inappropriate treatment decisions (Brennan et al., 2004). Chant et al. (2002) suggested that patients who encounter communication difficulties with healthcare providers may turn to alternative medical approaches. Hironaka & Paasche-Orlow (2008) also reported that communication issues can contribute to burnout and demoralization among healthcare professionals.

Recent research highlights that distrust in healthcare institutions has increased, especially during global health crises such as the COVID-19 pandemic (Skirbekk et al., 2023; Yang & Huang, 2021). Patients' trust in healthcare systems has been significantly influenced by communication effectiveness (Gu et al., 2022; Hong & Oh, 2020). Trust in healthcare institutions is fundamental to ensuring that patients seek care, adhere to treatment plans, and actively engage in their healthcare. However, ineffective communication can weaken trust, leading to skepticism and disengagement from healthcare services. This aligns with theoretical perspectives suggesting that interpersonal trust is built upon effective communication, transparency, and perceived competence (Hall et al., 2001; Cook et al., 2005).

The concept of distrust in the healthcare system extends beyond a general lack of confidence in medical institutions. Researchers have identified several dimensions of distrust, including skepticism toward healthcare providers' competence, concerns about transparency in medical decision-making, and fears of being treated unfairly (Armstrong et al., 2006; LaVeist et al., 2009). One of the primary drivers of this distrust is ineffective health communication, which can result in misinformation, lack of patient engagement, and reduced confidence in healthcare professionals (Hall et al., 2001; Park & Giap, 2020).

Health communication problems refer to barriers that hinder effective information exchange between healthcare providers and patients. These barriers may include unclear or inconsistent medical explanations, lack of patient involvement in decision-making, and emotional insensitivity from healthcare professionals (Kreps, 2015; Street et al., 2009). When patients feel excluded from discussions about their care or struggle to obtain clear medical information, they may become more skeptical of healthcare providers' intentions, ultimately diminishing their trust in the system (Souvatzi et al., 2021). Theoretical models in social science suggest that such experiences contribute to long-term distrust, affecting both individual health behaviors and public health engagement (Blau, 2017; Rosenstock, 1974).

Several theoretical models explain the link between health communication and trust. Social Exchange Theory (SET) (Blau, 2017) posits that interpersonal interactions, including those between patients and healthcare providers, are based on perceived benefits and costs. When patients encounter ineffective communication—such as unclear medical explanations, lack of empathy, or inadequate information—they may perceive healthcare providers as unreliable, which diminishes their overall trust in the system (Cook et al., 2005). Trust Theory (Hall et al., 2001) further explains that trust in healthcare institutions is built upon competence, transparency, and fairness. When these factors are compromised due to communication barriers, distrust emerges as a natural consequence (Gille et al., 2022). Moreover, the Health Belief Model (Rosenstock, 1974) suggests that individuals assess perceived threats when deciding whether to trust healthcare professionals and adhere to medical recommendations. Poor communication can heighten perceptions of uncertainty and risk, leading to increased skepticism toward the healthcare system (Wei et al., 2020).

These theoretical frameworks highlight the importance of trust in fostering positive health behaviors and ensuring effective patient-provider relationships. As a result, trust in the healthcare system plays a critical role in individuals' confidence in accessing healthcare services, receiving treatment, and assessing health outcomes. A firm trust in the healthcare system enhances the likelihood that individuals will provide honest and accurate information regarding their health status, thereby facilitating accurate diagnoses and the development of effective treatment plans by healthcare professionals (Thompson et al., 2011). When individuals trust the healthcare system, they are more inclined to adhere to healthcare providers' recommendations, leading to increased treatment compliance and improved health outcomes. Gilson (2006) found that patients' trust in healthcare services positively

influences treatment adherence and recovery. The healthcare system is also vital in maintaining social stability and enhancing societal resilience in health crises. Perceptions of distrust towards the healthcare system can contribute to social unrest and resistance to healthcare policies (Blendon & Benson, 2001).

Given the detrimental effects of distrust in the healthcare system, addressing and mitigating these perceptions is crucial. Thompson et al. (2011) emphasize that open and empathetic communication between healthcare professionals and patients is essential for building trust. Conversely, lacking communication or mutual understanding may undermine patients' trust in the healthcare system (Beck et al., 2002). Therefore, investigating the relationship between health communication challenges and distrust in the healthcare system is essential. A literature review reveals a notable scarcity of studies examining the relationship between communication and trust between patients and healthcare professionals (Chandra et al., 2018; Kulińska et al., 2022; Street et al., 2009; Wei et al., 2020). This observation highlights the originality of the current research in several respects. While existing studies have explored the connection between health communication and trust, at the time of this study, no research specifically addressed the relationship between health communication challenges and distrust in the healthcare system—two critical variables examined in this study. Furthermore, the available studies primarily focus on outpatient populations. Given the differing conditions and experiences of outpatients versus inpatients, it is plausible that their perceptions may vary significantly. Additionally, these studies were conducted in countries with healthcare systems distinct from those in Türkiye. Considering the unique dynamics of Türkiye's healthcare system, investigating the relationship between communication problems and distrust within this specific context adds another layer of originality to the research. Therefore, considering various perspectives, a comprehensive examination of how health communication issues influence distrust in the healthcare system may yield more reliable insights and a broader understanding. This research, which explores the impact of communication challenges between patients and healthcare professionals on perceptions of distrust toward the healthcare system among clinic patients, significantly contributes to improving the quality of healthcare services and enhancing patient experiences.

This study investigates the impact of communication problems between patients and healthcare professionals on distrust in the healthcare system, as inpatients perceive. In this context, we focused on the following research questions:

- What are the levels of inpatients' health communication problems and perceptions of distrust towards the health system?
- Is there a significant relationship between health communication problems and distrust in the health system?
- Are health communication problems a significant predictor of distrust in the health system?

Methods

Type of Research

The research was designed as a cross-sectional study. Since cross-sectional studies capture data at a single point in time, they are useful for identifying associations but do not establish causality (Setia, 2016).

Population and Sample of the Research

The population of this research comprises patients who were admitted to the inpatient units of a Training and Research Hospital located in the southeastern Anatolia Region of Türkiye between June 1, 2023, and October 1, 2023. The study sample was selected using the criterion sampling method, a type of purposive sampling. Accordingly, 322 patients were included in the study based on the predefined criteria of this sampling method. These criteria required participants to be aged between 18 and 65, have received inpatient treatment and care services at least once in the past year, be literate, be able to communicate verbally, and voluntarily agree to participate in the study. However, individuals who did not meet the inclusion criteria—including those receiving care in intensive care units, palliative care units, or emergency departments, those unable to communicate verbally, and those who declined participation—were excluded from the study. Consequently, a total of 51 patients were not included due to communication barriers (n=24), being over the age of 65 (n=12), or experiencing severe pain that hindered participation (n=15).

Data Collection Tools

In the research, the “Individual Identification Form”, “Health Communication Problems Scale (HCPS)” and “Distrust in Health Systems Scale (DHSS)” were used as data collection tools.

Individual Identification Information Form: This form, prepared by the researchers, includes sociodemographic information, chronic disease presence, and information about the clinics where they are followed to determine the individuals' introductory characteristics.

Health Communication Problems Scale (HCPS): HCPS, developed by Yeşildal et al. (2021), consists of three dimensions and a total of 13 statements: effective communication (6 statements), social communication (3 statements), and communication barriers (4 statements). According to the results of exploratory (EFA) and confirmatory factor analysis (CFA) performed for construct validity, it was determined that the three-factor structure of the scale explained 61.94% of the total variance. CFA results show that the data are validated, and the fit indices obtained are as follows: χ^2=121.541, *df*=62 2.93, χ^2/df=1.96, *GFI*=0.94, *CFI*=0.96, *RMSEA*=0.05. The obtained indices show that the scale's construct validity was ensured (Schermelleh-Engel et al., 2003). The study calculated Cronbach's Alpha reliability coefficients to evaluate the scale's reliability. It was determined as 0.83 for the effective communication dimension, 0.83 for the social communication dimension, 0.71 for the communication barriers dimension, and 0.82 for the overall scale. The coefficients indicate that the data are reliable.

Distrust in Health Systems Scale (DHSS): Developed by Rose et al. (2004) and adapted to Turkish by Yeşildal et al. (2020), DHSS is a one-dimensional scale comprising ten items. The fit indices obtained from the CFA conducted for construct validity confirmed the scale's construct validity. Cronbach's Alpha reliability coefficient (α=0.78) calculated for the scale's reliability shows that the data are reliable. In this study, the fit indices obtained as a result of the first-level CFA conducted for the construct validity of the scale (χ^2=111.895, *df*=38, χ^2/df=2.94, *GFI*=0.93, *CFI*=0.90, *RMSEA*=0.08) confirmed the construct validity of the scale. Additionally, Cronbach's Alpha coefficient (α=0.78) reflects that the data are reliable.

Analysis of Data

We used IBM SPSS Version 23.0 software to analyze the data obtained in the research. We first described and interpreted the data using descriptive statistics. In interpreting the means of the items in the scales, the criteria of “strongly disagree” for the range of 1.00-1.79, “disagree” for 1.80-2.59, “undecided” for 2.60-3.39, “agree” for 3.40-4.19 and “strongly agree” for 4.20-5.00 were taken as basis. In the analyses performed to test the normality of the data, the skewness coefficients of HCPS ranged between -0.01 and 0.88, the kurtosis coefficients ranged between -1.41 and -0.22, the skewness coefficients of DHSS ranged between -0.18 and 1.05, and the kurtosis coefficients ranged between -1.22 and 0.32. These values indicate that the data have a distribution close to normal (Kim, 2013). In this study, we evaluated the construct validity of the scales using CFA. In this context, we examined the chi-square fit test, CFI (Comparative Fit Index), GFI (Goodness of Fit Index), and RMSEA (Root Mean Square Error of Approximation) fit indices (Schermelleh-Engel et al., 2003). Pearson correlation and multiple linear regression analyses assessed the relationship between health communication problems and health system distrust. The adequacy of the sample size for regression analysis was confirmed through power analysis using G*Power 3.1 software. The analysis demonstrated that the required sample size for multiple regression was met, ensuring sufficient statistical power (Faul et al., 2009).

Ethical Approval

Ethics committee approval was received for this study from the ethics committee of Mardin Artuklu University (Date: May 3, 2023, Number: 2023/5-12). Institutional permission was secured from the hospital where the study was conducted, and permission for the use of the scales was obtained from the authors via e-mail. Participants were informed about the purpose of the study, and written informed consent was obtained from all participants. The Declaration of Helsinki carried out all the research steps.

Results

According to the data obtained from Table 1 regarding the sociodemographic characteristics of the patients participating in the study, we collected data from 322 patients hospitalized in 13 different units.

In Table 1, 30.7% are between the ages of 18-30, 36.3% are between the ages of 31-45, and 32.9% are between the ages of 46-65. The proportion of female patients is 47.8%, and 63.4% are married. 26.7% of the patients are classified as primary school graduates, 16.1% as secondary school graduates, 36% as high school graduates, and 21.1% as university graduates. In terms of occupational distribution, 50.6% are determined to be employed. Approximately half of the patients (49.4%) stated that their income is lower than their expenses, while 10.6% stated that their income is higher. 87.6% of the patients reside in the province and districts, while 12.4% reside in villages. We observed that 78% of the patients have social security, 31.1% have any chronic disease, and 61.2% have been hospitalized before.

The results of the analysis conducted to determine the perception levels of patients regarding health communication problems and distrust in the health system are presented in Table 2.

In Table 2, the perception levels of patients regarding health communication problems are generally at the "disagree" level ($\bar{X}$=2.59±0.71). When examining the sub-dimensions, we observed that patients hold perceptions aligned with the

Table 1.
Personal Information about Participants

Variable	Sub Variable	n	%
Unit	1. Cardiology	44	13.7
	2. Urology	25	7.8
	3. Norology	23	7.1
	4. Brain Surgery	12	3.7
	5. Internal Medicine	63	19.6
	6. Physical Therapy	24	7.5
	7. Orthopedics	20	6.2
	8. Otorhinolaryngology	17	5.3
	9. General Surgery	26	8.1
	10. Chest Diseases	26	8.1
	11. Eye Diseases	11	3.4
	12. Oncology	15	4.7
	13. Gynecology	16	5.0
Age	1. 18-30	99	30.7
	2. 31-45	117	36.3
	3. 46-65	106	32.9
Gender	1. Female	154	47.8
	2. Male	168	52.2
Marital Status	1. Married	204	63.4
	2. Single	118	36.6
Educational Status	1. Primary	86	26.7
	2. Secondary	52	16.1
	3. High	116	36.0
	4. University	68	21.1
Profession	1. Unemployed	44	13.7
	2. Housewife	65	20.2
	3. Official	74	23.0
	4. Employee	32	9.9
	5. Freelance	57	17.7
	6. Retired	17	5.3
	7. Student	33	10.2
Income Status	1. Income>Expenses	34	10.6
	2. Income=Expenses	129	40.1
	3. Income<Expenses	159	49.4
Living Space	1. Province	139	43.2
	2. District	143	44.4
	3. Village	40	12.4
Social Security	1. Available	251	78.0
	2. Not Available	71	22.0
Presence of Chronic Disease	1. Available	100	31.1
	2. Not Available	222	68.9
Previous Hospitalization Status	1. Yes	197	61.2
	2. No	125	38.8
Total		**322**	**100**

n: Frequency; %: Percentage

"I disagree" level in the dimensions of *effective communication* ($\bar{X}$=2.54±0.89*) and social communication* ($\bar{X}$=2.37±1.04). In the dimension of communication barriers, perceptions are generally at the level of "I am undecided" ($\bar{X}$=2.83±0.98). The perception level of patients regarding the distrust of the health system is at the level of undecided" ($\bar{X}$ =2.75±0.74) (Table 2).

The findings of the Pearson correlation analysis to determine whether there is a significant relationship between health communication problems and distrust in the health system are presented in Table 3.

Table 2.
Descriptive Statistics for the Health Communication Problems Scale

Scale/Dimension	SD	$\bar{X}$	Level
Effective communication	0.89	2.54	Disagree
Social communication	1.04	2.37	Disagree
Communication barriers	0.98	2.83	Undecided
Health communication problems	0.71	2.59	Disagree
Healthcare system distrust	0.74	2.75	Undecided

SD: Standard Deviation; $\bar{X}$*: Mean*

According to the Pearson correlation analysis results, a significant, positive, and moderate relationship was found between distrust in the health system and effective communication, one of the dimensions of health communication problems (r=0.38; p<.01). Similarly, a similarly significant, positive, and moderate relationship was found with the social communication dimension (r=0.30; p<.01). *A* significant, positive, low-level relationship was observed between the communication barriers dimension and distrust in the health system (r=0.25; p<.01). In addition, a significant, positive, and moderate relationship was found between health communication problems and general distrust in the health system. (r=0.43; p <.01).

Table 3.
Pearson Correlation Analysis Findings

	EC	SC	CB	HCP	HSD
EC	1				
SC	0.45*	1			
CB	0.26*	0.20*	1		
HCP	0.84*	0.69*	0.64*	1	
HSD	0.38*	0.30*	0.25*	0.43*	1

*: p<.01
EC: Effective Communication; SC: Social Communication; CB: Communication Barriers; HCP: Health Communication Problems; HSD: Healthcare System Distrust

In the multiple linear regression analysis conducted to determine whether health communication problems predict distrust in the health system, the dimensions of effective communication, social communication, and communication barriers of health communication problems were

considered independent variables, and distrust in the health system was considered the dependent variable. The analysis findings are presented in Table 4.

According to the analysis results in Table 4, health communication problems exhibited a significant relationship with distrust in the health system (F=25.04; p<.01). All dimensions of health communication problems represent 19% of the variance in explaining distrust in the health system (R=0.43; R^2=0.19). The standardized beta coefficients obtained in this context express the order of importance of effective communication (β=0.28), communication barriers (β=0.15), and social communication (β=0.13) on distrust in the health system, respectively.

Table 4.
Multiple Linear Regression Analysis Findings

(Dependent variable = Healthcare system distrust)

Variable	*B*	*Std. Error*	*β*	*t*	*p**
Constant	1.59	0.14		11.11	.00
Effective communication	0.23	0.04	0.28	4.88	.00
Social communication	0.09	0.04	0.13	2.43	.01
Communication barriers	0.11	0.04	0.15	2.93	.004

R=0.043; R^2=0.19; *F*=25.04; **: p*<.01

Discussion

The findings related to the first research question indicated that inpatients perceive health communication problems to be at a low level. This result is consistent with some previous research. For instance, a qualitative study found that patients perceived communication issues as minimal, with many reporting positive interactions with nurses (Gökçe et al., 2021). Similarly, another study reported that 85% of patients experienced no communication problems with hospital staff (Gül & Dömbekci, 2023). Conversely, inpatients' perception of distrust towards the healthcare system was found to be moderate. An examination of research focused on patients' perceptions of distrust revealed that individuals receiving healthcare services exhibited moderate distrust, which aligns with the current study's findings (Ağır, 2022; Uslu, 2023). This moderate level of distrust should be interpreted in several ways. It does not necessarily indicate a fundamentally pessimistic view of the healthcare system. Instead, it may reflect skepticism that could drive patients to seek improvements or request more information and effective communication. Thus, this finding presents an opportunity for healthcare systems to enhance transparency and address patient concerns, potentially leading to increased patient satisfaction and trust.

The findings from the second research question reveal a significant relationship between the health communication problems perceived by inpatients and their level of distrust in the healthcare system. Pearson correlation analysis indicated a significant, positive, and moderate correlation between healthcare system distrust and the effective and social communication dimensions of health communication problems. Conversely, a significant, positive, low-level correlation was observed with communication barriers. Additionally, a significant, positive, and moderate relationship was found between overall health communication problems and general distrust in the healthcare system. These results suggest that as patients encounter communication problems within the healthcare setting, their perception of distrust in the healthcare system will likely increase.

The findings from the third research question indicate that health communication problems positively impact distrust in the healthcare system. Specifically, as health communication problems increase, patients' perceptions of distrust in the healthcare system also rise. In other words, patients experiencing more communication issues tend to have lower trust in the healthcare system. Consistent with these findings, a study has shown that effective communication makes patients feel safer (Kulińska et al., 2022). Ehsan & Ashill (2014) demonstrated that communication significantly predicted patients' trust in doctors. Additionally, another study identified a significant positive relationship between doctor-patient communication and trust in healthcare professionals (Wei et al., 2020). Health communication problems can erode patients' trust, as effective communication is crucial for ensuring patient compliance with treatment and facilitating a clear understanding of the recovery process. Communication issues may lead to insufficient information or misunderstandings, potentially resulting in feelings of insecurity. Arslanoğlu & Özargun (2023) also highlight that patients who perceive communication barriers in their treatment process experience greater emotional distress and uncertainty regarding their medical condition. This reinforces the argument that trust in healthcare professionals is closely linked to the clarity and accessibility of health-related information provided to patients.

This study identified communication problems as triggers for distrust; however, we can also interpret the findings differently. Effective communication between healthcare professionals and patients can significantly enhance

patients' trust in the healthcare system. Several mechanisms may explain this relationship. First, effective communication enables healthcare providers to better understand and empathize with patients' needs, leading patients to feel more understood and secure. Second, clear and understandable communication ensures that patients are well-informed about their treatment processes, fostering security. Third, an upbeat communication style may encourage patients to approach their treatment with optimism, strengthening their trust in healthcare personnel and contributing to their overall sense of safety. Finally, this positive relationship between communication and trust can facilitate patient adherence to treatment plans, further reinforcing their confidence in the healthcare system.

Conclusion and Recommendations

The study concluded that inpatients experience relatively low communication problems with healthcare professionals. This finding suggests that patients can communicate effectively and satisfactorily with healthcare providers and that communication barriers are minimal. Conversely, the study found that patients' perception of distrust towards the healthcare system is moderate. This moderate distrust may indicate a need for more comprehensive information about health services. Moreover, this moderate perception of distrust should be viewed as an opportunity for healthcare providers. It highlights that healthcare systems have the potential to implement various measures to enhance service delivery and build greater trust with patients.

One of the key findings of this study is that communication problems with healthcare professionals significantly impact patients' perception of distrust towards the healthcare system. This result underscores the importance of addressing health communication issues to enhance trust. Identifying the underlying causes of patients' distrust and implementing targeted interventions can improve the quality of healthcare services. In this regard, pinpointing specific communication problems contributing to patients' negative perceptions of the healthcare system is crucial. Effective communication between healthcare professionals and patients fosters a sense of security, potentially leading to more effective and satisfactory health services. The positive correlation between perceived health communication problems and distrust in the healthcare system highlights the need for healthcare providers to develop more robust communication strategies. Enhancing these strategies can lead to better-informed patients, improved treatment adherence, and increased trust in the healthcare system.

This study has some limitations. First, as a cross-sectional study, it identifies associations but does not establish causality between variables (Setia, 2016). Future studies should employ longitudinal or experimental designs to better understand the causal relationships between health communication problems and distrust in healthcare systems. Second, the study relies on self-reported data, which may be subject to response bias (Podsakoff et al., 2003). To mitigate this issue, future research could use triangulation methods, such as combining self-reports with observational data or qualitative interviews to obtain more comprehensive insights. Third, this study was conducted in a single hospital in Türkiye, limiting the generalizability of the findings. Future studies should include multiple healthcare institutions across different regions to increase external validity and provide a broader understanding of the issue.

Additionally, while this study focused on inpatients, future research could explore how outpatients or individuals in different healthcare settings (e.g., private hospitals, primary care centers) experience communication challenges and healthcare system distrust. Lastly, this study primarily examined patients' perspectives. Future research could incorporate healthcare professionals' views on communication challenges and their potential impact on patient trust. A mixed-methods approach that integrates both patient and provider perspectives would offer a more holistic understanding of the issue. Another important direction for future research is to examine the moderating role of previous hospitalization experience in the relationship between health communication problems and distrust in the healthcare system. Patients with prior hospital stays may have different expectations, perceptions, or adaptive behaviors regarding communication with healthcare professionals, which could shape their levels of distrust. Exploring this moderating effect could help identify whether previous hospital experiences serve as a protective factor or a risk factor for distrust in the healthcare system.

We propose the following recommendations to help inpatients rebuild their confidence in the healthcare system by addressing and reducing communication problems experienced with healthcare professionals:

- Providing training for healthcare professionals in patient communication can enhance their empathy skills.
- Healthcare professionals should offer patients clear and understandable information regarding their illness, treatment options, and procedures.
- Healthcare professionals should consider and address patients' perspectives and requests with seriousness.
- Patients should be provided with detailed information about their treatment plans.

- When communication barriers such as language differences, hearing impairments, or vision problems are present, patients should be provided with suitable methods and resources to address and overcome these barriers.
- Healthcare professionals should exhibit understanding and sensitivity toward patients' complex situations.
- Health systems should take patients' perception of insecurity seriously and continuously work to reduce this perception. In this regard, patient feedback should be listened to and improvement measures should be taken.
- Hospitals should implement structured patient-doctor communication programs, such as "Shared Decision-Making" (SDM) training, where doctors are trained to actively involve patients in treatment decisions.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Mardin Artuklu University (Date: May 3, 2023, Number: 2023/5-12).
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Anxiety in Fathers and Father-Infant Attachment

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ABSTRACT

Objective: This study was conducted to examine the factors associated with anxiety and father-infant attachment in prospective fathers and to determine the relationship between them.
Methods: The population of the descriptive and correlational study consisted of prospective fathers aged 18 years and older in Sakarya University Training and Research Hospital. A total of 106 prospective fathers who met the inclusion criteria were included in the sample. The data were collected face-to-face by distributing the forms to the prospective fathers using the personal information form, prenatal paternal attachment scale and trait anxiety scale.
Results: The level of prenatal paternal attachment is affected by the factors of educational status, economic status, feeling ready for fatherhood, planned pregnancy, the emotion felt when learning that he became a father, harmony with the spouse, the father's accompaniment to the controls, and the negative effect of the change in physical appearance during pregnancy ($p<.05$). A significant and positive relationship was found between the scores obtained from the time spent on attachment sub-dimension and the scores obtained from the attachment quality sub-dimension of the Prenatal Father Attachment Scale (PFAS) ($r=0.546$ $p<.05$). There is also a significant and positive relationship ($r=0.26$ $p<.05$) between the scores obtained from the State-Trait Anxiety Inventory (STAI) scale and the scores obtained from the sub-dimension of time spent on attachment in the PFAS.
Conclusion: Prenatal attachment process of expectant fathers may vary according to demographic characteristics. Having a desired pregnancy and feeling ready for fatherhood positively affect attachment. The level of anxiety perceived by expectant fathers increases the time spent on attachment.

Keywords: Father, anxiety, attachment, infant, pregnant

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Introduction

Pregnancy is a physiological event in which every woman experiences cognitive, affective and behavioural changes with the transition to motherhood (Mazzeschi et al.,2015). One of the most important developments in this process is the sense of attachment with her baby. In the most basic sense, attachment is defined as the bond that an individual experiences with another individual whom he/she finds important for himself/herself and with whom he/she feels strong. This process, the basic building blocks of which are laid in infancy, affects all social relations, self-confidence, self-control, and communication skills of the individual throughout his/her life (Nacar, & Gökkaya, 2019; Başdaş, 2022). From the moment a mother-to-be learns about her pregnancy, she starts the prenatal attachment process with her baby, and the safe realisation of this process is very important for the development of the baby. The adaptation process of women to motherhood is easier than men due to psychological, physical and hormonal changes (Mutlu et al., 2015). Acquisition of the father role in men is a dynamic process that starts with learning that the wife is pregnant and continues for 3 years after birth. The acquisition of the role may vary depending on cultural, social and economic factors (Döner et al., 2021).

Successful father-infant attachment is at least as important as mother-infant attachment, and ensures healthier cognitive, social and emotional development in infants (Telli & Özkan, 2016). Enables babies to show higher levels of motor, language and personal/social development. Provides the basis for better infant development (Rempel et al., 2017). Many obstetric and other factors seen during pregnancy have been proven to affect the attachment between mother and baby. However, when the factors affecting father and infant attachment in this process are examined, it has been observed that the harmony of the fathers with their spouses, participation in pregnancy controls, participation in birth preparation training with their spouses affect father-infant attachment (Türkmen & Güler, 2022; Dagla et al., 2023). With the participation in the care of the baby in the postnatal process, fathers move from an abstract dimension to a concrete dimension and their attachment levels to their babies increase.

Expectant fathers may react differently when they learn that their wives are pregnant (Döner et al., 2021). Feeling financially responsible is a situation seen in all prospective fathers. Accordingly, the anxiety level of fathers may be affected. The feeling of anxiety experienced may be reflected in the antenatal attachment process that expectant fathers experience with their babies (Brandao et al., 2019; Philpott et al., 2017). During pregnancy, expectant fathers usually focus on meeting the needs of their wives and their babies (Davenport et al., 2022). In this process, evaluating the anxiety levels of fathers and minimising them as much as possible has an important role in ensuring a secure father-baby attachment. When the literature is examined, in a meta-analysis examining anxiety in fathers in the prenatal and postnatal period, it was reported that the transition period to parenthood makes fathers very vulnerable in terms of anxiety (Leiferman et al., 2021). In a study conducted by Beesley et al., it was reported that there was no relationship between fathers' anxiety and depression levels and their attachment status (Beesley, 2017). In another study examining the effect of attachment training on father-infant attachment and parental anxiety, it was reported that the training increased attachment and decreased anxiety (Setodeh et al., 2017). In this direction, it was aimed to reveal the relationship between anxiety in fathers and father-infant attachment with the results of our study.

Methods

Aim and Type of Study

This descriptive correlational study was conducted to examine the factors associated with anxiety and father-infant attachment in prospective fathers and to determine the relationship between them.

Population and Sample of the Study

The population of the study consisted of expectant fathers aged 18 years and over who came to the healthy pregnancy outpatient clinic of Sakarya University Training and Research Hospital. The sample of the study consisted of 106 prospective fathers who could be reached between the data collection dates, who came to the outpatient clinic examination with their spouses, who accepted to participate in the study and met the inclusion criteria. After the data collection process, the power of the sample was found to be 94.2% in the power analysis performed using G Power 3.1.9.7 software.

Inclusion Criteria

- His wife has not yet given birth,
- 18 years and older,
- Expectant fathers who volunteered to participate in the study were included in the study,
- Partners of women with a pregnancy over 20 weeks gestation.

Exclusion Criteria

- Fathers who could not speak Turkish or had communication disorders were excluded from the study,
- Partners of women with a high-risk pregnancy.

Data Collection Instruments

The study data were collected through Personal Information Form, Prenatal Father Attachment Scale (PFAS), and State-Trait Anxiety Inventory (STAI).

Personal Information Form: The descriptive information form consists of 20 questions. The form includes questions about the demographic information of the participants, obstetric characteristics and the feelings of the individual when he learnt that he was a father.

Prenatal Father Attachment Scale (PFAS): Prenatal Father Attachment Scale is a scale developed by Condon (1993) (Condon, 1993). Turkish validity and reliability study of the scale was conducted by Benli and Aksoy (2021). The scale consists of a total of 16 questions in 5-point Likert type. It has 2 sub-dimensions, namely "quality of attachment" and "time spent on attachment" sub-dimensions. There are items 2, 3, 7, 9, 11, 12, 15, 16 in the quality of attachment sub-dimension and items 1, 4, 5, 6, 8, 10, 13, 14 in the time spent on attachment sub-dimension. There are 9 reverse items in the scale, including items 1, 3, 5, 6, 7, 8, 12, 13, 15. Reverse items are reversed and scored. The minimum score that can be obtained from the scale is 16 and the maximum score is 80. The higher the score obtained from the scale, the higher the prenatal attachment is accepted (Benli & Aksoy, 2021). The cronbach alpha value of the valıdıty and reliabılity study of the scale was found to be 0.82. In this study, the cronbach alpha coefficient of the scale was determined as 0.75.

State- Trait Anxiety Inventory (STAI): The scale developed by Spielberger et al. (1970) consists of 20 items. The State-Trait Anxiety Inventory (STAI) aims to measure the continuity of the anxiety that a person tends to experience. The validity and reliability of the scale in Türkiye was carried out by Öner and Le Compte (1983) (Öner & Le Compte, 1983). The inventory has two separate scales, State-Trait Anxiety and Trait Anxiety, each with 20 items. The scale is a Likert-type four-point scale ranging from "Not at all" to "Completely". A high score indicates a high level of anxiety and a low score indicates a low level of anxiety. There are 7 reverse items in the scale, namely items 21, 26, 27, 30, 33, 36 and 39. The minimum score that can be obtained from the scale is 20 and the maximum score is 80. Cronbach's Alpha coefficient ranged from 0.94 to 0.96 for the SAI in the validity and reliability study of the inventory (Oner and Le Compte, 1983). In the study, the cronbach alpha coefficient of the scale was determined as 0.88.

Data Collection

The purpose of the study was explained to the prospective fathers who met the research criteria by the researcher while they were in the outpatient clinic examination waiting line, they were informed that all data would be protected safely and their consent was obtained. Then, the data were collected by the researcher using face-to-face interview technique.

Analysing the Data

The data obtained in the study were analysed using Statistical Package for Social Sciences (IBM SPSS Corp., Armonk, NY, USA) for Windows 25.0 software. Descriptive statistics such as frequency, percentage values, mean and standard deviation were used to interpret the data obtained. The conformity of the data to normal distribution was evaluated by Kolmogorov-Smirnov test. As a result of the Kolmogorov-Smirnov test, it was determined that the data showed normal distribution. Parametric tests were applied with the scales used. Independent sample t test was performed to test whether the scores obtained from two unrelated samples of our quantitative variables differed significantly from each other. ANOVA (F) test was applied to test whether the mean scores of more than two unrelated samples differed significantly from each other, and Bonferroni test was applied to see from which groups the difference originated. "Reliability Analysis" was performed to test the reliability of the scales. Pearson correlation analysis was used to evaluate the relationship between the two scales. In the study, *p* values below 0.05 were considered significant.

Ethical Approach of the Research

The necessary written permission was obtained from Sakarya University Training and Research Hospital and ethical approval was obtained from Sakarya University Non-Interventional Clinical Research Ethics Committee (letter: E-71522473-050.01.04-121150-72-Date: 04.04.2022). At the beginning, each father was informed about the purpose of the study and written informed consent was obtained. The consent form included information that the participants could voluntarily participate in the study without any pressure or coercion, that they had the right to refuse to participate in the study, and that they could leave the study at any time. The Declaration of Helsinki was followed at all stages of this study.

Results

The ages of the prospective fathers in the study group ranged between 22-48 years and the mean age was 34.53±5.77 years. The duration of marriage of the prospective fathers ranged between 1-26 years with a mean of 6.27±3.91 years. The scores of the individuals obtained from the Prenatal Father Attachment Scale ranged between 47-78 points, with an average of 64.08±6.01 points. In the study, it was seen that there was a statistically significant difference in the scores obtained from the prenatal paternal attachment scale according to the parameters of the participants' educational status, economic status, feeling ready for fatherhood, planned pregnancy, the emotion felt when they learnt that they were fathers, harmony with the spouse, the father's accompaniment to the controls, and the negative effect of pregnancy on the change in physical appearance (p<.05). The attachment scores of the fathers who had an education level above university, had a high economic status, felt ready for fatherhood, participated in the controls, were compatible with their partner, and were positively affected by the physical changes in pregnancy were significantly higher.

The distribution of the demographic Characteristics of the prospective fathers and the distribution of the mean scores obtained from the Prenatal Father Attachment Scale related to these characteristics are given in Table 1.

The scores obtained by the prospective fathers from the STAI ranged between 32-59 points, with a mean score of 41.18±4.61 points. There was no statistically significant difference between all demographic characteristics of the participants and the scores they obtained from the STAI (p<.05). The distribution of the mean scores obtained from the STAI according to the demographic characteristics of the prospective fathers is given in Table 2.

In the study, a statistically significant and positive (r=0.546 p<.05) relationship was found between the scores obtained by the participants from the time spent on attachment sub-dimension of the Prenatal Father Attachment Scale and the scores obtained from the attachment quality sub-dimension. As the time spent on attachment increases, the quality of attachment also increases. A statistically significant and positive (r=0.26 p<.05) relationship was found between the scores of the prospective fathers from the STAI scale and the scores from the time spent on attachment sub-dimension of the Prenatal Father Attachment Scale. As the anxiety level of fathers increases, the time spent for attachment also increases. The relationship between the scores obtained from the prenatal father attachment scale and the scores obtained from the STAI scale by the prospective fathers participating in the study is given in Table 3.

Discussion

Secure attachment is a highly influential factor for the baby's life both in infancy and later in life. In the literature, there are many studies on the benefits of mother and infant attachment Chambers (2017), but there are not enough studies on the attachment process that fathers experience with their infants. In this study, the relationship between fathers' anxiety and father-infant attachment and related variables were examined.

The attachment process, the basis of which is realized in the intrauterine period, is very important for the mental and emotional development of the baby and is highly affected by demographic factors (Işık & Çetişli, 2020; Rempel et al.,2017). In our study, it was observed that the education level and economic status of the prospective fathers had a relationship with attachment. In the study conducted by Çağan et al. (2021), it was observed that the attachment levels of prospective fathers with a bachelor's degree and above were higher (Çağan et al., 2021). In the study conducted by Kılavuz et al. (2022), it was observed that the attachment levels of prospective fathers with higher economic status were higher (Klavuz et al., 2022). Similarly, in Kartal and Erişen's (2020) study, it was observed that fathers with higher income status had higher attachment scores (Kartal & Erişen, 2020). In line with the literature and our study, it can be said that income status and education level are factors that can affect a person's perspective on life, perception of fatherhood and desire to have children. Considering that insufficient income makes the prospective father economically anxious, it can be said that this anxiety is reflected in attachment and negatively affects attachment.

For a male individual, feeling ready for fatherhood, wanting pregnancy, marital satisfaction are important in terms of participating in the pregnancy process and the care of the baby in the future and adopting the roles of taking responsibility (Hall et al., 2014). In our study, it was observed that the attachment levels of prospective fathers who thought that they were ready for fatherhood, whose pregnancy was planned, who were happy when they heard the news of pregnancy, who were positively affected by their partner's physical appearance and who accompanied them to routine controls were significantly higher. In the study conducted by Demirçin et al. (2019), it was reported that the attachment levels of individuals who felt ready for fatherhood were higher (Demirçin et al., 2019).

Table 1.
The Relationship Between the Scores of the Participants on the Prenatal Father Attachment Scale and Some Variables

Demographic data		n	Prenatal Father Attachment Scale					
			Attachment Quality Subscale		Time Spent on Attachment Subscale		Total Score	
			$\overline{X}$ ±SD	Test and p	$\overline{X}$ ±SD	Test and p	$\overline{X}$ ±SD	Test and p
Age [a]	30 and under (1)	31	36.41±2.36	f=1.26 *p*=.28	29.45±4.09	f=1.96 *p*=.14	65.87±5.94	f=1.96 *p*=.14
	31-40 (2)	60	35.43±3.12		27.90±3.68		63.33±5.85	
	41 and higher (3)	15	35.93±2.40		27.46±4.59		63.40±6.42	
Education level [a]	Secondary school and under (1)	20	33.85±3.70	**f=8.39 *p*<.05* (1-3)**	26.80±4.64	**f=4.65 *p*<.05* (1-3)**	60.65±6.71	**f=7.64 *p*<.05* (1-3)**
	High School (2)	30	35.50±3.19		27.30±3.64		62.80±6.06	
	University and higher (3)	56	36.64±1.76		29.35±3.64		66.00±5.01	
Working status [b]	Working	101	36.00±2.55	t=3.56 *p*=.08	28.25±3.83	t=-0.40 *p*=.68	64.25±5.76	t= 1.33 *p*= .18
	Not working	5	31.60±5.02		29.00±6.89		60.60±10.08	
Economic status[a]	Low (1)	5	31.80±5.11	**f=6.82 *p*<.05* (1-2/1-3)**	27.80±7.79	f=1.79 *p*=.17	59.60±10.40	**f=3.36 *p*<.05* (1-3)**
	Medium (2)	88	35.84±2.55		28.03±3.56		63.87±5.41	
	High (3)	13	37.00±2.48		3.23±4.60		67.23±6.94	
Marriage duration [a]	5 years and under (1)	50	35.94±2.78	f=0.12 *p*=.87	29.10±3.73	f=2.01 *p*=.13	65.04±5.86	f=1.21 *p*=.30
	6-10 years (2)	46	35.67±2.97		27.63±3.98		63.30±5.97	
	11 years and higher (3)	10	35.60±2.71		27.30±4.69		62.90±6.80	
Existence of the living child [b]	Yes (1)	51	35.82±3.21	t=0.10 *p*=.22	28.01±4.04	t=-0.67 *p*=.74	63.84±6.26	t= 0.69 *p*=-.39
	None (2)	55	35.76±2.46		28.54±3.92		64.30±5.82	
Baby's gender [a]	Girl (1)	39	35.66±3.21	f=0.81 *p*=.92	28.10±4.01	f=0.34 *p*=.71	63.76±6.34	f=0.15 *p*=.85
	Boy (2)	52	35.82±2.66		28.59±3.96		64.42±5.81	
	Unknown (3)	15	36.00±2.83		27.73±4.09		63.73±6.16	
Feeling ready for fatherhood [b]	Yes	100	36.13±2.33	**t=5.70 *p*<.05***	28.46±3.91	t=1.79 *p*=.71	64.59±5.56	**t= 2.85 *p*<.05***
	No	6	30.16±4.57		25.50±4.32		55.66±7.52	
Planned pregnancy status [b]	Planned	95	35.98±2.61	**t=2.13 *p*<.05***	28.48±3.78	t=1.46 *p*=.11	64.47±5.52	t= 1.98 *p*= .05
	Unplanned	11	34.09±4.06		26.63±5.29		60.72±8.91	
The feeling when you realise you are a father [b]	Nothing	19	34.47±3.79	**t=-2.28 *p*<.05***	26.52±3.51	t=-2.17 *p*=.50	61.00±6.49	**t=-2.33 *p*<.05***
	Happiness. joy	87	36.08±2.52		28.67±3.98		64.75±5.72	
Harmony with the partner[a]	Always compatible (1)	31	36.58±3.21	f=1.97 *p*=.14	30.54±3.74	**f=8.29 *p*<.05* (1-2/1-3)**	67.12±5.86	**f=6.54 *p*<.05* (1-2)**
	Generally compatible (2)	70	35.52±2.61		27.44±3.56		62.97±5.45	
	Incompatible (3)	5	34.60±2.88		26.20±5.76		60.80±8.46	
Father's accompaniment to the controls [b]	Accompaniment	87	36.21±2.43	**t=3.47 *p*<.05***	28.98±3.82	t=4.14 *p*=.27	65.20±5.57	**t= 4.58 *p*<.05***
	I didn't accompany	19	33.84±3.71		25.10±3.07		58.94±5.34	
Negative effects of changes in physical appearance during pregnancy [b]	Did not affect	43	34.32±3.48	**t=-4.84 *p*<.05***	26.76±4.04	**t=-3.35 *p*<.05***	61.09±6.44	**t=-4.62 *p*<.05***
	I've become interested in him.	63	36.79±1.70		29.33±3.60		66.12±4.76	

**p<.05* [a]*One Way ANOVA test* [b]*Independent samples t test*

Table 2.
Comparison of (STAI) Scores According to Socio-Demographic Characteristics of the Participants

Demographic Data		n	STAI-II	
			$\overline{X}$ ±SD	test and p
Age [a]	30 and under (1)	31	41.35±4.65	f=0.14
	31-40 (2)	60	41.25±4.56	*p*=.86
	41 and higher (3)	15	40.60±4.98	
Education level[a]	Secondary school and under (1)	20	39.80±4.62	f=1.41
	High School (2)	30	41.00±4.69	*p*=.24
	University and higher (3)	56	41.78±4.52	
Working status[b]	Working	101	64.25±5.76	t=0.29
	Not working	5	60.60±10.08	*p*=.64
Economic status[a]	Low (1)	5	41.20±3.34	f=0.31
	Medium (2)	88	41.32±4.83	*p*=.72
	High (3)	13	40.23±3.39	
Marriage duration[a]	5 years and under (1)	50	41.42±5.11	f=0.12
	6-10 years (2)	46	40.95±3.96	*p*=.88
	11 years and higher (3)	10	41.10±5.17	
Existence of the living child[b]	Yes (1)	51	41.05±4.80	t=-0.27
	None (2)	55	41.30±4.46	*p*=.95
Baby's gender[a]	Girl (1)	39	40.61±3.71	f=1.39
	Boy (2)	52	41.11±5.26	*p*=.25
	Unknown (3)	15	42.93±4.09	
Feeling ready for fatherhood[b]	Yes	100	41.30±4.64	t=1.01
	No	6	39.33±3.88	*p*=.68
Planned pregnancy status[b]	Planned	95	41.45±4.63	t=1.74
	Unplanned	11	38.90±3.83	*p*=.62
The feeling when you realise you are a father[b]	Nothing	19	42.21±6.08	t=1.06
	Happiness, joy	87	40.96±4.23	*p*=.14
Harmony with the partner[a]	Always compatible (1)	31	41.67±4.20	f=0.49
	Generally compatible (2)	70	40.88±4.89	*p*=.61
	Incompatible (3)	5	42.40±2.70	
Father's accompaniment to the controls [b]	Accompaniment	87	41.36±4.73	t=0.85
	I didn't accompany	19	40.36±3.98	*p*=.51
Negative effects of changes in physical appearance during pregnancy[b]	Did not affect	43	41.62±4.91	t=0.79
	I've become interested in him.	63	40.88±4.40	*p*=.43

[a]*One Way ANOVA test* [b]*Independent samples t test*

In the study conducted by Sürücüler (2019), it was observed that prospective fathers who had a very good relationship with their spouses had higher attachment scores (Sürücüler, 2019). Again, in Tanaka et al. (2023) study, it was observed that the father's negative relationship with his spouse reflected negatively on father-infant attachment (Tanaka et al., 2023). In another study, it was reported that relationships with weak partner bonding reflected negatively on the quality of father-infant attachment (Wynter et al., 2016). In a study examining the differences between mothers and fathers in parent-infant attachment, it was reported that the perception of marital quality was a more important factor for attachment in fathers compared to mothers (Luz et al., 2017). Positive reactions to the news of pregnancy may be realized thanks to the planned pregnancy, and accordingly, attachment is likely to be experienced more in an expected pregnancy. Expectant fathers who participated in the controls with their wives may have higher attachment levels because they had the opportunity to spend more time with their infants and take responsibility for them. It is thought that exhibiting a positive attitude towards the physiological changes of the spouse is due to the fact that it occurs in parallel with the harmony between the spouses, and accordingly, it can be said that attachment levels will increase. A large number of studies have demonstrated the important role that a positive relationship between couples plays in the bonding of future generations.

Table3.
Relationship between Prenatal Father Attachment Scale and STAI Scale Total Scores (n=106)

		Attachment Quality Subscale	Time Spent on Attachment Subscale	Prenatal Father Attachment Scale
Time Spent on Attachment Subscale	r p	0.546 **<.05***	1	0.264 **<.05***
STAI	r p	0.02 .87	0.26 **<.05***	0.182 .062

**=p<0.05; r= Pearson Correlation Test*

In the study, there was no relationship between total scores of paternal attachment and total scores of trait anxiety, but as the level of trait anxiety increased, the dimension of time spent on attachment increased. As the time spent on attachment increased, the quality dimension of attachment also increased. The fact that expectant fathers spend more time with their babies facilitates the feeling of positive emotions and positively affects the quality of attachment. In the study conducted by Çelik Yaşar (2020) on the effects of adult attachment type, anxiety level, alexithymia on prenatal and postnatal father-infant attachment in expectant fathers, it was seen that the anxiety level of expectant fathers had no effect on prenatal attachment (Çelik Yaşar, 2020). Due to the increase in the responsibilities of expectant fathers during pregnancy, the issue that needs to be focused more emerges. Accordingly, it can be said that the anxiety level of expectant fathers

increases and this situation negatively affects attachment.

Study Limitations

The study has various limitations. The study sample was cross-sectional and included only the spouses of pregnant women who visited the obstetrics and gynaecology outpatient clinic of a hospital. Therefore, it cannot be generalised to all prospective fathers.

Conclusion and Recommendations

Expectant fathers are not as close to the physical evidence that the foetus is an individual as expectant mothers, so they have more difficulty in accepting the reality of pregnancy compared to mothers. The results of the study show that the prenatal attachment process of expectant fathers may vary according to demographic characteristics. However, it was observed that having a desired pregnancy and feeling ready for fatherhood positively affected attachment. The level of anxiety perceived by expectant fathers also increases the time spent on attachment. Practices such as trainings for fathers during pregnancy, including fathers in pregnancy classes and controls can enable fathers to participate more in the prenatal period and accordingly, the basis of attachment can be realised in the prenatal period. In the literature, more studies are needed to improve father-infant attachment.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Sakarya University (Date: 04.04.2022, Number: E-71522473-050.01.04-121150-72). All steps of the study were conducted in accordance with the Declaration of Helsinki.

Informed Consent: Verbal consent was obtained from each patient.

Peer-review: Externally peer-reviewed.

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The Impact of Unplanned Pregnancy on Prenatal Attachment and Subjective Happiness

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ABSTRACT

Objective: Unplanned pregnancies are a major public health problem that causes undesirable socio-economic and psychological consequences for women, children and families in both developed and developing countries. This study was carried out to evaluate the impact of unplanned pregnancy on prenatal attachment and subjective happiness.

Methods: This analytical cross-sectional study was conducted with 342 pregnant women who attended the Obstetrics and Gynecology outpatient clinic of a university hospital between July 2022 and October 2022. Data was collected using the Demographic Information Form, London Unplanned Pregnancy Determination Scale, Prenatal Attachment Inventory, and Subjective Happiness Scale. The data was evaluated using descriptive statistics, as well as pearson correlation and regression analyses.

Results: Age, number of pregnancies, pregnancy week, feelings experienced upon learning of the pregnancy, and previous pregnancy loss status all appear to have a statistically significant effect on the prenatal attachment and subjective happiness scale (p<.001). Regression analysis results show that prenatal attachment and subjective well being have a statistically significant effect on the London Unplanned Pregnancy Determination Scale (R^2=0.495).

Conclusion: It has been found that unplanned pregnancies negatively affect early maternal behavior and individual happiness before birth. Therefore, it is considered important to provide counseling and psychosocial support to all pregnant women in order to bond with motherhood and ensure subjective happiness, along with prenatal education.

Keywords: Attachment, fetal, happiness, maternal, unplanned pregnancy

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Introduction

Pregnancy is a transitional period that involves significant physical and emotional changes. It is important to note that it requires psychological preparation and adjustment to new roles and responsibilities for the woman (Perry et al., 2022; Rastad et al., 2021). Unplanned pregnancy means pregnancy that occurs at an unexpected or inappropriate time. This type of pregnancy can be met with surprise by the family and then make the family unhappy (Abajobir et al., 2016). Unplanned pregnancy and its complications are a global problem that concerns women, the family and the community. Women who experience unplanned pregnancies are more prone to smoking, alcohol consumption, drug use, malnutrition during pregnancy, x-rays, low folic acid consumption, maternal and fetal death, miscarriage, low birth weight and preterm labor. It is also known that these women disregard prenatal care (Ekrami et al., 2020; Nelson et al., 2012; Ranatunga & Jayaratne, 2020; Rastad et al., 2021). Unplanned pregnancies can affect prenatal attachment levels as couples do not prepare for the gestation process and parenting role and occur unexpectedly (Mahmoudi et al., 2023).

Prenatal bonding is the emotional and psychological bond that the mother feels towards her unborn baby, which begins with her realization of her pregnancy. This attachment usually begins with a variety of behaviors, such as talking to the fetus during pregnancy, caress the fetus and stomach, and becomes stronger after birth (Harpel et al., 2018; Jangjoo et al., 2021; Mahmoudi et al., 2023). One of the important factors that negatively affect attachment is that pregnancy is unplanned. In unplanned pregnancies, prenatal attachment levels may be adversely affected, as couples do not plan ahead to prepare for pregnancy (Ekrami et al., 2020; Ranatunga et al., 2020).

Unplanned pregnancies are one of the important issues in reproductive health that can negatively affect women's happiness. Unhappiness, hopelessness, fear, suicide, depression in women with unplanned pregnancies, mental health problems such as stress, anxiety, anxious waiting, feelings of being overwhelmed by pregnancy-related changes, constant thought of being sick due to pregnancy, constant remorse about being pregnant (Ranatunga & Jayaratne, 2020; Rastad et al., 2021). Studies have shown that the emotional response of the mother to pregnancy and the level of happiness have very important effects on the decision to maintain pregnancy and adopt healthy behaviors (Abajobir et al., 2016; Goossens et al., 2016; Hasanzadeh et al., 2020; Ranatunga & Jayaratne, 2020; Rastad et al., 2021).

Subjective happiness is a state of psychological well-being, joy and peace. Subjective happiness includes both emotional and cognitive dimensions, the emotional dimension is defined by the presence of positive emotion and the absence of negative emotion, and the cognitive dimension by life satisfaction (Turk et al., 2017). Individuals with higher levels of subjective happiness have more positive thoughts about themselves and have more intense emotional reactions to positive experiences and shorter-term responses to negative ones (Jazayeri et al., 2018; Turk et al., 2017). The lack of happiness during pregnancy can also reduce mother-baby bonding due to negative experiences, poor pregnancy quality and the effect on the mother's sense of worthiness. Such negative experiences occur as irritability and anxiety, and can have harmful effects on both the mother and the fetus due to inappropriate reactions to pregnancy and the resulting stresses and in this case, it negatively affects mother-infant attachment (Ali et al., 2023; Cınar et al., 2017; Ekrami et al., 2020; Mahmoudi et al., 2023; Turk et al., 2017). This study was conducted to evaluate the effect of unplanned pregnancies on mother-infant attachment and subjective happiness.

Methods

Design and Sampling

This study was conducted in the analytical cross-sectional type to assess the impact of unplanned pregnancy on prenatal attachment and subjective happiness. The study was carried out at the Obstetric Polyclinic of a university hospital between July 2022 and October. The literature was reviewed while determining the sample size of the study. In this context, the results of the study conducted by Koç Özkan et al. (2020) were taken as basis. The sample size was calculated as 326 pregnant women using G*power analysis with an effect size of 0.71, α=0.05 and 98% power calculation. To increase the power of the study and to account for possible attrition, 380 pregnant women were included in the study. However, 38 pregnant women who did not meet the study criteria were excluded (with a score of >7 on the The London Unplanned Pregnancy Determination Scale, had multiple pregnancy and a diagnosis of risky pregnancy) from the study. The study was conducted with 342 pregnant women. Following polyclinic examinations and procedures, the researcher collected data through face-to-face interviews in a suitable room.The study was conducted with pregnant women who were 18 years of age or older, did not have a chronic disease, did not have communication problems or mental disorders, were

not diagnosed with a risky pregnancy, had a single fetus, scored ≤7 points on the The London Unplanned Pregnancy Determination Scale, and agreed to participate in the study. Pregnant women under 18 years of age, with a chronic disease, communication problems, mental illness, diagnosed with risky pregnancy, multiple pregnancies, those who scored >7 points on the London Unplanned Pregnancy Identification Scale and those who refused to participate in the study were excluded from the study.

Measurements

Demographic Information Form, London Unplanned Pregnancy Identification Scale, Prenatal Attachment Inventory and Subjective Happiness Scale were used to collect the data.

Demographic Information Form: It was prepared by the researchers in line with the literature and consisted of sociodemographic questions such as age, education level, family type and income level and questions including obstetric history (Altıparmak et al., 2021; Ali et al., 2023; Çınar et al., 2017; Gencer & Ejder Apay, 2021).

The Subjective Happiness Scale (SHS): The scale was originally developed by Lyubomirsky and Lepper (1999) and adapted into Turkish by Doğan and Totan (2013). It is a 7-point Likert scale consisting of only 4 items, with a range of scores from 4 to 28. High scores on the scale indicate a high level of subjective happiness. In our research, we determined the Cronbach alpha value of the scale to be 0.86.

The London Unplanned Pregnancy Determination Scale (LUPDS): The scale is a psychometric measure developed by Barrett et al. in 2004 to assess unplanned pregnancy. The Turkish validity and reliability of the scale were established by Altiparmak et al. in 2021. The scale adapted to Turkish consists of five items as a result of the reliability and validity analyses and the cut-off score of the scale was calculated as 7. Accordingly, the scores obtained from the scale were determined as ≥7 planned and 0-7 unplanned. A minimum of 0 points and a maximum of 10 points can be obtained from the scale. The reliability coefficient of the scale, as measured by Cronbach's Alpha, was 0.90 in the study conducted by Altiparmak et al. (2021). In our research, we found the Cronbach's Alpha value of the scale to be 0.89.

Prenatal Attachment Inventory (PAI): The scale was developed by Mary Müller in 1993 to objectively measure the emotional state experienced by pregnant women and their level of attachment to the baby during the prenatal period. Yılmaz and Beji (2013) conducted a reliability study on the Turkish translation of the inventory and found a Cronbach alpha value of 0.84. The inventory comprises 21 items, each scored between 1 and 4. The inventory's score range varies from 21 to 84. An increase in the score indicates a higher level of attachment to the babies of pregnant women. In our research, we determined the Cronbach alpha value to be 0.85.

Data Analysis

Research data were analyzed using the SPSS (Statistical Package for Social Sciences) program for Windows 25.0. “Reliability analysis” was applied to test the reliability of the scales. Data showing skewness/kurtosis values between -1.5 and +1.5 were found to be normally distributed. Parametric tests were used in the statistical analyzes for the scales with normal distribution. Descriptive statistics, including arithmetic mean and standard deviation values, as well as Pearson correlation and regression analyses (in the analysis, the data meet the multiple regression assumptions) were used to evaluate the data. The level of significance for the statistical evaluation was set at $p<.05$

Ethical Approval

Before starting the research, İstanbul Atlas University, Non-invasive Scientific Research Ethics Committee permission (decision number and date: 18383/15.06.2022) was obtained from the non-interventional scientific research ethics committee of İstanbul Atlas University. In addition, the purpose of the study was explained to the women who accepted the study and their written and verbal consent was obtained in accordance with the principles of the Declaration of Helsinki. All participants were informed that no financial compensation would be provided for their participation. Data were collected through face-to-face interviews in a private room to ensure confidentiality. To protect participant privacy, all the were anonymized and stored in password-protected files on an encrypted computer. No physical or physiological harm was reported during or after the study.

Results

The study found that the women had an average age of 29.12±4.78. Of the participants, 36.5% had completed high school, 53.2% were employed, and 58.9% had a middle income. Additionally, 77.2% of the participants were in a core family structure. In terms of gestational week, 28.7% were between weeks 0-12. The sex of the baby was not important to 38.5% of the participants, while 69% reported feeling the baby's movements.

It was determined that 61.5% of the pregnant women had mixed feelings, 43.0% had experienced pregnancy loss before and 36.9% had their first pregnancy (Table 1).

Table 1. *Socio-Demographic Characteristics of Pregnant Women (n=342)*		
Age Max-Min:18-42 Mean±Sd: 29.12±4.78	**n (342)**	**%**
Education level		
Primary	104	30.4
High School	125	36.5
University	113	33.1
Employment Status		
Yes	184	53.8
No	158	46.2
Income rate		
Bad	80	23.4
Middle	198	58.9
Good	64	17.7
Family type		
Core family	264	77.2
Extended family	78	22.8
Current gestational week		
0-12 weeks	98	28.7
13-20 weeks	76	22.2
21-29 weeks	88	25.7
30-36 weeks	80	23.4
Preferred sex of the baby		
Girl	98	28.7
Male	112	32.8
I don't mind	132	38.5
Detecting Fetal Movements		
Yes	236	69.0
No	106	31.0
The feeling you had when you found out you were pregnant		
Happiness	60	17.5
Sorrow-Sadness	72	21.0
Mixed-Ambivalent Emotions	210	61.5
Previous pregnancy loss		
Yes	147	43.0
No	195	57.0
Which pregnancy?		
First pregnancy	126	36.9
Second pregnancy	114	33.3
Three or more pregnancies	102	29.8
Duration Between Your Last Pregnancy and Current Pregnancy		
1 years	89	26.0
2 years	65	19.0
3 years and up	62	18.1
First pregnancy	126	36.9

Table 2 shows that the London unplanned pregnancy determination scale score average is 4.70±1.92, the prenatal attachment Inventory score average is 52.85±3.45, and the subjective happiness scale score average is 11.93±8.81. In addition, as a result of pearson correlation analysis, a statistically significant positive relationship was found between the London UPR Scale, Prenatal Attachment Inventory and Subjective Happiness Scale (p<.05). It is seen that the mean scores obtained from the scales are at a moderate level.

The table 3 presents the results of a multiple regression analysis examining the relationship between the London Unplanned Pregnancy Detection Scale (LUPDS) as the dependent variable and two independent variables: the Prenatal Attachment Inventory (PAI) and the Subjective Happiness Scale (SHS). The model demonstrates statistical significance (p=.000) with an F-value of 35.501, indicating that the independent variables significantly predict the dependent variable. The adjusted R^2 value of 0.495 suggests that approximately 49.5% of the variance in LUPDS is explained by the model. Both PAI (β=0.245, t=4.806, p=.000) and SHS (β=0.228, t=4.468, p=.000) are significant predictors of LUPDS (Table 3).

The study identified several factors that significantly influence prenatal attachment and subjective happiness. These include the number of pregnancies, the gestational week, the emotions experienced upon learning about the pregnancy, and the history of previous pregnancy loss. The regression analysis revealed that these independent variables collectively account for 9.2% of the variation in the Prenatal Attachment Inventory (Adjusted R^2= 0.092). The model was statistically significant (F=14.050, p<.001), and no autocorrelation issues were detected (Durbin-Watson=1.793). Similarly, the analysis of subjective happiness showed that age, the time interval between the last pregnancy and the current one, the number of pregnancies, and the history of pregnancy loss significantly affect happiness levels. These variables explained 8.1% of the variation in the Subjective Happiness Scale (Adjusted R^2=0.081). The model was also statistically significant (F=9.148, p<.001), with no autocorrelation issues (Durbin-Watson= 1.874) (Table 4). These findings emphasize the importance of addressing emotional and psychological factors during pregnancy,particularly for women with unplanned pregnancies. Midwives and nurses are encouraged to provide counseling and support to improve maternal-infant attachment and overall well-being.

Discussion

The majority of studies have shown that unplanned pregnancy is associated with negative obstetric outcomes,

but so far the effect of unplanned pregnancy on prenatal attachment and happiness remains unclear. Therefore, this study was conducted to determine the effect of unplanned pregnancy on prenatal attachment and subjective level of happiness. Pregnancy is considered a transitional stage that requires psychological preparation for women to accept a new role and responsibility. But facing an unplanned pregnancy and not accepting it; less maternal-fetus attachment during pregnancy and low levels of happiness can lead to unpleasant consequences (Abajobir et al., 2016; Nelson & O'Brien, 2012; Rastadet al., 2021). Pregnancy itself is an experience of physical and mental discomfort. Therefore, the presence of stress, discomfort and anxiety related to this period leads to a decrease in happiness. Unhappiness leads to negative pregnancy experiences such as premature birth, decreased fetal heart rate, low birth weight, cesarean section, postpartum neurobehavioral problems. At the same time, unhappiness affects the mother's sense of worth, reducing mother-fetus attachment and mother-child attachment. (Baghdari et al., 2017; Busonera et al., 2017; Borghei et al., 2020; Hasanzadeh et al., 2020; Nelson & O'Brien, 2012; Turk et al., 2017).

Table 2.
Mean scores of London Unplanned Pregnancy Detection Scale (LUPDS), Prenatal Attachment Inventory (PAI) and Subjective Happiness Scale (SHS)

	Minimum	Maximum	Mean	Std. Deviation	Max-min can be used
LUPDS Total	0.00	8.00	4.70	1.92	0-10
PAI Total	21.00	64.00	52.93	8.81	21-84
SHS Total	4.00	19.00	11.85	3.45	4-28
Pearson correlation analysis	LUPDS&PAI r=.335 *p*=.000; LUPDS&SHS r=.324 *p*=.000; PAI&SHS r=.394 *p*=.000				

In study found that the level of prenatal attachment for unplanned pregnancies was moderate, with a mean score of 52.93±8.81. (Table 2). In other studies similar to our finding, prenatal attachment was noted to be moderate (Ozkan et al., 2020; Baghdari et al. 2016; Busonera et al., 2017; Cinar et al., 2017; Ekrami et al., 2020; Harpel & Barras, 2018; Hasanzadeh et al., 2020; Jangjoo et al., 2021; Mahmoudi et al., 2023). However, it can be said that adaptation to the changes in pregnancy and the effects of other factors may vary at the level of prenatal mother baby attachment. Therefore, nurses and midwives should evaluate the pregnancy as a good observer and help the pregnant woman express her thoughts about her pregnancy and the baby. Pregnant women who are not ready or unable to adapt to the role of motherhood should be given counseling and education.

Table 3.
Regression analysis of London Unplanned Pregnancy Detection Scale (LUPDS), Prenatal Attachment Inventory (PAI) and Subjective Happiness Scale (SHS)

Dependent Variable	Independent variables	β	Standard error	Beta	t	p	F	Model (p)	Adj. R^2	Durbin Watson
LUPDS	Constant	0.202	0.544	-	0.372	.710	35.501	0.000	0.495	1.953
	PAI	0.048	0.010	0.245	4.806	.000				
	SHS	0.127	0.028	0.228	4.468	.000				

In the study, both PAI and SHS were found to be significant predictors of LUPDS. (Table 3). Similarly, studies have shown that an unplanned pregnancy is directly related to prenatal happiness (Ali., 2023; Borghei, et al., 2020; Hasanzadeh et al., 2020; Jazayeri et al., 2018; Nelson & O'Brien, 2012; Turk et al., 2017). The findings of our study are in line with the literature, and the study suggests that unplanned pregnancies occur in the whole community, and these findings are thought to be important for midwives and nurses to guide the planning and delivery of family planning services.

In the present study, it was determined that age and increase in the number of pregnancies decreased the level of subjective happiness in pregnant women, while the increase in the time between the last pregnancy and the current pregnancy and previous pregnancy loss increased the level of subjective happiness in pregnant women.

(Table 4). Similarly in studies of the age of pregnant women, income status, working condition, place of residence, number of pregnancies, history of abortus, the time between the last two pregnancies, co-age, co-working status and the status of the spouse training, etc, seen as predictors of happiness level (Ali et al., 2023; Rain et al., 2019; Turk et al., 2017; Gencer & Ejder Apay, 2021). Considering that pregnancy is a period characterized by psychological, physiological and emotional changes, women have difficulty adapting to these changes, so whether pregnancy is planned or not is also considered to be directly related to happiness levels in pregnancy.

Table 4.
Regression Analysis of Prenatal Attachment Inventory (PAI) and Subjective Happiness Scale (SHS)

	Independent variables	β	Standard error	Beta	t	p	F	Model (p)	Adj. R^2	Durbin Watson
Prenatal Attachment Inventory (PAI)	**Constant**	54.091	2.385	-	22.679	.000	14.050	0.000	0.092	1.793
	Number of pregnancies	-2.893	.547	-.257	-5.292	.000				
	Current pregnancy week	1.507	.496	.147	3.037	.003				
	The feeling experienced when the pregnancy situation is learned	-1.151	.490	-.114	-2.348	.019				
	Previous pregnancy loss status	4.778	1.037	.228	4.608	.000				
Subjective Happiness Scale (SHS)							9.148	0.000	0.081	1.874
	Constant	21.078	1.345	-	14.258	.000				
	Age	-1.763	.452	-.341	-2.125	.001				
	The time between the last pregnancy and the current pregnancy	2.408	.482	.214	3.037	.041				
	Number of pregnancies	-2.345	.370	-.114	-2.348	.002				
	Previous pregnancy loss status	3.643	1.037	.327	2.425	.039				

In the study, it was observed that the increase in the number of pregnancies and the emotions experienced after learning about pregnancy decreased the level of prenatal attachment in pregnant women, while the increase in the gestational week and previous pregnancy loss increased the level of prenatal attachment in pregnant women. (Table 4). In unplanned pregnancies, women may think they are caught unprepared for parenthood, feel overwhelmed and exhausted by having a more stressful period, and may experience many different emotions when trying to accept this condition. These negative emotions that mothers experience during pregnancy can also affect mother-infant attachment. In the literature, it is stated that women who experience unplanned pregnancies have lower maternal-fetus attachment than women who experience planned pregnancies (Busonera et al., 2017; Ekrami et al., 2020; Jangjoo et al., 2021).

Prenatal attachment is influenced by many factors, individual and environmental. These include: age, education status, work status, family type, income status, marital period and marital harmony, pregnancy, the desired and planned state of pregnancy, the number of pregnancies, pregnancy loss and the number of children living, etc, social support is the state of receiving sleep duration, receiving prenatal care and attending the preparatory class for delivery (Ozkan et al., 2020; Cinar et al., 2017; Ekrami et al., 2020; Hasanzadeh et al., 2020; Jangjoo et al., 2021; Mahmoudi et al., 2023). In our study, it was determined that the number of pregnancies, the week of pregnancy, the feeling experienced when pregnancy is learned and the pregnancy loss situation before affects prenatal attachment (Table 3). In this context, the recognition of these factors by midwives and nurses who interact closely with the pregnant and increasing the awareness of the mother-infant interaction by consulting on this subject, it is a necessary condition for

the protection and development of maternal infant health (Baghdari et al., 2016; Goossens et al., 2016; Ranatunga et al., 2020).

Conclusion and Recommendations

Pregnancy causes a number of physiological and psychological changes in women and enters the process of adapting to the new situation after the woman conceives. This adaptation process is closely related to whether the pregnancy is planned or not. Planned pregnancy is a source of happiness for the pregnant and his family, while unplanned pregnancy changes this situation. When our study results are examined in women with unplanned pregnancy; age, number of pregnancies, week of pregnancy, period between last pregnancy and current pregnancy, period of pregnancy and postpartum pregnancy, period of pregnancy, gestation period, gestation period, pregnancy period, the gestational period and birthday, the feeling experienced when pregnancy is learned and the previous pregnancy loss situation has been seen to fatigue prenatal attachment and subjective happiness. According to these results, it is especially important for midwives and nurses for women with unplanned pregnancies; it is important to provide education and counseling on the role of motherhood in the context of prenatal education and maternity attachment.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of İstanbul Atlas University, Non-invasive Scientific Research Ethics Committee (Decision number and date: 18383/15.06.2022).

Informed Consent: Verbal and written consent was obtained from women.

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Frequency of Episiotomy and Perineal Injury in Home Births and Influencing Factors

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ABSTRACT

Objective: Women may choose home birth to avoid medical interventions such as episiotomy, as midwife-assisted births involve fewer interventions and support the physiological birth process. The aim of this study is to examine perineal outcomes (episiotomy and perineal injury) in planned home births and the associated factors.
Methods: This descriptive study was conducted between August 2021 and January 2022. The sample consisted of 159 women. The data were collected by using the Personal Information Form and Satisfaction Scale (Visual Analog Scale-Satisfaction).
Results: Participants preferred home birth for reasons such as preserving privacy, avoiding IV oxytocin use, having their spouse present during labor, and preventing episiotomy. Intact perineum was observed in 33.3% of participants, while 17.0% underwent episiotomy, and 51.6% experienced perineal injury requiring suturing. Multiparity and flexible sacrum positions were associated with a higher rate of perineal integrity, while multiparity was also linked to a higher risk of perineal injury requiring suturing. Participants received midwifery support during home births and reported high levels of satisfaction with the care they received.
Conclusion: The rate of episiotomy and perineal injury was low in-home births. These results show that women's preference for home birth enables them to avoid medical interventions. Midwives and nurses are recommended to provide pregnant women with the necessary information to help them determine a safe place for childbirth.

Keywords: Episiotomy, perineal trauma, birth, home birth

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Introduction

The medicalization of childbirth is a key characteristic of Western societies. Since the mid-20th century, most women in high- and middle-income countries have delivered their babies in hospital settings. Nevertheless, in some regions, home birth remains a common and accepted practice (Olsen & Clausen, 2023). International Confederation of Midwives (ICM) states that every woman and gender-diverse individual has the right to have a home birth with professional midwife-led care (ICM, 2017). The United Kingdom National Health Service (NHS) states that low-risk pregnancies can be managed with planned home births attended by a midwife, provided that the necessary precautions are taken (NHS, 2024). The American College of Obstetricians and Gynecologists' Committee (ACOG) states that home births can be safe under the following conditions: appropriate selection of candidates for home birth; the presence of a certified nurse-midwife, a certified midwife, or a midwife whose education and licensure meet the International Confederation of Midwives' Global Standards for Midwifery Education, or a physician attending births within an integrated and regulated healthcare system; easy access to consultation; and safe and timely transfer to nearby hospitals (ACOG 2017). In Türkiye, home births have been addressed as one of the services that can be provided under the regulation *Opening and Operation of Health Cabins* (1997-3), specifically under the provision of birth intervention at home. This regulation allows midwives and nurses to establish and operate health cabins within a defined framework of rules and procedures (T.C. Sağlık Bakanlığı, 1997). Another directive issued by the Ministry of Health concerning home births is the *Directive on Maternal Mortality*, which aims to reduce maternal deaths by implementing necessary measures to ensure that pregnant women give birth in a hospital setting (T.C. Sağlık Bakanlığı, 2008). The home birth rate in Türkiye has decreased over the years (HUIPS, 2019). Especially in recent years, with the development of healthcare policies, unplanned home births have decreased, while interest in planned home births has increased in the social media and online platforms (Kumru & Topuzoğlu, 2019). Women prefer planned home birth because they want a personalized birth and want to take an active role in decision-making, and because they think that these cannot be provided in a hospital setting (Leon-Larios et al., 2019). In addition, one of the reasons why women prefer home birth is to avoid medical interventions such as episiotomy (Prates et al., 2018; Rodríguez-Garrido et al., 2020; Sassine et al., 2021; Skrondal et al., 2020).

The selective use of episiotomy reduces perineal trauma, the effect of routine episiotomy in preventing severe perineal trauma, and that routine episiotomy has no benefit for the baby or the mother (Jiang et al., 2017). WHO and FIGO does not recommend routine episiotomy for uncomplicated vaginal birth (WHO, 2018; Wright et al. 2021). On the other hand, episiotomy, which is one of the causes of perineal trauma, is increasing significantly throughout the world. The global rate of episiotomy ranges from 21% to 91% (WHO, 2018). Studies on the prevalence of episiotomy in Türkiye are limited, and the prevalence of episiotomy has been reported as 52-92% (Hotun Şahin et al., 2007; Karaçam et al., 2013; Kartal et al., 2017).

The perineum is at risk of trauma during childbirth due to episiotomy and spontaneous perineal injury (Goh et al., 2018). More than 85% of women who give vaginal birth develop different degrees of perineal injury (Frohlich & Kettle, 2015). These damages can cause short-term and long-term complications in women (Goh et al., 2018). Factors, such as nulliparity, fetal macrosomia (≥4000 g), shoulder dystocia, occiput posterior position, instrumental birth, use of epidural, use of oxytocin, and lithotomy position, affect the prevalence of perineal injury and episiotomy (Goh et al., 2018). In addition, the birth environment affects the rate of perineal injury and episiotomy. The prevalence of perineal injury increases in women who give birth in a hospital and that it is lower in women who give birth at home (Lindgren et al., 2011). In a freestanding birth center in Brazil, the perineum remained intact in 11.8% of women. The prevalence of spontaneous first-degree tears was 61.9%, followed by 26.3% with spontaneous second-degree tears. There were no cases of spontaneous third- or fourth-degree tears or episiotomy (Lopes et al., 2019).

There is inadequate up-to-date data on home births in Türkiye (Kumru & Topuzoğlu, 2019). Studies on the experiences of women giving birth at home are limited. No study has been found to determine the prevalence of episiotomy and perineal injury in home births in Türkiye. The purpose of this study is to determine the frequency of episiotomy and perineal injury in women who have a planned home birth and the factors associated with them. It is thought that the results obtained will shed light on the development of health policies related to home births and will guide the prevention of adverse happenings that may be experienced due to episiotomy and perineal injury, which are quite high in Türkiye. Moreover, this study contributes to the understanding of how approaches aimed at preserving the physiology of birth can positively impact perineal outcomes and reduce routine interventions.

Methods

Study Design and Participants

This descriptive designed study's population consisted of women who gave birth at home in Türkiye. The sample included women who were older than 18, Turkish-speaking and understanding, and had a planned home birth in the last year. There were 1 million 112 thousand 859 live births in Türkiye (TÜİK, 2021). The home birth rate is 1% (HUIPS, 2019). The minimum sample size was determined as 134 based on a 98% statistical power, 0.02 margin of error. The study population consisted of 159 women.

Data Collection

Study data were collected between August 2021 and January 2022 online (Google Forms). Participants were recruited through posts shared on home birth/natural birth pages on social media platforms (Facebook, Twitter, Whatsapp and Instagram). Initially, individuals who saw these posts and met the inclusion criteria were invited to participate. Additionally, these participants were encouraged to share the study with others who had similar experiences, facilitating a referral-based recruitment process.

Measurements

The data were collected by using the Personal Information Form and Satisfaction Scale (Visual Analog Scale-Satisfaction).

Personal Information Form: The data were collected using a structured form, which included variables investigated in the study, such as women's demographic characteristics, pregnancy and birth histories, and their experiences with perineal injury.

Satisfaction Scale (Visual Analog Scale-Satisfaction): The satisfaction levels of the participants regarding home birth, the support received from the midwife, the midwife's interventions aimed at protecting and maintaining the integrity of the perineum during and after childbirth were assessed using the VAS-Satisfaction scale. The VAS is a 10 cm-long measurement tool frequently used to evaluate emotions and other subjective experiences (Wewers & Lowe, 1990). The left end of the scale (0) represents "No satisfaction at all", while the right end (10) represents "The highest possible satisfaction". A higher score on the scale indicates a higher level of satisfaction, whereas a score of 0 reflects dissatisfaction (Brokelman et al., 2012).

Statistical Analysis

The Statistical Package for the Social Sciences (IBM SPSS Corp., Armonk, NY, USA) 20.0 software package was used to evaluate the study data. Descriptive statistics were used in the analysis. A binary logistic regression analysis was performed to examine the factors influencing perineal injury. The model assessed how different independent variables, including multiparity, flexible sacrum positions (kneeling, standing, all-fours, lateral position, squatting and giving birth on the birth seat) and birth weight ≥ 4000 g, affected the likelihood of an intact perineum, episiotomy, and sutured perineal injury. $P<.05$ was accepted as the level of statistical significance.

Ethical Approach of the Research

Ethics committee permission was obtained from The Ankara University Ethics Committee (Date: 02.08.2021, Number: 11/131). Online consent was obtained from those who agreed to participate. The Declaration of Helsinki was followed at all stages of this study.

Results

The sociodemographic and obstetric characteristics of the participants are given in Table 1. The mean age of the participants was 29.15±4.38, and 64.2% had a university degree or higher education level. The income of 56.6% of the participants was equal to their expenses. A total of 64.2% of the participants had received childbirth preparation education. The mean gestational week was 39.36±1.30 during birth (min-max=36-43), and babies' mean birth weight was 3315.94±452.78 g (min-max=2000-4600). Additionally, 50.3% of the participants preferred episiotomy only when necessary.

The reasons of the participants for preferring home birth included protection of privacy 95.6%, avoidance of IV oxytocin use 83.0%, wanting the company of their partner at birth 72.3%, avoidance of episiotomy 70.4%, and home as a safe/comfortable area 10.7% (Figure 1).

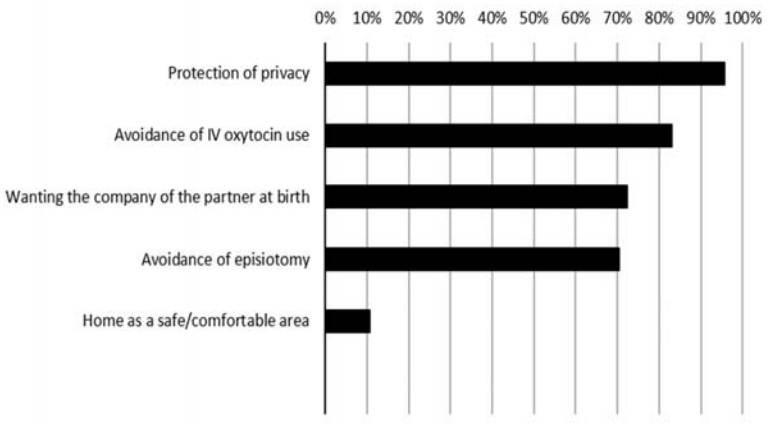

Figure 1. The reasons of the participants for preferring home birth

Table 1. *Sociodemographic and Obstetric Characteristics of the Participants*		
Variables	Mean	Standard deviation
Age	29.15	4.38
	n	**%**
Level of education		
Elementary	7	4.4
Middle	14	8.8
High school	36	22.6
University or above	102	64.2
Family type		
Nuclear	145	91.2
Extended	14	8.8
Income status		
Income<expenses	24	15.1
Income=expenses	90	56.6
Income>expenses	45	28.3
Total	159	100
Number of pregnancies		
1	67	42.1
2	48	30.2
3	27	17.0
≥4	17	10.7
Number of childbirths		
1	73	45.9
2	56	35.2
≥3	30	19.9
Status of miscarriage/curettage		
Yes	27	17.0
No	132	83.0
Sex of the baby born at home		
Female	89	56.0
Male	70	44.0
Status of having received childbirth preparatory education		
Yes	102	64.2
No	57	35.8
Episiotomy choice		
Did not want it absolutely	45	28.3
Did not want it	34	21.4
Wanted it when necessary	80	50.3
Total	159	100

It was determined that women used different positions during childbirth. The most commonly used birthing positions were lying on back 34%, going on all fours 24.5%, sitting 20.8), and squatting 18.2%. It was observed that nonflexible sacrum positions (sitting or lying on back, such as the supine and the side lying position) were used more 54.7% (Figure 2).

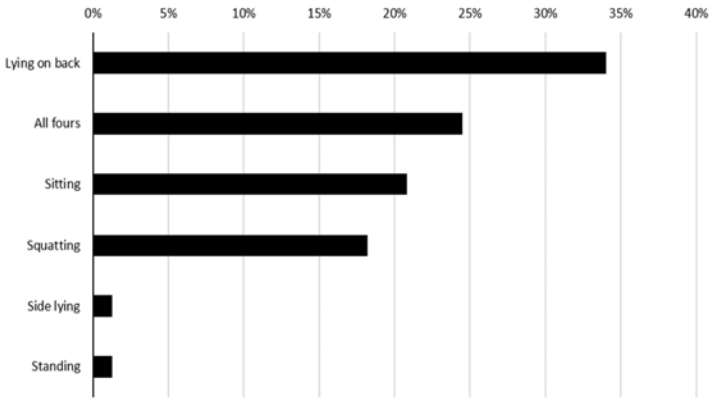

Figure 2. The birthing positions utilized by participants during home birth

The rate of women with intact perineum was 33.3%. While this rate was 19.2% in primiparas, it was 45.3% in multiparas. In addition, 17.0% of the participants had episiotomy, and 51.6% had sutured injuries. While the rate of episiotomy was 23.3% in primiparas, it was 11.6% in multiparas (Table 2). None of the participants developed third- and fourth-degree lacerations.

Table 2. *Status of Perineal Injury*			
Status	Total n=159 n (%)	Primiparas n=73 n (%)	Multiparas n=86 n (%)
Perineal injury			
No	53 (33.3%)	14 (19.2%)	39 (45.3%)
Yes	106 (66.7%)	59 (80.8%)	47 (54.7%)
Episiotomy			
Yes	27 (17.0%)	17 (23.3%)	10 (11.6%)
No	132 (83.0%)	56 (76.7%)	76 (88.4%)
Sutured injury			
Yes	82 (51.6%)	47 (64.4%)	35 (40.7%)
No	77 (48.4%)	26 (35.6%)	51 (59.3%)

Multiparity and flexible sacrum positions were associated with higher intact perineum. Multiparity was associated with a higher risk of sutured injury (Table 3).

All of the participants received midwife support at birth. The level of participants' satisfaction was as follows: level of satisfaction with home birth (9.80±.62, min:5-max:10); level of satisfaction with the support received from the midwife (9.52±1.07, min:4-max:10); level of satisfaction with the midwife's interventions aimed at protecting and maintaining the integrity of the perineum during and after childbirth (9.16±1.67, min:0-max:10).

Table 3.
Risk Factors for Perineal Injury

	Intact perineum	Episiotomy	Sutured injury
Multiparity	3.084 (1.445-6.584) *p*=.004*	0.462 (0.187-1.140) *p*=.094	0.432 (0.221-0.846) *p*=.014*
Flexible sacrum positions	0.382 (0.183-0.797) *p*=.010*	0.899 (0.366-2.212) *p*=.817	1.357 (0.692-2.660) *p*=.374
Birth weight ≥4000 g	0.910 (0.228-3.641) *p*=.894	0.697 (0.125-3.895) *p*=.681	1.427 (0.362-5.624) *p*=.611

Coding information:
Multiparity: 0 = Primiparous, 1 = Multiparous
Birth positions (flexible sacrum positions): 0 = Not used, 1 = Used
Birth weight ≥ 4000 g: 0 = <4000 g, 1 = ≥4000 g
*p<.05

Discussion

This study was carried out to determine the factors associated with the prevalence of episiotomy and perineal injury of women who had a planned home birth.

In our study, it was found that the education level of women who gave birth at home was high, which is similar to the case of Australia (Sassine et al., 2021). It was observed that most of the women participating in our study received childbirth education. Skondral et al. reported that women's intrinsic motivation was a key element in planning a home birth and that they were well prepared for it (Skrondal et al., 2020). Similarly, some studies have shown that women prepare for home birth through childbirth education, getting information from health personnel, and searching books and Internet (Galera-Barbero & Aguilera-Manrique, 2022; Leon-Larios et al., 2019; Naylor Smith et al., 2018). These results suggest that planned home birth is consciously preferred by educated women.

Many factors affect the choice of home birth. The use of IV oxytocin and the desire to avoid medical interventions such as episiotomy were effective in the preference of the participants in our study for a home birth. Similarly, Sassine et al. reported that women preferred home birth to avoid medical interventions, especially induction and episiotomy (Sassine et al., 2021). There are other studies reporting that avoiding medical interventions used in hospital births is effective in women's preference for home birth (Prates et al., 2018; Rodríguez-Garrido et al., 2020; Skrondal et al., 2020). Women who preferred homebirth stated that they avoided routine interventions because they made childbirth difficult and that these procedures did not facilitate the birth, either (Rodríguez-Garrido et al., 2020). Non-evidence-based obstetric practices are common in Türkiye, including restriction of mobility and nutrition, inducing labor with oxytocin, fundal pressure, supine position for childbirth, and routine episiotomy. A mother-friendly hospital program, which aims to eliminate these non-evidence-based interventions in women with pregnancy who give birth in maternity units, has been implemented in Türkiye since 2015 (Erbaydar, 2021). Dissemination and effective use of the mother-friendly hospital program seems to be appropriate approach for women to prefer hospital births. In addition, guidelines clearly state that pregnants should be informed about all possible places of birth so that they can make an informed choice and make the best decisions (ACOG, 2017; ICM, 2017). If a woman chooses home birth after receiving proper information, her birth preference should be recognized as a fundamental human right, and necessary medical support should be ensured. However, ensuring these conditions especially in rural settings with limited healthcare access presents significant challenges. The American College of Obstetricians and Gynecologists (ACOG) emphasizes that home births can be safe only under specific conditions, including careful selection of candidates, attendance by a qualified midwife or physician operating within an integrated and regulated healthcare system, easy access to consultation, and the ability for safe and timely transfer to a hospital if needed (ACOG, 2017). Therefore, national health policies should focus on both improving midwife-led hospital births and developing region-specific strategies that prioritize maternal autonomy while safeguarding maternal and neonatal health.

Other factors affecting the choice of home birth by the participants in our study included protection of privacy, wanting the company of the spouse at birth, and the comfort/safety of home. Women feel safe and comfortable (Rodríguez-Garrido et al., 2020) and they can receive the support of their spouses at home (Leon-Larios et al., 2019; Prates et al., 2018), which are effective in preferring home birth.

While the total prevalence of episiotomy in women participating in our study was 17.0%, it was 23.3% in primiparas and 11.6% in multiparas. The prevalence of episiotomy in the world varies between 30%-85% in nulliparous and 7%-39% in multiparas (Rodrigues et al., 2019; Singh et al., 2016; Smith et al., 2013). In studies conducted in our country, it was reported that episiotomy was performed at a rate of 89.6%-93.3% in primiparas and 30.2%-72% in multiparas (Hotun Şahin et al., 2007; Kartal et al., 2017; Okumuş, 2017). The rate of episiotomy determined in our study was considerably lower than the childbirths performed in the hospital. In a study comparing home and hospital births, it was determined that although

the rate of episiotomy was lower in home births than in hospital births, it was 37.3% in primiparas and 6.3% in multiparas giving birth at home (Bolten et al., 2016). In a study conducted in Scandinavian countries, it was reported that episiotomy was applied to only 1% of women who gave birth at home (Edqvist et al., 2016). These results support the growing evidence for lower levels of intervention for low-risk women who prefer giving birth at home.

In our study, the rate of intact perineum was 33.3%, while this rate was 19.2% in primiparas and 45.3% in multiparas. In a study conducted in a hospital in our country, the rate of intact perineum was found to be 3.5% in primiparas (Karaçam et al., 2013). In their study, which included women who gave birth in a birth center in Portugal, the rate of intact perineum was 25% (Rodrigues et al., 2019). In a study comparing home and hospital births, it was determined that the rate of intact perineum was higher in home births than in hospital births (Bolten et al., 2016). These results support the positive effects of home birth on the preservation of perineal integrity.

Birth positions that take the weight off the sacrum and could be categorized as flexible sacrum positions are kneeling, standing, all-fours, lateral position, squatting and giving birth on the birth seat. On the other hand, all the positions where the woman is sitting or lying on her back, such as the supine and the side lying position, put weight on the sacrum and could be categorized as non-flexible sacrum positions (Smith et al., 2013). It was determined that women participating in our study used different positions during childbirth. The most commonly used birthing positions were lying on the back (34%), all fours (24.5%), sitting (20.8%), and squatting (18.2%). It was observed that nonflexible sacrum positions were used more (54.7%). In addition, while flexible sacrum positions were associated with higher intact perineum in our study, it was not associated with episiotomy and sutured injury. Rodrigues et al. found that the use of positions other than the lithotomy position and high parity were associated with high intact perineum (Rodrigues et al., 2019). Edqvist et al. also reported that the use of flexible sacrum positions in women who gave birth at home was not associated with sutured injury but associated with the rate of episiotomy (Edqvist et al., 2016). Women who give birth at home use less supine positions than those who give birth in a hospital (Bolten et al., 2016). These results suggest that the liberating effect of home births on position is important. The evidence as to the impact of upright birth and flexible sacrum positions on perineal outcomes remains inconclusive and should be supported by studies to determine its effect on women who give birth at home (Kemp et al., 2013).

None of the participants in our study developed 3rd or 4th degree lacerations. Karaçam et al. reported that no 3rd or 4th degree lacerations were observed in women who gave birth in a hospital in Türkiye (Karaçam et al., 2013). Bolten et al. reported that the rate of 3rd or 4th degree perineal injury was similar in hospital and home births (Bolten et al., 2016).

In our study, midwives attended all participants' births. In addition, participants' satisfaction levels with home birth, the support received from the midwife, and perineal care provided by the midwife were quite high. The support and presence of midwives play a crucial role in shaping home birth as a highly positive experience for women, allowing them to maintain control over their birth, experience greater autonomy, and contribute to their personal development (Galera-Barbero & Aguilera-Manrique, 2022; Leon-Larios et al., 2019). Similarly, studies in both Türkiye and other countries have shown that midwife-led care, not only in home births but also in birth centers and mother-friendly hospital settings, contributes significantly to women's birth satisfaction (Liu et al., 2021; Hailemeskel et al., 2022; Aktaş, & Küçük Alemdar, 2024; Nabirye et al., 2024). Women particularly value the ability to experience labor with greater autonomy, fewer medical interventions, continuous support from a midwife, and an overall positive emotional experience (Sandall et al., 2016). The high birth satisfaction observed in our study may be attributed to the continuous midwifery care provided to these women. In Türkiye, 99% of births occur in healthcare facilities. However, only 8% of these births are attended by midwives, while another 8% are assisted by nurses (HUIPS, 2019). As a result, women may turn to home birth to receive the continuous support they highly value. In Türkiye, the Mother-Friendly Hospital Program promotes a supportive and home-like birth environment by ensuring that "pregnant women should feel comfortable and at home with a suitable companion by their side, and they should be provided with freedom of movement." (T.C. Sağlık Bakanlığı, 2023) Moreover, the expansion of midwives' roles and responsibilities, the strengthening of midwifery education, and the implementation of the "Midwife for Every Pregnant Woman" initiative, as outlined in the Normal Birth Action Plan (T.C. Sağlık Bakanlığı, 2025), are strategic efforts to encourage midwife-assisted births in hospitals, which are considered safer birth environments in terms of maternal and neonatal mortality (ACOG, 2017). Although hospitals provide a safe birth environment, every woman has the right to make a medically informed decision regarding her place of birth (ACOG, 2017; ICM, 2017). According to ICM, midwives attending home births should operate within a national health system, ensuring access to appropriate

referral services when necessary, as well as receiving adequate insurance coverage and fair compensation. However, not all health systems offer home birth services, leading to suboptimal care for women who choose this option, as it remains disconnected from the formal healthcare system. ICM calls on national governments to consider the substantial scientific evidence supporting home birth and to establish the necessary frameworks that allow midwives to provide home birth services as an integrated part of the healthcare system for families who opt for this model of care (ICM, 2017).

Conclusion and Recommendations

In conclusion, it was determined in our study that women who gave birth at home consciously preferred the mode of birth, experienced lower perineal injury and episiotomy, and did not experience third- and fourth-degree perineal injury. It was observed that women have freedom of movement and position during childbirth. Women in the study received midwife support at birth, and it was determined that their satisfaction with the birth and the support was high. Our study revealed that the rates of perineal injury and episiotomy in women who gave birth at home in Türkiye were considerably lower than in those who gave birth in hospitals. The desire to avoid medical interventions such as episiotomy, led some women to give birth at home.

Midwives and nurses are the primary healthcare providers working closely with mothers and newborns (Çankaya et al., 2024). Therefore, it is recommended that nurses and midwives involved in perinatal care provide pregnant women with appropriate information to assist them in making informed decisions about their place of birth. Additionally, it is crucial to maintain the commitment to ongoing efforts aimed at increasing midwife-assisted births in hospitals. Furthermore, for the safety of women who still choose home birth, the development of national health policies that align with the recommendations of organizations such as ICM and ACOG should be evaluated.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Ankara University (Date: 02.08.2021, Number: 11/131).
Informed Consent: Online consent was obtained.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept - MNA,EA; Design-MNA; Resources-MNA,EA; Data Collection and/or Processing- MNA,EA; Analysis and/or Interpretation-MNA; Literature Search-MNA; Writing Manuscript-MNA; Critical Review- MNA,EA
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Dysphoric Milk Release Reflex as A Problem in Breastfeeding Women

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ABSTRACT

Although breastfeeding is extremely beneficial to the health of women and infants, breastfeeding rates are not at the desired levels. The literature includes medical and physical difficulties that can lead to early discontinuation of breastfeeding. However, studies examining the impact of women's emotional experiences on the breastfeeding process are rather limited. Dysphoric milk release reflex (DMER) is characterised by dysphoria that occurs during milk release and lasts for several minutes. Symptoms include sudden and unpleasant feelings of anxiety, sadness, irritability or panic. The exact cause of DMER is not known. Studies suggest that the sudden drop in dopamine at the start of lactation causes a short-term dopamine deficiency in women, which can lead to dysphoria. It is known that women experiencing DMER have a negative process towards breastfeeding due to the uncomfortable feelings, and some women may stop breastfeeding or feel compelled to continue breastfeeding because of this discomfort. Although there is no medically proven treatment, it has been suggested that various non-pharmacological methods such as distraction, lifestyle changes, music and aromatherapy may be effective. As DMER has only recently been recognised, the literature is limited. The aim of this review is to present the current literature on DMER.

Keywords: Breastfeeding, breast milk, dysphoric milk ejection reflex , dopamine, oxytocin

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Introduction

Although breastfeeding is extremely beneficial for the health of mothers and babies, breastfeeding rates are not at the desired level. According to the World Health Organization (WHO) (2020), although breastfeeding rates are gradually increasing around the world, they are still not at the desired level. In its 2023 report, the WHO put the global breastfeeding rate at 48% and set a target of 50% by 2025 (WHO, GBC, UNICEF, 2023). While many women in developing countries continue to breastfeed their babies in the first year of life, this rate falls below 20% in developed countries (UNICEF, 2019; WHO, 2020). In Turkey, according to data from the Turkish Demographic and Health Survey (TDHS) 2018, 71% of children under two years of age were breastfed within the first hour of life and 86% within the first day. Of those who were breastfed, 42 per cent were given other foods before being breastfed. Only 41% of babies under six months were exclusively breastfed. The rate of exclusive breastfeeding decreases to 59 per cent in the first month, 45 per cent in the second and third months, and 14 per cent in the fourth and fifth months (TDHS, 2018). Most studies have identified various barriers to breastfeeding. In particular, latching problems and sore nipples are the most common barriers to women initiating and continuing breastfeeding (Francis et al., 2020; Beggs et al., 2021; Claesson et al., 2018).

The literature includes medical and physical difficulties that may lead to early cessation of breastfeeding. However, studies investigating the impact of women's emotional experiences on the breastfeeding process are quite limited (Ureño et al., 2018; Ureño et al., 2019; Deif et al., 2021). One of the challenges of breastfeeding is the dysphoric milk release reflex (DMER). DMER is a feeling of discomfort that lasts for a few minutes and starts just before milk is expressed. DMER is characterised by sudden and unpleasant symptoms such as anxiety, sadness, irritability or panic (Heise & Wiessinger, 2011; Ureño et al., 2018; Skowrońska et al., 2022; Kacır et al., 2024; Moriyama et al., 2024; Ahmed et al., 2024).

DMER causes women to stop breastfeeding. For all women affected by DMER, this is a distressing and lonely experience. Support from healthcare professionals and communication with other mothers can help women. As DMER has only recently been recognised, the literature is limited. The aim of this review is to present the current literature on DMER.

Breast Milk Production Physiology

Lactogenesis is the start of milk production and consists of three stages. The first stage is lactogenesis 1, which begins during pregnancy. Colostrum is produced in lactocytes in the breasts from the 16th week of pregnancy. The hormone prolactin is present in small amounts during pregnancy, but is inhibited by oestrogen and progesterone. Lactogenesis 2 is the start of milk production and occurs 30-40 hours after birth; the final stage, lactogenesis 3, is the end of the endocrine period and the beginning of autocrine control. During this period, milk production is triggered by milk secretion (Deif et al., 2021).

Two important hormones in lactation physiology are oxytocin and prolactin. Prolactin is secreted by the anterior pituitary and oxytocin by the posterior pituitary. While prolactin is the hormone responsible for breast milk production, oxytocin is responsible for the milk ejection reflex (MER). Oxytocin is released within the first 1 minute of breastfeeding, while prolactin is released slowly in response to suckling and gradually increases about 10 minutes after breastfeeding. Oxytocin is a hormone that calms a woman, makes her feel happy and reduces stress during breastfeeding (Jones, 2018).

The let-down reflex is an important reflex in the milk production process (Deif et al., 2021). Milk let-down supports the initiation and maintenance of breastfeeding and milk production. When the let-down reflex is triggered, prolactin levels increase in the hypothalamus and dopamine is suppressed in association with this increase. Studies suggest that the sudden decrease in dopamine at the onset of lactation causes a short-term dopamine deficiency in women, which can lead to dysphoria (Heise & Wiessinger, 2011; Ureño et al., 2018; Skowrońska et al., 2022; Kacır et al., 2024; Moriyama et al., 2024; Ahmed et al., 2024).

Dysphoric Milk Release Reflex

The milk ejection reflex (MER) is an important part of milk production. It is a neuroendocrine reflex that occurs when the nipple and areola are stimulated. Some women experience dysphoric, or uncomfortable, sensations when they express milk. This condition is called 'dysphoric milk release reflex' (DMER) (Heise & Wiessinger, 2011; Ureño et al., 2018; Deif et al., 2021). DMER was first identified in 2007 by Alia Macrina Heise. Heise, a lactation consultant, noticed that she was experiencing emotional changes while breastfeeding her third child. When she shared this with others, she met women who were trying to cope with the same issues. In 2008, Heise created the website www.d-mer.org to educate women about the situation and provide support (Heise & Wiessinger, 2011).

As an under-researched area, the first study investigating the epidemiology and prevalence of DMER was published in 2018, suggesting a prevalence of 9.1% (Ureño et al., 2018). In the studies conducted, the reason for the low rates was identified as the fact that women do not report the condition they are experiencing to health professionals. Some reasons

for this are given in the literature. These reasons are that women think that this situation is not a problem and therefore do not seek help, they think that they have to use psychological drugs against the problem they are experiencing, and they feel ashamed because they do not experience positive emotions, although breastfeeding should actually produce positive emotions (Heise & Wiessinger, 2011; Deif et al., 2021).

DMER is defined as a physiological response to let-down, not a psychological response to breastfeeding (D-MER, 2023, Ureño et al., 2019). Women who experience DMER only experience dysphoria during milk expression. For most women, dysphoria only occurs in the presence of MER and does not require contact with the breast or areola (Heise & Wiessinger, 2011; Skowrońska et al., 2022). As a result of the case study, it was reported that direct sucking stimulation of the nipples is not necessary for the onset of feelings associated with DMER (Heise & Wiessinger, 2011).

Mothers with DMER experience a range of emotional and physical symptoms. Some of these symptoms include anxiety, sadness, worry, rapid heartbeat, nausea, extreme sadness, restlessness, anger, panic and dizziness. In a study conducted on this topic, mothers experiencing DMER reported feeling homesick; in addition, the terms homesickness and longing were used to describe the symptoms (Heise & Wiessinger, 2011). In a case report, the mother described the symptoms of DMER as a feeling of emptiness in the stomach, anxiety, sadness, fear, introversion, irritability, worry, longing, hopelessness and general negative emotions (Ureño et al., 2018).

DMER symptoms appear within seconds and disappear about 5 to 10 minutes after the start of breastfeeding. Symptoms may subside and last for up to 3 months or persist throughout the breastfeeding period (Cox, 2010; Deif et al, 2021). Mothers experiencing DMER experience a negative process towards breastfeeding due to uncomfortable feelings. Due to the emotional changes reportedly experienced in DMER, some mothers may stop breastfeeding, while others may find it difficult to continue (Liu et al., 2023). Studies have shown that mothers are unable to control emotional fluctuations and have difficulty coping (Uvnas-Moberg & Kendall-Tackett, 2018; Stacey, 2020; Deif et al., 2021; Frawley and McGuinness, 2023).

Although the physiological mechanisms of DMER are not fully understood, hormonal changes are thought to play an important role. The onset of lactation triggers the release of oxytocin, and increased oxytocin causes a dramatic decrease in cortisol levels. In addition, increased oxytocin release triggers the brain's mesocorticolimbic reward system, which significantly increases the pleasure of breastfeeding. Dopamine is the most likely cause of dysphoria (Heise & Wiessinger, 2011). The fluctuation in dopamine levels at the start of breastfeeding causes the woman to experience sudden feelings of unhappiness and other negative emotions. These imbalances in dopamine levels can lead to worsening emotional fluctuations and discomfort in women (Heise & Wiessinger, 2011; ABA, 2022; Liu et al., 2023). One case study showed that the use of a minimal dose of bupropion, a dopamine reuptake inhibitor, reduced DMER within one day and almost completely eliminated it within five days. However, bupropion was discontinued because of its side effects and the woman's DMER symptoms returned. In the same study, Rhodiola rosea, or golden root, which acts as a dopamine reuptake inhibitor, was used to reduce symptoms and the woman's symptoms decreased (Heise & Wiessinger, 2011).

Although there is no definitive method for treating DMER, there are several approaches that are thought to be effective. In this regard, Deif et al. (2021) suggested skin-to-skin contact and massage to increase oxytocin as a treatment and coping method, mindfulness to enable women to stay in the moment by focusing on their breathing and treating themselves with compassion, regulation of environmental factors to create an environment that increases oxytocin secretion, personal care and nutrition. Ureño et al (2018) highlighted in their study that methods such as lifestyle changes, education, diagnosis, awareness of symptoms and aromatherapy can be effective in coping with DMER. In addition to these methods, the researchers stated in their article that it is important to raise awareness among obstetricians and health professionals working in these areas (Ureño et al., 2018). In another study, Ureño et al. (2019) highlighted that placenta capsules and vitamin B supplementation may also be effective in reducing symptoms. Heise and Wiessinger (2011) found that education and counselling for women experiencing DMER would increase their awareness and make it easier for them to cope. It has also been suggested that communication with other women experiencing DMER, distraction, music and aromatherapy may also be effective (Heise & Wiessinger, 2011). Liu et al. presented a case study of 2 women experiencing DMER symptoms. In one of the cases, the woman experiencing DMER received counselling. As a result of the counselling, it was observed that the symptoms decreased and disappeared. It was noted that the woman continued to breastfeed for 18 months (Liu et al., 2023).

Dysphoric Milk Release Reflex and Midwifery Care

Breastfeeding has many benefits for maternal and infant health. However, DMER symptoms can cause women to feel lonely and stressed and to stop breastfeeding (Cox, 2010; Deif et al., 2021). This can have a negative impact on maternal and newborn health. In order to increase breastfeeding rates, early identification of barriers to breastfeeding is important (Heise & Wiessinger, 2011). Due to low knowledge and awareness of DMER, women and health professionals may confuse DMER with depression and the perception of insufficient milk, or may not be able to identify it (Deif et al., 2021). This situation leads to the main obstacle to breastfeeding being overlooked, negatively affecting the process (Ureño et al., 2018).

The importance of midwives, who play an active role in every stage of a woman's life, in increasing breastfeeding rates is undeniable (Işık & Arça, 2019). It is important for midwives to be aware of the barriers to breastfeeding in order to provide effective counselling. There is a need to increase the level of knowledge of midwives about DMER, which is one of the reasons for early cessation of breastfeeding (Zychlinsky et al., 2025). Firstly, it is important for midwives to be aware that DMER is a condition experienced by breastfeeding women during lactation and to understand its pathophysiology. It is important that they know the symptoms, frequency and duration of DMER and inform women about it (Heise & Wiessinger., 2011).

Although the epidemiological characteristics of DMER are not fully understood, it is thought to affect a significant proportion of breastfeeding women. It has been stated that this condition may be more common, especially in women who experience intense negative emotions during breastfeeding (Ureño et al., 2018). There is still a lack of research into the diagnosis, management and treatment of DMER. Therefore, individualised advice is needed when caring for women with DMER symptoms. Methods that provide relief to the woman and positively affect her breastfeeding experience should be identified and supported (Liu et al., 2023).

It is essential that specific training programmes are developed to ensure that midwives understand the symptoms and management strategies of DMER. This training should take place at university level as well as in-service training. In addition, specific guidelines for breastfeeding counselling can be developed to raise awareness of DMER. DMER not only negatively affects the breastfeeding process, but may also increase the risk of postpartum depression by affecting women's emotional well-being (Zychlinsky et al., 2025). Therefore, early identification of DMER may have long-term beneficial effects for both mother and infant. Effective management of DMER requires a multidisciplinary approach. While midwives support the breastfeeding process, psychologists and psychiatrists can develop strategies to strengthen the emotional well-being of mothers (Frawley et al., 2023). This kind of collaboration is essential both to increase breastfeeding rates and to protect the mental health of mothers.

In conclusion, there is a great need to increase knowledge about the management of DMER, both to ensure that mothers continue to breastfeed in a healthy way and to ensure that health professionals can make the right interventions. Raising awareness and increasing training in this area will be an important step in the fight against DMER.

Conclusion and Recommendations

In conclusion, DMER is a condition that involves emotional and physical disturbances during the breastfeeding process. Although the condition is not fully understood, it is thought to be under the influence of hormonal changes. DMER is a condition in which women associate breastfeeding with anxiety and discomfort and therefore find it a negative experience. This may even lead them to stop breastfeeding. Making it easier for women to manage the process and relieving their symptoms is important for breastfeeding to continue. Health professionals, especially midwives, need to be informed and supported in this regard. Further research could help us better understand the causes of this condition and develop better approaches to treating or managing it. At the same time, improving health professionals' knowledge of how to recognise and manage DMER could help to provide better support for women experiencing the condition.

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Erratum

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Ebelik ve Sağlık Bilimleri Dergisi, Eylül 2024 sayısında yayınlanan "Midwifery in Turkey within the Framework of The Areas of Competence and Proficiency: A Qualitative Study" başlıklı çalışmanın yazarlarından olan Sevgi BEYAZGÜL'e ait kurum bilgisi eksik yazılmıştır. İlgili yazara ait kurum bilgisi aşağıdaki şekilde olmalıdır.

The institution information of Sevgi BEYAZGÜL, one of the authors of the study titled "Midwifery in Turkey within the Framework of the Areas of Competence and Proficiency: A Qualitative Study" published in the September 2024 issue of the Journal of Midwifery and Health Sciences, is written incompletely. The institution information of the relevant author should be as follows.

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