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CONTENTS

REVIEW

- 1** A Neglected Issue in North Cyprus: Sexual Education
Kuzey Kıbrıs'ta İhmal Edilen Bir Konu: Cinsel Eğitim
Önay Aktunç, Nilsu Atıcı, Dilek Sarpkaya Güder

ORIGINAL ARTICLES

- 5** Relationship Between Health Perception and Cervical Cancer Awareness: Two Different Data Collection Methods
Sağlık Algısı ve Serviks Kanseri Farkındalığı İlişkisi: İki Farklı Veri Toplama Yöntemi
Fatma Genç, Çağla Yiğitbas
- 14** The Effect of Discharge Training Given to Patients with Pilonidal Sinus Surgery According to Gordon's Functional Health Patterns: A Quasi-experimental Study
Pilonidal Sinüs Ameliyatı Olan Hastalara Verilen Taburculuk Eğitiminin Gordon'un Fonksiyonel Sağlık Örüntülerine Göre Etkisi: Yarı-deneysel Bir Çalışma
Naciye Kaya, Neriman Akansel, Sibel Karaca Sivrikaya
- 27** The Effect of Using Musical and Lighted Baby Crib Mobile on Newborns' Pain and Stress During Blood Draw; Randomized Controlled Trial
Işıklı Müzikli Dönencenin Yenidoğanlarda Kan Alma Sırasında Oluşan Ağrı ve Strese Olan Etkisi; Randomize Kontrollü Bir Çalışma
Remziye Semerci, Hayriye Erguvan, Eysan Hanzade Savaş
- 35** Experiences of Mothers with Infants Admitted to Neonatal Intensive Care During the COVID-19 Pandemic: A Qualitative Study
COVID-19 Pandemisinde Bebeği Yenidoğan Yoğun Bakımda Yatan Annelerin Deneyimleri: Nitel Bir Çalışma
Selvinaz Albayrak, Emine Türkmen, Nilgün Göktepe, Sabiha Çağlayan
- 44** The Incidence, Risk Factors, and Effects of Constipation in Critical Patients: An Observational Cross-sectional Study
Yoğun Bakım Hastalarında Konstipasyon İnsidansı, Risk Faktörleri ve Etkileri: Gözlemsel Kesitsel Bir Çalışma
Seyma Özdemir, Arzu Akman Yılmaz, Esra Özdemir
- 54** The Fear of COVID-19 and Marital Adjustment in Pregnancy: Descriptive and A Cross-sectional Design
Gebelikte COVID-19 Korkusu ve Evlilik Uyumu: Tanımlayıcı ve Kesitsel Çalışma
Safiye Ağapınar Şahin, Öznur Hasdemir
- 65** The Effect of Distance Learning in the Pandemic on the Depression, Anxiety, Stress, and Occupational Commitment of Senior Nursing Students: A Cross-sectional Study
Pandemide Uzaktan Eğitimin Hemşirelik Son Sınıf Öğrencilerinin Depresyon, Anksiyete, Stres ve Mesleki Bağlılıklarına Etkisi: Kesitsel Bir Çalışma
Esin Çetinkaya Uslusoy, Eylem Paslı Gürdoğan, Berna Aksoy, Ezgi Kınıcı Dirik



REVIEW

A Neglected Issue in North Cyprus: Sexual Education

Kuzey Kıbrıs'ta İhmal Edilen Bir Konu: Cinsel Eğitim

Önay Aktunç, Nilsu Atıcı, Dilek Sarpkaya Güder

Near East University Faculty of Nursing, Nicosia, TRNC, Turkey

Abstract

In the light of current studies on sexual education in North Cyprus, this study has been prepared in order to contribute to the relevant literature and to raise awareness about the importance of sexual education which is a neglected subject. The study is a review type. The research methods used in the study are descriptive and documentary analysis methods. Current studies made in the last five years (2018-2023) in North Cyprus were included in the scope of the study. Sex education is explained as a lifelong process that includes biological, socio-cultural, psychological and spiritual dimensions, including cognitive learning, affective learning and behavioral learning. All people have the right to take comprehensive sexuality education. Comprehensive school-based sexuality education should be part of the education program at all levels. Main topics for all age groups are the human body and development, fertility and reproduction, sexuality, emotions, lifestyle and relationships, sexual health and well-being, sexuality and rights, and social and cultural determinants of sexuality. Sex education is not included in the primary and secondary education curriculum in North Cyprus. It is stated that there is the subject of "protection from danger and abuse" in the life studies curriculum in primary and secondary education. Three studies related to child abuse were found when the studies within the scope of the study are examined in North Cyprus. One study is related to sexual orientation and one study is related to gender roles. As a result of a study conducted with parents with children aged 8-10 in the country, it was determined that only 50% of parents could identify with the type of child abuse, and suggestions were given for their children to be educated on this issue. In another study conducted with parents of 4-6 year-old children, it was determined that parents had moderate awareness of sexual abuse and did not have sufficient knowledge. In another study, it was found that parents with pre-school children aged 3-6 did not find themselves sufficient in providing sexual education and there was a significant relationship between their knowledge levels about sexual education and their children's attitudes. In a study conducted with young adults, the attitude scores of young people towards gender roles were determined to be prone to egalitarian attitudes. When the existing studies in North Cyprus are examined, it is seen that there are not many studies on sexual education in the country and sexual education is not given in primary and secondary education levels. Therefore, the greatest responsibility for sexual education lies to the parents. It is recommended to include school-based sexual education in basic education programs, to conduct studies on all subjects within the scope of sexual education, and to organize awareness trainings on the subject for teachers and parents. In addition, school nurses should be supported to initiate school-based sexual education and to take an active role in education.

Keywords: North Cyprus, sexual education, sexuality, sexual health

Öz

Kuzey Kıbrıs'ta cinsel eğitim konularına ilişkin yapılmış güncel çalışmalar ışığında, ihmal edilen bir konu olan cinsel eğitimin önemi konusunda farkındalık geliştirmek ve ilgili literatüre katkı sağlamak amacıyla bu çalışma hazırlanmıştır. Çalışma, derleme tipindedir. Çalışmada kullanılan araştırma yöntemleri betimleme ve belgesel analiz yöntemidir. Çalışma kapsamına, Kuzey Kıbrıs'ta son beş yıl (2018-2023) içinde yapılmış güncel çalışmalar alınmaya çalışılmıştır. Cinsel eğitim; bilişsel öğrenme, duyuşsal öğrenme ve davranışsal öğrenme alanlarını içeren biyolojik, sosyo-kültürel, psikolojik ve manevi boyutları kapsayan ve yaşam boyu süren bir süreç olarak açıklanmaktadır. Tüm insanların kapsamlı cinsellik eğitimi almaya hakkı vardır. Kapsamlı okul tabanlı cinsellik eğitimi her düzeyde eğitim programının bir parçası olmalıdır. Tüm yaş grupları için ana konular; insan vücudu ve gelişimi, doğurganlık ve üreme, cinsellik, duygular, hayat tarzı ve ilişkileri, cinsel sağlık ve iyilik, cinsellik ve haklar, cinsellik ile ilgili sosyal ve kültürel belirleyicilerdir. Kuzey Kıbrıs'ta ilk ve orta öğretim ders programlarında cinsel eğitim yer almamaktadır. İlk ve orta öğretimde hayat bilgisi öğretim programlarında "tehlike ve istismardan korunabilme" konusunun olduğu belirtilmektedir. Çalışma kapsamında bulunan çalışmalar incelendiğinde; Kuzey Kıbrıs'ta çocuk istismarıyla ilgili üç, cinsel yönelim ile ilgili bir,

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toplumsal cinsiyet rolleri ile ilgili bir çalışmaya rastlanmıştır. Ülkede 8-10 yaş çocuğu olan ebeveynler ile yapılmış bir araştırma sonucunda, ebeveynlerin sadece %50'nin çocuk istismar türü ile tanımlayabilecekleri belirlenmiş ve çocuklarının bu konuya ilişkin eğitim yapmaları yönünde öneriler verilmiştir. Dört-altı yaş çocuğu olan ebeveynler ile yapılmış başka bir çalışmada, ebeveynlerin cinsel istismar konusunda orta düzey farkındalığa sahip oldukları ve yeterli düzeyde bilgi sahibi olmadıkları belirlenmiştir. Başka bir çalışmada, 3-6 yaş okul öncesi çocuğu olan ebeveynlerin kendilerini cinsel eğitim verme konusunda yeterli bulmadıkları ve cinsel eğitime ilişkin bilgi düzeyleri ile çocuklarının tutumları arasında anlamlı bir ilişki olduğu bulunmuştur. Genç yetişkinler ile yapılan bir çalışmada, gençlerin toplumsal cinsiyet rollerine ilişkin tutum puanları eşitlikçi tutuma eğilimli olarak belirlenmiştir. Kuzey Kıbrıs'ta mevcut çalışmalar incelendiğinde, ülkede cinsel eğitim ile ilgili çok fazla çalışmanın olmadığı ve ilk ve orta öğretimde cinsel eğitimin verilmemesi görülmektedir. Bundan dolayı, cinsel eğitim konusunda büyük sorumluluk ebeveynlerdedir. Okul temelli cinsel eğitimin temel eğitim programlarında yer alması, cinsel eğitim kapsamındaki tüm konularla ilgili çalışmaların yapılması ve öğretmenler ile ebeveynlere konuya ilişkin farkındalık eğitimlerinin düzenlenmesi önerilir. Ayrıca, okul hemşirelerin okul temelli cinsel eğitimi başlatması ve eğitimlerde aktif rol alması desteklenmelidir.

Anahtar Kelimeler: Kuzey Kıbrıs, cinsel eğitim, cinsellik, cinsel sağlık

Introduction

The World Health Organization (WHO) (1) defined "sexuality as a well-being behavior of physical, emotional, mental and social". Sexual health is not just not having a disease, dysfunction, or disability. Sexual health requires a positive and respectful approach to sexuality and sexual relations, as well as the possibility of having pleasant and safe sexual experiences requires without forced, discrimination and violence (1). United States Council on Sexual Information and Education (SIECUS) describes "sex education as a cognitive learning and behavioral learning (communication, decision making) as a life-long process that includes biological, socio-cultural, psychological and spiritual dimensions" (2).

Sexual education is not given in the primary and secondary schools in North Cyprus. Therefore, it is considered that parents and educators have lack of education about the sexual education so the parents have major liability. This study has been prepared in order to raise awareness about the importance of sexual education, which is a neglected subject, and to contribute to the relevant literature, in the light of current studies on sexual education issues in North Cyprus. In addition, it may be raised awareness about the roles and responsibilities of nurses in sexual education for the development of sexual health.

The research methods used in the study are descriptive and documentary analysis methods. Type of the study is literature review. In the scope of the study, it was tried to include the current studies made in the last five years (2018-2023) in North Cyprus. PubMed, Google Scholar and Ulakbim databases were searched using the keywords "North Cyprus", "Sexual Health" and "Sexual Education" and "Sexuality".

Main Points

- It is recommended to include school-based sexual education in basic education programs in North Cyprus.
- Parents, teachers and school nurses should take major liability for sexual education.
- In North Cyprus, it is need to conduct many studies on sexual education.

Main Body

Sexual Education

SIECUS believes that all people have the right to receive comprehensive sexuality education. Parents are the primary sex educators of their children even though they often need to get help and encouragement. Faith-based organizations, community-based institutions and schools have an important place about this topic. Extensive school-based sexuality education should be part of the education program at all levels. These types of programs should be organized according to the age, developmental level, students' cultural backgrounds, and the values and beliefs represented in the school. Human development, relationships, personal abilities, sexual behavior, sexual health, society and culture are the main concepts in comprehensive sexual education topics (2,3). WHO recommended that the content of sexual health education should be created according to certain age groups (4). Knowledge, skills and attitudes fragments about the age groups deepens when the age groups get older. Main topics for all age groups are the human body and its development, fertility and pregnancy, sexuality, emotions, lifestyle and relationships, sexual health and well-being, sexuality and rights are social and cultural determinants (values/norms) about sexuality (4). When the contents of both sexual education and sexual health education programs are examined, we can see that sexual education issues are multidimensional and not limited to reproduction and sexual intercourse. A healthy sexuality and sexual health can only be possible with sexual education that starts in families, continuing sexual education, and sexual health education programs in schools (5,6). There is no specific age to start sexual education despite it is the children's curiosity about sexuality that directs parents to sexual education. Therefore, children's asking questions about sexuality can be the starting point for parents and preschool teachers (5).

In the studies carried out that sexuality education is beneficial in preventing risky sexual behaviors by educating learners with the right knowledge and experience, that school-based sex education can reduce homophobia and homophobia-related bullying, increase understanding of gender and gender, develop knowledge

and skills to support healthy relationships, and skills to prevent child sexual abuse and reduce date-partner severity (7,8). Eight sessions were prepared for preschool children aged 60-72 months focused on body parts, cleaning and care of confidential body parts, gender awareness, gender protection, gender roles, personal boundaries, how to say no, and good-bad secrets, and thereby it is thought that a sexuality education program including pre-school programs is suitable for pre-school programs in a study conducted in Turkey (9). Within the scope of a study involving Southern Cyprus, sexuality education policies in the country were examined and it was determined that the Ministry of Education did not have a specific strategy regarding sexuality education and the main obstacles were lacking teacher training and lack of funding (10).

Sexual education is not included in primary and secondary school education in North Cyprus (11). It is stated that there is the subject of "protection from abuse and threat" in the life sciences curriculum in primary and secondary education under the North Cyprus Ministry of Education (12). Since the subject of protection from sexual abuse, which is given in life sciences curriculums, is just one of the subjects of sexual education, we can see that there is a need for comprehensive sexual education in schools. In addition, we know that sexual education is not included in private schools but seminars, mainly on sexual abuse, are held in certain periods. It is stated that sexual education is not included in basic education curriculums, parents and educators are lacking in sexual education, and parents are expected to take responsibility in the pre-school period (11). Although parents are aware of the importance of sexual education at an early age, they often avoid or delay talking about sex education with their children (13). One of the biggest reasons that can be seen as a taboo in many societies talking about sexuality. If families cannot comfortably talk and respond to their children's questions about sexuality, children may not want to receive guidance from their families on these issues. As a result, children may go towards to unreliable sources and reach inaccurate information. Since sexual education begins in the family

environment, it is considered as important for parents to have information about sexual education, as well as to provide their children with communication skills about the transfer of this information (14).

Studies on the Subject in North Cyprus

When current studies on sexual education in North Cyprus are investigated, it is seen that there are very limited studies. Information on these studies is given in Table 1 in detail.

According to Table 1, when the studies reached in line with the study subject are examined; three related to child abuse (15-17), one related to sexual orientation (18), one related to gender roles (19) study were found in North Cyprus.

As a result of a study conducted with parents with children aged 8-10 in North Cyprus, it was determined that only 50% of parents could identify with the type of child abuse and suggestions were made for their children to be educated on this issue (15). In another study conducted with parents of four-six-year-old children, it was determined that parents had moderate awareness of sexual abuse and did not have sufficient knowledge (16). They found a significant connection in a study evaluating the knowledge level of parents with pre-school children aged three-six years, and their children's attitudes towards sexual education, it was found that parents did not find themselves sufficient in providing sexual education in North Cyprus (17). In a study conducted with young adults in Famagusta district, the attitude scores of young people towards gender roles were determined to be prone to egalitarian attitudes in North Cyprus (18). In another study found, 33.3% of the participants were lesbian, 33.3% were gay, 33.3% were also found to be bisexual (19). According to the findings of same study, heterosexual individuals are generally against LGBTQ individuals and they exhibited negative attitudes and behaviors (19).

Sexual Education and Nurse

The school nurses employ primary prevention by providing health education. Sexual education is one of the

Table 1.
Current Studies on the Subject in North Cyprus (2018-2023)

Authors, year	Main topic	Research place	Population/sample	Research type
Berkmen and Seçim (15)	Child sexual abuse	North Cyprus/public primary school	70 parents who have 8-10 years old children.	Phenomenological/ qualitative research
Bozcan et al. (16)	Child abuse	North Cyprus, Nicosia region/pre-school	321 parents	Cross-sectional survey
Houssein and Beratlı (17)	Child abuse	North Cyprus, public hospitals & health centers.	123 nurses	Descriptive
Eray and Üçışık Erbilin (18)	Sexual orientation	North Cyprus/Famagusta	500 participants 18-25 years old	Scanning model
İstanbul and Erbilin (19)	Gender roles	North Cyprus	12 LGBTQ individuals	Qualitative research-case study

health education topics. School and parents have many responsibilities to educate children with the purpose of helping them attain sexual health. However, they might also frequently need support consisting in information, motivation and strategies on sexual education. School nursing practice is student-centered, occurring within the context of the student's family and school community. School nurses should lead parents to raise awareness about sexual education and sexual health. They can prepare education and awareness programs for teachers and parents. Also, they may prioritize the initiation and execution of comprehensive sexual education programs in pre-school and primary education. In addition, school nurses have an important and critical role in policy change with regard to sex education (6,20-22).

Conclusion

When present studies in North Cyprus are analyzed, it is seen that there are not many studies on sexual education in the country and sexual education is not given in primary and secondary education. Therefore, parents and school teachers and school nurses take major liability for sexual education. It is recommended that school-based sexual education must take part in educational program, make studies entire thesis about sexual education and give education awareness about the sexual education to both teachers and parents.

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ORIGINAL ARTICLE

Relationship Between Health Perception and Cervical Cancer Awareness: Two Different Data Collection Methods

Sağlık Algısı ve Serviks Kanseri Farkındalığı İlişkisi: İki Farklı Veri Toplama Yöntemi

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Abstract

Objective: Cervical Cancer (CC) is one of the most common cancers in women. CC screenings are performed free of charge at all stages of cancer early diagnosis and screening centers in women aged 30-65 years. The incidence of women in this age range to benefit from screenings is high. It is considered that this condition may cause a loss in terms of early diagnosis. This study aims to determine the relationship between health perception and CC awareness in terms of socio-demographic characteristics of women (primarily age) and two different data collection methods.

Method: The research is in descriptive-sectional design. The population consisted of women aged 20-65 years. Four hundred seventy-eight people were included in the sample. The data were collected by personal information form, Health Perception Scale (HPS) and Attitude Scale Toward the Early Detection of Cervical Cancer (ASTEDCC).

Results: The mean age was 34.27±10.32, the mean HPS was 40.86±8.24, and the mean ASTEDCC was 94.38±12.09. It was found that being 36 years and older, having children, having heard of the test, made a difference in getting a pap smear test. The mean rank of ASTEDCC was higher in patients with face-to-face interview methods. A positive and moderate relationship was found between HPS and ASTEDCC.

Conclusion: Age and the way the data were collected from the participants are effective in CC awareness and there is a relationship between health perception and CC awareness.

Keywords: Cervical cancer, health perception, awareness, pap smear test, early detection

Öz

Amaç: Servikal Kanseri (SK) kadınlarda en yaygın görülen görülen kanser türlerinden biridir. SK taramaları 30-65 yaş aralığındaki kadınlarda kanser erken teşhis ve tarama merkezlerinde tüm aşamalarında ücretsiz olarak yapılmaktadır. Bu yaş aralığındaki kadınların taramalardan yararlanma insidansı yüksektir. Bu durumun erken tanı açısından kayıp oluşturabileceği değerlendirilmektedir. Araştırmanın amacı kadınların sosyo-demografik özellikleri (öncelikle yaş) ve iki farklı veri toplama yöntemi açısından sağlık algısının SK farkındalığı ilişkisini belirlemektir.

Yöntem: Araştırma, tanımlayıcı-kesitsel tasarımdadır. Evreni 20-65 yaş aralığındaki kadınlar oluşturmuştur. Örnekleimde 478 kişi yer almıştır. Veriler kişisel bilgi formu, Sağlık Algısı Ölçeği (SAÖ) ve Servikal Kanserin Erken Tanısına İlişkin Tutum Ölçeği ile (SKETTÖ) toplanmıştır.

Bulgular: Yaş ortalaması 34,27±10,32, SAÖ ortalaması 40,86±8,24, SKETTÖ ortalaması 94,38±12,09'dur. Otuz altı yaş ve üstünde olmanın, çocuk sahibi olmanın, testi duymuş olmanın pap smear testi yaptırmada fark oluşturduğu bulunmuştur. Yüz yüze görüşme yöntemiyle veri toplananlarda SKETTÖ sıra ortalaması daha yüksektir. SAÖ ile SKETTÖ arasında pozitif yönlü ve orta düzeyde ilişki bulunmuştur.

Sonuç: Yaş ve katılımcılardan verinin toplanış şekli serviks kanseri farkındalığında etkilidir ve sağlık algısı ile serviks kanseri farkındalığı arasında ilişki bulunmaktadır.

Anahtar Kelimeler: Rahim ağzı kanseri, sağlık algısı, farkındalık, pap smear testi, erken teşhis

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Introduction

Cervical Cancer (CC) is the third most common type of cancer in women in the world, in women in developing countries mostly (1). CC is the ninth most common cancer in women of all ages in Turkey whereas it is the fourth most common cancer in women of 25-49 years of age (Turkey cancer statistics, 2015). The incidence is expected to almost double by 2025, causing the death of approximately 270,000 women worldwide each year even though it is a preventable disease. Approximately 87% of these occur in developing countries, especially in rural areas (2). The reasons why CC is more common in developing or underdeveloped countries compared to women in developed countries are being uneducated and poor, being more affected by adverse environmental conditions and not being able to have a say in decision-making processes due to the low status of women, being late in diagnosis and treatment due to adequate use of health services, risky sexual behaviors, nutritional and hygiene deficiencies, early start of sexual activity, smoking, and low rate of having Pap Smear Test (PST) and these reasons are shown as risk factors for CC. Therefore, women need to be protected from these risk factors (3,4).

Risk factors for CC and insufficient knowledge of PST also cause prevention, early diagnosis, and treatment methods not to be used (3). The incidence of invasive CC has markedly decreased over the past fifty years with routine PST screenings involving many people in developed countries (5,6). CC screening should be started in all women when sexual activity begins at or from the age of 18 according to the advice of the American College of Obstetrics and Gynecology (7,8). Studies conducted in developing countries, including Turkey, have shown that the frequency of screening is not yet at the desired levels (9,10). It has been reported that women have never had (32.4%, 44.1% and 82.8%) PST at different rates in studies conducted in Turkey (11). It was stated that women experienced feelings such as fear, shame, shyness, and boredom while performing PST and that fear of gynecological examination prevented regular testing and behaviors were adversely affected in a qualitative study conducted in Turkey (12). The low level of knowledge, false attitudes, and beliefs about PST cause women to develop negative behaviors and attitudes towards health protection and improvement (6,13). It is very important in this context to understand the perceptions, barriers, decision-making processes, and behaviors of individuals regarding their health needs.

Main Points

- Cervical cancer is a preventable disease and cervical cancer screening reduces both mortality and incidence.
- Two out of every three women know about pap smear screening, but only one out of every three women has the test.
- Women's health perceptions are low, and their attitudes towards early diagnosis of cervical cancer are moderate.
- Age, income perception and education level affect health perception.
- As women's health perceptions increase, their positive attitudes towards early diagnosis of cervical cancer also increase.

This study aims to determine the relationship between CC and PST awareness of women aged 20-65 years and to determine whether there is a difference between some socio-demographic characteristics (especially age) and the way the data were collected from the participant.

Material and Method

The research, was in descriptive-sectional design. The population of the study consisted of women aged 20-65 years who completed their child identity, reached cognitive maturity, and were at reproductive age in a city center in the Eastern Black Sea. The data were collected between October 2019 and February 2020. Sample calculation was made for the targeted population within the scope of the 2018 records of the Turkish Statistical Institute [$n=Nt^2pq/d^2(N-1) + t^2pq$] and the research was completed with 478 people.

Two different methods were preferred for data collection. The first method is to obtain the data by face-to-face interview method by the researchers. The other method is to use a web-based questionnaire form focusing on the assumption that people can answer the questions within their own living spaces with their free will based on the assumption that there may be reservations about the content being researched. The questionnaire form was kept online until the targeted number of participants shared on the web environment was reached in this method. Care was taken to ensure that the informed consent form was included in the questionnaire and that the participants were volunteers in both methods. Written permission was obtained from the Giresun University Clinical Research Ethics Committee of clinical trials in the province where the study was conducted prior to the study (KAEK 2019-07).

Statistical Analysis

SPSS 22 software was used for the analyses. Number and percentage distributions were given in descriptive data; Kolmogorov-Smirnov test was performed, Mann-Whitney U test was performed for binary variables, and Kruskal-Wallis test was performed for variables with three or more groups. The relationship between the quantitative data was evaluated by Spearman's Correlation Analysis. Logistic regression analysis was performed to find the effect coefficients. Rank averages were given and $p < 0.05$ was considered as the significance level.

Information form: There are questions to determine the socio-demographic characteristics of women, their knowledge status about CC, and their PST status in this form, which was prepared by the researchers.

Health perception scale (HPS): The scale was developed by Diamond et al. (14). The Turkish validity was performed by Kadioglu and Yildiz (15). The five-point Likert-type scale has 15 items and four sub-factors. These factors are Control Point (CP), Self-awareness (SA), Certainty®, and Importance of Health (IH). Items 1, 5, 9, 10, 11, and 14 are positive attitudes

and items 2, 3, 4, 6, 7, 8, 12, 13, and 15 are negative statements. Positive statements are scored as “Strongly agree =5”, “Agree=4”, “Undecided =3”, “Disagree =2”, “Strongly disagree =1”. Negative statements in the scale are scored inversely. A minimum of 15 and a maximum of 75 points are obtained from the scale. The Cronbach’s Alpha value was reported as 0.744 for the total score of the scale and the values of the sub-factors were reported as 0.90 for CP, 0.91 for SA, 0.91 for C, and 0.82 for IH (14,15). In this study, the cronbach alpha value of the scale was calculated as 0.744.

Attitude scale toward the early detection of cervical cancer (ASTEDCC): The scale, which was developed by Ozmen and Ozsoy (16), aims to evaluate women’s attitudes towards CC. The 30-item scale has 4 sub-factors: Perceived Sensitivity (PSn:), Perceived Severity (PSv:), Perceived Obstacle (PO:), and Perceived Benefit (PB:). A minimum of

30 and a maximum of 150 points are obtained from the scale. Cronbach’s alpha value test whole scale was stated as 0.89, 0.71 for PSn, 0.78 for PSv, 0.70 for PO, and 0.72 for PB. The high scores obtained from the scale indicate that the individual’s attitudes towards early diagnosis of CC are positive (16). In this study, the cronbach alpha value of the scale was calculated as 0.710.

Results

The mean age was 34.27±10.32 years (20-65; median: 34), 56.3% of the data were collected by face-to-face interview method, 56.5% were 35 years and below. It was found that 38.4% of the participants were university graduates, 19.3% had the age of first sexual intercourse at 18 years and below, 61.1% had heard of PST, but 63.9% had not taken the test (Table 1).

Table 1.
Descriptive Characteristics of Participants (n=478)

Variable	Characteristics	n	%
Method of obtaining data	Web-based questionnaire form	209	43.7
	Face-to-face interview	269	56.3
Age Mean age 34.27±10.32 (min-max: 20-65; median: 34)	35 years and under	270	56.5
	36 years and over	208	43.5
Place where she lived for a long-time	Urban region	325	68.0
	Rural region	153	32.0
Age of first intercourse 21.89±4.03 (min-max: 10-40)	18 years and under	87	19.3
	19 years and over	364	80.7
Does she often change her sexual partner? (n=451)	Yes	13	2.7
	No	465	97.3
Does your partner have any other partners?	Yes	9	1.9
	No	412	86.2
	I do not know	57	11.9
Recently graduated school	Literate	91	19.1
	Primary school graduate	12	2.5
	Secondary school graduate	61	12.8
	High school graduate	129	27.1
	Graduated from a university	183	38.4
Having a child	Yes	340	71.1
	No	138	28.9
Perception of income level	High income	131	27.4
	High expenses	199	41.6
	Income equals expenses	148	31.4
Has she heard about the pap smear test?	Yes	292	61.1
	No	186	38.9
Has she been diagnosed with any cancer?	Yes	28	5.9
	No	442	94.1
Are there any family members diagnosed with cervical cancer?	Yes	36	7.5
	No	442	92.5
Has she been educated on cervical cancer?	Yes	175	36.7
	No	303	63.3
Has she had a pap smear test?	Yes	172	36.1
	No	306	63.9

The total mean HPS of the participants was 40.86 ± 8.24 years (min-max: 18-63), and the total mean ASTEDCC was 94.35 ± 12.09 (min-max: 54-142). The mean scores of the HPS and ASTEDCC sub-scale are provided in Figure 1.

It was found in the study that the ASTEDCC scores were higher whereas there was no significant difference in the HPS scores of the participants in whom the data were collected face-to-face. In addition, both HPS and ASTEDCC scores were found to be significantly higher in those 36 years and older, those who experienced their first sexual intercourse at the age of 18 and below, those who spent the majority of their lives in rural areas, those who had not heard of the PST before and those who had not been trained on CC (Table 2).

It was found in this study that income perception and education level variables made a difference in terms of both HPS and ASTEDCC. It was found in the post-hoc analysis that both HPS and ASTEDCC scores of those with high income were high. It was seen that the HPS score also increased as the level of education increased. However, this is in the opposite direction in ASTEDCC, and the ASTEDCC score ranking of the group with a high level of education was lower.

Factors affecting the participants' PST were found to be age (1.04 times), not being diagnosed with any type of cancer (0.27 times), not having children (0.13 times), and not having education about CC (0.18 times) ($p < 0.001$) (Table 3).

A positive and very weak relationship was found between age and HPS, and a moderate and positive relationship was found between HPS and ASTEDCC ($p < 0.001$) (Table 4).

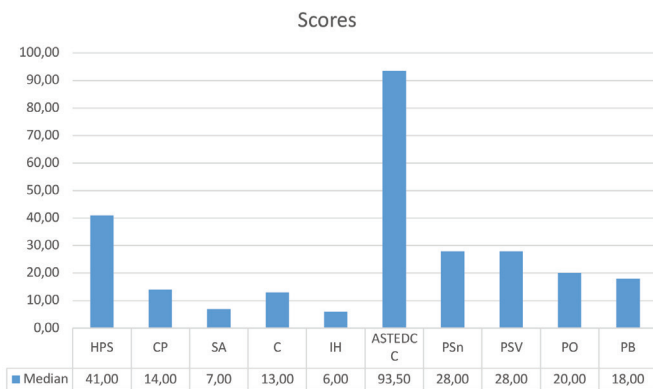


Figure 1.
Scores of total and sub-factors of participants' HPS and ASTEDCC scales (n=478)

HPS=Health perception scale, C=control point, SA=self-awareness, C=certainty, IH=importance of health, ASTEDCC=attitude scale toward the early detection of cervical cancer, PSn=perceived sensitivity, PSv=perceived severity, PO=perceived obstacle PB=perceived benefit

Discussion

CC is the most common cancer in women and is a serious public health concern. Its annual incidence in the world is 500,000, of which approximately 274,000 die (17). CC screening decreases mortality and incidence. World Health Organization defines CC as a preventable disease in this respect. Early screenings are even more important where signs and symptoms are not seen until the advanced stage in CC. Women's decisions in the CC screening are influenced by a wide variety of factors such as socio-cultural factors, cancer awareness, knowledge, attitudes and beliefs, and attitudes and recommendations of health professionals (18).

Perception of health is an individual assessment of their personal health (19). It was found that women in the study had low perceptions of health. The lowest mean score was found in the IH sub-scale whereas the highest mean score was in the C sub-scale. It was seen in the study of Kolaç et al., (20) that health perception was moderate, the lowest score was obtained from the IH sub-scale and the highest score was obtained from the CP sub-scale, and there was a significant difference between education and health perception.

One of the most important demographic factors affecting health perception is age (19). The accompanying chronic diseases with the progression of age adversely affect the health perceptions of individuals. It was also explained in the study conducted with women in menopause that women's perceptions of health were poor, women under 45 years of age had better perceptions of health compared to those who were older, and there was a relationship between negative health perception and rural life and low education level (21). It was found in this study that those 36 years of age and older, those who spend most of their lives in rural areas, those with high income, and those with high education have high perceptions of health. Socio-demographic characteristics affecting health perception are consistent with the literature.

The rank averages of the participants that were collected through the web-based questionnaire were found to be high. IH sub-scale is to determine to what extent the individual attaches importance to her health, to what extent she makes financial sacrifices in this regard, and whether the importance she attaches to health is one of the priorities in his/her life (22). When approached in terms of the way the data is collected, the web-based interview method may affect the individual's being more objective due to reasons such as the lack of fear of being judged or stigmatized.

The attitude scores of the participants towards early diagnosis of CC were found to be moderate in the study. It was found that the participants' perceptions of severity towards early diagnosis of CC were high, their perceptions of sensitivity and benefit were moderate, and their perceptions of obstacles were low. Önal and Yılmaz (23) stated in their study that women's perceived sensitivity to early diagnosis

of CC was moderate and their severity, obstacle, and benefit perception scores were low. The fact that the services are free of charge is considered to be effective in the participants' low perception of obstacles in addition to the easy access to cancer early diagnosis and screening centers units and the services offered there, in Turkey.

High awareness of women about CC enables them to recognize CC and receive medical assistance. The likelihood of avoiding the factors that cause the development of the disease and their behavior of going to screening tests increases when women are aware of the causes and risk factors of CC and perceive themselves at risk (24). Altintas and Aslan (25) found in their study that women's overall perceptions of CC early diagnosis, their perceptions of severity and obstacles were moderate, and their perceptions of sensitivity and benefit were low. Cimke and Borekci (26) reported in their study that women's attitudes towards early diagnosis of CC were positive.

It was found in the study that age, income level, age of first sexual intercourse, where she spent most of her life, whether she heard of PST, and whether she received education about CC made a difference in the early diagnosis attitude of CC. In addition, the ASTEDCC scores were higher while they were lower in those with high education levels in the participants whose data were collected face-to-face.

It was determined in a study conducted in Ghana that the awareness of women who were educated about CC increased about CC and early diagnosis (27). Early sexual intercourse, multiple sexual partners, smoking, obesity, race, parity, and low socio-economic status are mentioned as risk factors for CC in the literature (28). Approximately one in five women experienced their first sexual intercourse during the adolescent period in our study. It is promising that the attitudes of women in the risk group in terms of CC in early diagnosis are positive. It was reported in a study that the age of first sexual intercourse did not affect the attitudes of women towards early diagnosis of CC, unlike our results (29). The reason for these differences is thought to be the research methodology and socio-cultural characteristics of the participants.

Women's perceptions of early diagnosis of CC are influenced by their individual, social, and cultural characteristics. It was reported in a study conducted by Altintas and Aslan (25) that women's perceptions of early diagnosis of CC differed significantly in terms of their employment status, economic status, social security status, and family types and that their characteristics such as age, marital status, and having children, menopause status, family cancer, and presence of CC did not differ. The perception of early diagnosis was low in those with high education levels while it was significantly high in those who did not know PST (25). Age, which supports

Table 2.
Distribution of Socio-demographic Characteristics of Participants on Total Scores of HPS and ASTEDCC (n=478)

Variable	Characteristics	HPS	Test value (p)	ASTEDCC	Test value (p)
		Mean rank		Mean rank	
Method of obtaining data	Web-based questionnaire form	228.25	0.150	206.77	0.001
	Face-to-face interview	246.53		264.93	
Age	35 years and under	220.60	0.001	234.47	0.364
	36 years and over	261.97		246.03	
Place where she lived for a long-time	Urban region	225.07	0.002	219.60	0.001
	Rural region	267.12		281.78	
Age of first intercourse	18 years and under	267.67	0.001	257.37	0.012
	19 years and over	214.75		218.50	
Recently graduated school	Literate	211.33 ^{a,d}	0.003	211.45	0.009
	Primary school	299.33 ^a		263.71	
	Secondary school	228.67 ^e		252.81 ^c	
	High school	272.85 ^{b,d,e}		266.38 ^b	
	Universty	224.63 ^b		211.45 ^{b,c}	
Perception of income level	High income	252.79 ^{a,b}	0.020	262.29 ^{a,b}	0.001
	High expenses	248.58 ^a		254.67 ^a	
	Income equals expenses	212.43 ^b		198.93 ^b	
Has she heard about the pap smear test?	Yes	226.62	0.018	220.78	0.001
	No	257.18		268.89	
Has she been educated on cervical cancer?	Yes	208.56	0.001	212.33	0.001
	No	255.75		255.02	

^{a,b,c,d,e}=Indicate the groups from which the difference originates, HPS=health perception scale, ASTEDCC=attitude scale toward the early detection of cervical cancer

the results in this study, affected the attitude towards early diagnosis in another study and it was determined that a high positive attitude developed in those with high income (30). However, there is also a study reporting that income level did not make a difference in early diagnosis attitudes of women (29).

Young women of reproductive age living in rural areas with limited access to education and economy are the most at risk in the lack of awareness of CC. Rural women who are poorer and less educated are less knowledgeable about CC. The level of education affects CC awareness, and the increase in education increases the likelihood of awareness (31). Different results may be due to the negligence of educated women living in the city who have easy access to health services in terms of early diagnosis in our study. It is gratifying that the attitudes towards early diagnosis were more positive in the group whose data were collected face-to-face.

Screening and treatment of precancerous lesions can prevent almost 100% in CC (31). It was seen in this study that two out of every three women knew about PST, but only one out of every three women had the test. Age, not being diagnosed with any cancer, not having children, and not having an education on CC were determined as the

factors significantly affecting PST. It was stated in a study conducted in Malaysia that women still had insufficient awareness of CC and screening programs, that religious and cultural belief variables masked women's health beliefs and created confusion, uncertainty, and obstacles to screening (17). CC is usually asymptomatic at an early stage and it is possible to detect it by screening test at this stage. This is one of the few cancers that can be easily detected during the stage of cancer premalignancy. PST is an effective method that has become the gold standard for CC screening due to its low cost, easy application, and repeatability (32,33). However, women are reluctant to have this test for a wide range of reasons. Age and level of knowledge were stated as effective factors in getting tested in a study by Ashtarian et al., (32) investigating the factors affecting PST. On the contrary, It was found that the majority of the participants did not have PST before and this was caused by neglect, not seeing themselves in the risk group, and a sense of shame in a study conducted with female physicians who were expected to have high knowledge and awareness about CC (34). It was found that 41.2% of women heard of PST but did not know when to have it and only 27.8% had the test in another study investigating the CC awareness of women in different professions. Studies conducted in Turkey show that the number of women undergoing PST, including health personnel, is generally quite low. These data show that the

Table 3.
Factors Affecting Participants' Performing Pap Smear Test* (n=478)

Variable		β	p	OR	95% CI
Age (scale)		0.047	0.001	1.048	1.020-1.076
Age of first intercourse (scale)		0.043	0.167	1.044	0.982-1.109
HPS (scale)		-0.021	0.170	0.979	0.949-1.009
ASTEDCC (scale)		0.000	0.980	1.000	0.979-1.021
Method of obtaining data	Web-based questionnaire form			1.00	
	Face-to-face interview	-0.529	0.102	0.589	0.312-1.11
Place where she lived for a long time	Urban region			1.00	
	Rural region	-0.320	0.238	0.726	0.427-1.236
Perception of income level	High income			1.00	
	High expenses	0.055	0.881	1.057	0.512-2.181
	Income equals expenses	0.330	0.334	1.392	0.712-2.719
Does she often change his sexual partner?	Yes			1.00	
	No	-1.087	0.170	0.337	0.071-1.595
Having a child	Yes			1.00	
	No	-1.970	0.001	0.139	0.069-0.283
Has she been diagnosed with any cancer?	Yes			1.00	
	No	-1.307	0.009	0.271	0.102-0.718
Are there any family members diagnosed with cervical cancer?	Yes			1.00	
	No	0.185	0.685	1.204	0.491-2.951
Has she been educated on cervical cancer?	Yes			1.00	
	No	-1.616	0.001	0.185	0.119-0.331

*Nagelkerke R Square: 454.44, Omnibus Test of Model Coefficients p=0.001, OR=odds ratio, CI=confidence interval, HPS=health perception scale, ASTEDCC=attitude scale toward the early detection of cervical cancer

Table 4.
The Relationship Between Some Characteristics of the Participants and Total Scale and Sub-scale Scores of HPS and ASTEDCC

	Age	Age of first intercourse	HPS	CP	SA	C	IH	ASTEDCC	AD	AC	AE	AY
Age	Rho* p	1										
Age of first intercourse	Rho* p	1										
HPS	Rho* p	-0.127** 0.007	1									
CP	Rho* p	-0.158** 0.001	0.754** 0.001	1								
SA	Rho* p	0.022 0.634	0.516** 0.001	0.140** 0.002	1							
C	Rho* p	0.130** 0.004	0.672 0.001	0.371** 0.001	0.101* 0.028	1						
IH	Rho* p	-0.028 0.545	0.439** 0.001	0.017 0.711	0.435** 0.001	0.088 0.054	1					
ASTEDCC	Rho* p	-0.001 0.980	0.326** 0.001	0.380** 0.001	-0.060 0.192	0.346** 0.001	-0.056 0.225	1				
PSn	Rho* p	0.036 0.436	0.290** 0.001	0.364** 0.001	-0.065 0.156	0.304** 0.001	-0.049 0.284	0.775** 0.001	1			
PSv	Rho* p	0.041 0.374	0.107* 0.020	0.180** 0.001	-0.109* 0.018	0.186** 0.001	0.156** 0.001	0.728** 0.001	0.407** 0.001	1		
PO	Rho* p	-0.075 0.100	0.336** 0.001	0.323** 0.001	0.044 0.342	0.285** 0.001	0.085 0.064	0.666** 0.001	0.375** 0.001	0.278** 0.001	1	
PI	Rho* p	0.029 0.534	0.157** 0.001	0.212** 0.001	-0.065 0.157	0.164** 0.001	-0.094* 0.040	0.486** 0.001	0.317** 0.001	0.218** 0.001	0.155** 0.001	1

*=Spearman correlation analysis, HPS=Health Perception Scale, CP=Control Point, SA=Self-Awareness, C=Certainty, IH=Importance of Health, ASTEDCC=Attitude Scale Toward the Early Detection of Cervical Cancer, PSn=Perceived Sensitivity, PSv=Perceived Severity, PO=Perceived Obstacle, PI=Perceived Benefit

CC screening program still does not reach the vast majority of women (26). The fact that those who have regular PST in Turkey are below the desired levels especially according to the rates in developed countries may be due to the obstacles created by religious and cultural values (35).

A positive correlation was found between age and health perception, and a positive correlation was found between health perception and early diagnosis attitude. Şen and Öztürk (36) found that the perception of health changed inversely with age. CC screening program has been carried out in Turkey since 2012. People know these practices and even if they are easily accessible, it is at their own discretion whether or not to have them done. Individuals' attitudes towards these screenings should be questioned. In order to be successful in cancer prevention and early diagnosis (36). People's perceptions of health have an impact on their health-protective behaviors. As a matter of fact, Kızılırmak et al., (37) found a significant difference between self-breast examination and health perception score in their study.

Study Limitations

The limitations of this research are that the data were collected at a certain time cross-section and only through the questionnaire.

Conclusion

It was found that there was a positive and moderate relationship between HPS and ASTEDCC scores of women in the study, their perceptions of health were low, and their attitudes towards early diagnosis of CC were moderate. It was seen that the health perceptions of the participants also increased as the age of the participants increased. Determining the obstacles of women for early diagnosis of CC to be positive and ensuring their adaptation with different practices such as motivational interview methods. Increasing educations and campaigns through both healthcare professionals and social media in order to raise awareness about CC and PST. PST is recommended to be performed free of charge not only to women aged 30-65 years but also to all women.

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Ethics Committee Approval: The participants were informed through an information text placed at the top of the study form in accordance with the criteria of the Declaration of Helsinki. "Giresun University Clinical Research Ethics Committee" permission was obtained for study (KAEC 2019-7).

Informed Consent: Informed consent was obtained.

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ORIGINAL ARTICLE

The Effect of Discharge Training Given to Patients with Pilonidal Sinus Surgery According to Gordon's Functional Health Patterns: A Quasi-experimental Study

Pilonidal Sinüs Ameliyatı Olan Hastalara Verilen Taburculuk Eğitiminin Gordon'un Fonksiyonel Sağlık Örüntülerine Göre Etkisi: Yarı-deneySEL Bir Çalışma

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Abstract

Objective: This quasi-experimental study aims to determine the effect of discharge training given to patients who underwent pilonidal sinus surgery using the primary closure method, on Gordon's functional health patterns.

Method: The sample of the study consisted of 70 patients. Patients in the intervention group were exposed to discharge training given by one of the researchers using a tablet computer and a training booklet based on functional health patterns was handed to patients to straighten the training. The control group was exposed to routine clinical nursing care and patient information. The efficacy of discharge training was evaluated using a checklist developed by researchers. Both groups of patients were phoned on postoperative days by the researcher.

Results: Patients in the control group had insufficient knowledge of what kind of food should select to eat on the 1st postoperative day ($p<0.001$). Patients in the control group reported pain/discomfort during defecation, difficulty, and knowledge deficiency on perianal cleaning ($p<0.05$). Patients in the control group had higher anxiety levels and less knowledge on what position they resume while sleeping during the postoperative period ($p=0.000$).

Conclusion: The planned discharge training based on Gordon's functional health patterns and patient follow-up form developed according to this model was an effective intervention in patients who underwent pilonidal sinus surgery.

Keywords: Discharge planning, nursing care pilonidal sinus surgery, Gordon's functional health patterns

Öz

Amaç: Bu araştırma, pilonidal sinüs ameliyatı geçiren teknik olarak primer kapatma yöntemi kullanılan hastalara verilen taburculuk eğitiminin Gordon'un fonksiyonel sağlık örüntülerine, etkisini belirlemek amacıyla yarı deneysel olarak yapıldı.

Yöntem: Araştırmanın örneklemini 70 hasta oluşturdu. Müdahale grubundaki hastalara fonksiyonel sağlık örüntülerine temellendirilen taburculuk eğitimi ve hazırlanan broşür verildi, kontrol grubundaki hastalara klinikteki rutin uygulamalar ve bilgilendirmeler yapıldı. Taburculuk eğitiminin etkinliği her iki gruptaki hastalar araştırmacı tarafından ameliyat sonrası günlerde telefonla aranarak bir kontrol listesi ile değerlendirildi. Araştırma sonuçları sayı, yüzde, ortalamalar şeklinde verildi.

Bulgular: Kontrol grubundaki hastaların ameliyat sonrası 1. günde tüketmeleri gereken yiyecekler konusunda güçlük yaşadıkları ($p<0,001$) belirlendi. Kontrol grubundaki hastaların ameliyattan sonrası günlerde defekasyon sırasında ağrı/rahatsızlık yaşadıkları, perianal bölge temizliğine yönelik bilgilerinin yetersiz olduğu ve güçlük yaşadıkları görüldü ($p<0,05$). Kontrol grubundaki hastaların ameliyat sonrası dönemde daha fazla anksiyete yaşadıkları ve uyurken hangi pozisyonda olmaları gerektiği konusunda yetersiz bilgilerinin olduğu belirlendi ($p=0,000$).

Sonuç: Fonksiyonel sağlık örüntülerine temellendirilmiş planlı taburculuk eğitimi ve aynı model doğrultusunda geliştirilen hasta izlem formunun, pilonidal sinüs cerrahisi geçiren hastalarda etkili bir girişim olduğu belirlendi.

Anahtar Kelimeler: Taburculuk eğitimi, pilonidal sinüs cerrahisi, Gordon'un fonksiyonel sağlık örüntüleri

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Introduction

The pilonidal sinus is a hairy cystic formation in the intergluteal cleft on the posterior surface of the lower sacrum (1). In Turkey, the prevalence of pilonidal sinus was found as 6.6% in a study conducted on soldiers (2). Although its incidence varies by society, it is challenging to give a precise number. Its incidence in the USA is around 26 per 100,000 (3). In different studies done with patients who underwent pilonidal sinus surgery, the patient's mean age ranged between 21-26 years (4,5). Pilonidal sinus risk factors include early age, obesity, male gender, Mediterranean ethnicity, deep natal cleft, hairiness, and poor hygiene. It has been shown that PSD incidence increases in parallel with body weight. The precise etiology of pilonidal sinus disease is unclear (3,4,6). Pilonidal sinus disease can initially begin as either a discharging sinus or an acute abscess. After treatment of an acute disease episode, many treatment options are available (7,8). Treatment options are either medical or surgical, where the treatment depends on the clinical progression and the stage of the disease. Surgical treatment is often used method for most cases. Pilonidal sinus surgeries are commonly performed using spinal/epidural or local anesthesia (9,10).

Studies that were done with pilonidal surgery patients introduce, and compare contemporary surgical techniques, where these techniques are compared with conservative methods (11,12). Primary closure of chronic pilonidal sinus allows patients early return to their activities, it also has a low recurrence rate (13). Like any other surgical procedure, pilonidal surgery patients are prone to complications after surgery such as hematoma, wound dehiscence, infection, recurrence, and disrupted body image (12).

The nurse plays a significant role in the care of a patient with sacrococcygeal pilonidal sinus which can be complex and challenging. This includes a holistic nursing assessment of the wound, including surgical site infection and wound epithelization that is associated with quality of life related to daily activities, pain, patient history, and vital signs (14).

Nursing studies done on this topic were very limited. One nursing study represents that patient training before surgery does not influence the anxiety and comfort levels of pilonidal surgery (5,15). Two other studies focused on the well-being of patients after surgery, pain experience, and embarrassment levels (5,16). Another recent study evaluated the effectiveness of nurses' dressings for patients with pilonidal sinus (17).

Thus, nurses' discharge training is critical to prevent postoperative complications and enable patients to recover and return to their daily activities in a short period. Theories broaden the perspective of nurse researchers and guide nurses with their systematic nature. No study could be found that evaluates the efficacy of discharge training given to patients who underwent pilonidal sinus surgery or in which such training is based on a nursing model (18).

Purpose of the Study

This is a quasi-experimental study to determine the effect of discharge training on patients who underwent pilonidal sinus surgery on Gordon's functional health patterns (FHP). Gordon's FHP Model was developed by Marjory Gordon to make a more comprehensive inpatient care assessment. Eleven mean categories compose the FHP Model. Perception of health and health management, nutrition and metabolic status, excretion, activity and exercise, sleep and rest, cognitive perception, self-perception and self, role and relationships, sexuality and reproduction, coping and stress, values, and beliefs. Gordon's FHP allows health professionals to determine patient complaints and how patients and their relatives manage problems they encounter, and which coping mechanisms they use (18).

Material and Method

Study Population and Sample

The study population consisted of patients who underwent pilonidal sinus surgery with the primary closure method in June-September 2019 in one state hospital located in Turkey. With a significance level of 0.05 (α), a statistical power of 0.80 (1- β), and an effect size of 0.75, 70 patients were required (35 for the intervention and 35 for the control group) for this study. Considering patients who would leave the study during data collection, 80 patients who were eligible for this study were randomly assigned to groups. The intervention group consisted of 41 and the control group consisted of 39 patients). Patients were randomized by assigning them to intervention group (located in rooms with odd numbers) and control group (located in rooms with even numbers). Since six patients from the intervention group and four patients from the control group could not be reached by phone during the study, the study was completed with a total of 70 patients. The Consort diagram is given for this study in Figure 1 (19).

Development of the Patient Discharge Plan and Training Booklet

A patient discharge training plan compatible with Gordon's FHP's developed by the researchers for the intervention group. Following the model, the training plan consisted of the following 11 headings according to Gordon's FHP. Under these headings, related subheadings are included (20,21).

Perception of health and health management: Included information on when to seek medical help and guidance on resuming personal hygiene practices (information on

Main Points

- Discharge training given by nurses is of great importance for minimising postoperative complications and enabling patients to return to their daily life activities in a shorter time.
- The theories aim to develop nursing interventions to provide quality care to the patient.
- Discharge training is of great importance for patients with pilonidal sinus surgery.

showering, foot care, dressing/undressing, practices that need attention).

Nutrition and metabolic status: In this section, information on changes that should be done in the diet, the amount of water that should be consumed, the importance of eating three main meals, and the foods that should be consumed after surgery were included.

Excretion: Information about avoiding constipation and diarrhea, and resuming perianal care expressed.

Activity and exercise: The importance of putting emphasis on physician's recommendations. Activities that may cause difficulty in daily routines were explained in detail (standing/sitting, walking, going up and down stairs, using public transportation, driving).

Sleep and rest: This section contained information about the correct sleeping position, and required adjustments emphasized.

Cognitive perception: This section included interventions to alleviate pain.

Self-perception and self-respect: Since weakness/powerlessness may occur after the surgery, assurance were given that this situation is temporary.

Role and relationships: Influence of surgery on roles in the family and relationships with friends were clarified.

Sexuality and reproduction: In this section, information on need for resuming sexual activities were explained.

Coping and stress: This section included information on strategies for coping with stress.

Values and beliefs: In this section, it was noted that some difficulties he/she may have in fulfilling his religious duties, and these are temporary.

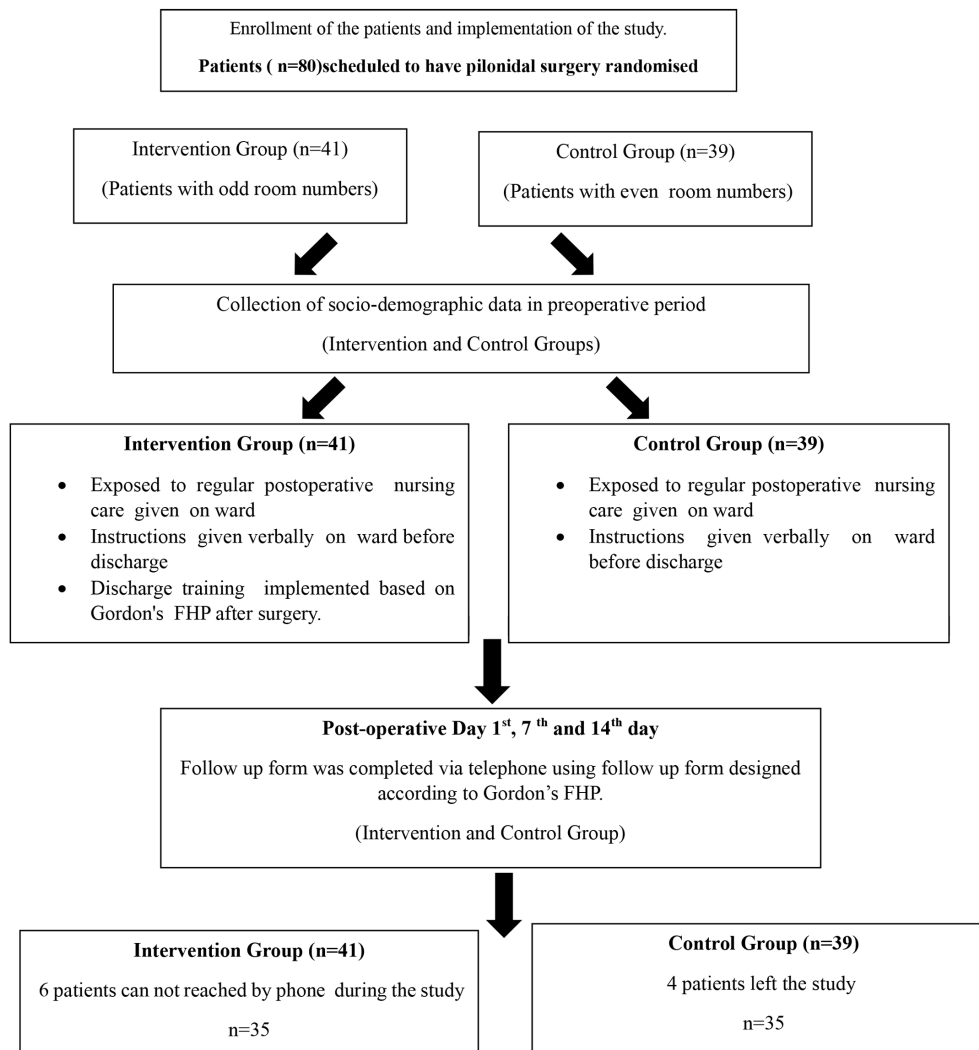


Figure 1.
CONSORT diagram of the study

A patient discharge training plan developed by researchers for patients who underwent pilonidal sinus surgery was prepared as a PowerPoint presentation, supported by pictures and visuals. The presentation did not include complex medical terminology, where short and clear sentences consisting of a maximum of 4-5 words were used. The relevant literature was used for the development of the discharge plan (20). A lecturer from the nursing field and two surgeons who perform these surgeries in the relevant hospital were consulted on the clarity and appropriateness of the discharge plan developed. According to the suggestions received, the necessary arrangements were made on the discharge plan. The PowerPoint materials were transformed into a training booklet format using the Publisher program, printed in color. The booklet included the same information as the intervention group of patients exposed during discharge training.

Data Collection Tools

1. The demographic data collection form
2. Patient follow-up form [a patient follow-up form developed according to Gordon's (FHP)].

Development of the demographic data collection form

The data collection form developed by researchers according to the relevant literature included 14 questions (5,22). Questions related to the patient's age, gender, marital status, occupation, education level, family history of pilonidal sinus disease, duration of hospital stays after surgery, and type of anesthesia they received.

Development of the patient follow-up form

The researchers developed a patient follow-up form to evaluate the patients' situation after discharge which is underlined on 11 headings and 32 subheadings according to Gordon's FHP model the form included a total of 32 subheadings with 0-10 visual analog scale (VAS), yes/no questions, and open-ended questions (Gordon, 18). The forms were implemented in a group of five patients and their comprehension of the forms was assessed.

The procedure

All patients who were included in the study were informed of the purpose of it, and they were reassured that their privacy would be protected, and participation was voluntary. Each participant signed an "informed volunteer consent form," and reassurance was given that they could leave the study at any time if they want to. Demographic data was collected by the first researcher on the preoperative period using to face interview method.

Interventions group: The intervention group exposed to routine caring procedures as control group patients did. The discharge training was introduced to the patients using a tablet computer, and patients' questions were answered on the day of discharge (0th post-operative day). A total

discharge training lasted an average of 15-20 minutes for each patient in the intervention group.

Control group: Patients in the control group received standard nursing care and received verbal instruction on the day of discharge as a routine practice implemented in the hospital.

Patients in both groups were informed that they would be called by the researcher on the 1st, 7th, and 14th postoperative days, whereby their postoperative health condition and compliance with treatment would be evaluated according to Gordon's FHP. Patients in both groups (intervention and control groups) were called via phone on the previously specified days, and their responses were noted on the patient follow-up form. The phone calls made by the researcher lasted about 5-10 minutes.

Ethical Considerations

An Ethics Committee approval was obtained from Tekirdağ Namik Kemal University Non-Invasive Research Ethics Committee (number: 2018.146.10.11, date: 27.12.2018) and institutional permission from Provincial Health Directorate. All the patients received both written and verbal explanations of the purpose, expected benefit, and method of the study. An "informed consent form" was signed by all patients who participated in the study.

Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) 22.00 Program. Demographic data of the patients were presented in number, percentage, and mean standard deviation. Normality distribution was determined by Shapiro-Wilks test, chi-squared, and Mann-Whitney U tests were used for the statistical analysis. A p-value of less than 0.05 was considered statistically significant (23).

Results

Patients in the intervention and control groups were similar according to their demographic data (age, gender, education level, owing a job requires prolonged sitting, nutritional regimen, habit of wearing tight underwear, family history of pilonidal sinus disease, type of anesthesia received; $p > 0.05$). The mean age of patients in the intervention group was 24.42 ± 6.2 years, 68.6% were male, and 48.6% used to wear tight underwear. The mean age of patients in the control group was 24.85 ± 7.17 years, 57.1% were male, and 57.1% used to wear tight underwear (Table 1).

Table 2 represents the comparison of patients in the intervention and control groups categories related to "perception of health and health management" and "nutrition." Accordingly, no significant difference was found between the scores of patients in both groups according to preoperative days ($p > 0.05$). Health perception scores on the 1st postoperative day were higher in the intervention group

Table 1.
Comparison of Groups According to Demographic Variables (n=70)

Demographic variables	Intervention group	Control group	Significance
Age (mean ± SD)	24.42±6.2	24.85±7.17	U= 0.976, p>0.05
	n (%)	n (%)	X², p
Gender			
Female	11 (31.4)	15 (42.9)	X ² =0.322, p>0.05
Male	24 (68.6)	20 (57.1)	
Marital status			
Married	12 (34.3)	14 (40.0)	*X ² =0.502, p>0.05
Single	22 (62.9)	18 (51.4)	
Other	1 (2.9)	3 (8.6)	
Job/occupation			
Salaried employee	8 (22.9)	4 (11.4)	X ² =0.054, p>0.05
Own job	10 (28.6)	8 (22.9)	
Student	10 (28.6)	10 (28.6)	
Not working	4 (11.4)	13 (37.1)	
Other	3 (8.6)	0 (0.0)	
Income level			
Good	3 (8.60)	2 (5.70)	*X ² =0.750, p>0.05
Fair	19 (54.3)	22 (62.9)	
Bad	13 (37.1)	11 (31.4)	
Education level			
Elementary	12 (34.3)	11 (31.4)	*X ² =0.706, p>0.05
Middle school	9 (25.7)	10 (28.6)	
High school	8 (22.9)	11 (31.4)	
University	6 (17.1)	3 (8.60)	
Place of living			
Town	13 (37.1)	11 (31.4)	X ² =0.309, p>0.05
County	10 (28.6)	16 (45.7)	
City	12 (34.3)	8 (22.9)	
Owing a job requires prolonged sitting			
Yes	19 (54.3)	11 (31.4)	X ² =0.063, p>0.05
No	16 (45.7)	24 (68.6)	
Having a habit of wearing tight underwear/trousers			
Yes	17 (48.6)	20 (57.1)	X ² =0.473, p>0.05
No	18 (51.4)	15 (42.9)	
Type of nutrition			
Mainly carbohydrate	8 (22.9)	7 (20.0)	*X ² =0.646, p>0.05
Protein	6 (17.1)	10 (28.6)	
Fiber	4 (11.4)	5 (14.3)	
Fast food	17 (48.6)	13 (37.1)	
Smoking			
Yes	21 (60.0)	19 (54.3)	X ² =0.629, p>0.05
No	14 (40.0)	16 (45.7)	
Having an illness that requires taking medications regularly			
Yes	10 (28.6)	7 (20.0)	X ² =0.403, p>0.05
No	25 (71.4)	28 (80.0)	
Pilonidal sinus history in the family			
Yes	13 (37.2)	18 (51.4)	X ² =0.057, p>0.05
No	11 (31.4)	3 (8.60)	
Not aware	11 (31.4)	14 (40.0)	
Type of anesthesia received during surgery			
Spinal/epidural	23 (65.7)	28 (80.0)	X ² =0.179, p>0.05
Local	12 (34.3)	7 (20.0)	

*X²=Fisher's Exact test, X²=Pearson chi-square, SD=standard deviation, U=Mann-Whiney U, n=numbers, %=percentage

compared to control group their scores on postoperative days were insignificant ($p>0.05$). The intervention group had difficulty in showering on 1st postoperative day ($p=0.005$), this subsided on the following days dressing/undressing was compelling for the control group patients. The intervention group of patients reported that they have changed their nutrition regimen, and a significant difference was found on the 1st and 7th postoperative days ($p=0.020$; $p=0.015$). Fluid consumption was much higher in

the intervention group on the 7th and 14th postoperative days significantly ($p=0.02$; $p=0.000$) (Table 2).

Table 3 shows the comparison of patients in the intervention and control groups according to “excretion,” and “activity-exercise”. Intervention group patients did not experience constipation as much as control group patients on the 14th postoperative day ($p=0.040$). Pain/discomfort experienced during defecation was significant

Table 2.
Differences Between Groups on the Parameters of Health Perception and Management of Health and Nutrition

	Post-operative days			Sig. (intergroup)
	1 st day	7 th day	14 th day	
	Mean \pm SD n (%) intervention/control	Mean \pm SD n (%) intervention/control	Mean \pm SD n (%) intervention/control	
Health perception and health management				
How do you perceive your general health since surgery?				
0= Bad 10= Considerably good	4.9 \pm 2.5/4.8 \pm 2.8 NS	6.7 \pm 2.2/5.8 \pm 2.64 NS	8.2 \pm 1.6/6.7 \pm 3.0 NS	36.222, p=0.000 13.109, p=0.000
How do you feel in general since your surgery?				
0= Fairly bad 10= Considerably good	3.3 \pm 1.8/3.3 \pm 2.2 NS	5.8 \pm 2.3/4.8 \pm 2.8 NS	6.9 \pm 2.1/6.7 \pm 2.5 NS	41.828, p=0.000 42.135, p=0.000
Your knowledge level of when to seek medical help/call your physician				
0= Not sufficient 10= Considerably sufficient	7.3 \pm 2.3/3.2 \pm 2.3 U=137, p=0.000	7.3 \pm 2.2/3.1 \pm 2.6 NS	7.9 \pm 2.1/3.3 \pm 2.7 NS	10.212, p=0.000 0.06, $p=0.860$
The level of difficulty you experience during personal hygiene practices				
Taking a shower 0= Not at all 10= Considerable	8.5 \pm 1.8/7.3 \pm 1.8 U=380, p=0.005	6.1 \pm 2.2/6.9 \pm 2.5 U=352, p=0.002	3.7 \pm 2.3/5.3 \pm 2.8 U=264, p=0.000	52.777, p=0.000 55.513, p=0.000
Brushing your teeth 0= Not at all 10= Considerable	0.7 \pm 1.5/0.1 \pm 0.6 U=491, p=0.02	0.1 \pm 0.2/0.0 \pm 0.1 U=491, p=0.002	0.0 \pm 0.0/0.0 \pm 0.0 NS	2.565, $p=0.060$ 0.556, $p=0.520$
Care of feet 0= Not at all 10= Considerable	8.2 \pm 1.9/7.0 \pm 3.0 NS	7.1 \pm 2.3/6.2 \pm 3.0 NS	5.0 \pm 2.9/5.6 \pm 3.42 U=349, p=0.02	42.463, p=0.000 5.845, $p=0.540$
Dressing and undressing 0= Not at all 10= Considerable	7.4 \pm 1.8/6.9 \pm 2.7 NS	3.9 \pm 1.9/4.8 \pm 3.0 U=343, p=0.000	1.9 \pm 1.8/2.5 \pm 2.9 U=442, p=0.040	63.188, p=0.000 44.673, p=0.000
Knowledge level of practices you need to be careful of after your surgery				
0= Not sufficient 10= Considerably sufficient	7.3 \pm 2.0/3.2 \pm 2.4 U=128, p=0.000	7.5 \pm 2.3/2.4 \pm 2.1 U=462, p=0.001	7.6 \pm 2.3/2.6 \pm 2.4 U=444, p=0.003	2.191, $p=0.330$ 0.334, $p=0.360$
Nutrition and metabolic status				
Making any changes to a nutrition regimen				
Yes No	21 (60%) 8 (22.9%) 14 (40%) 27 (57.1%) X ² =9.95, p=0.020	19 (54.3%) 9 (25.7%) 16 (45.7%) 26 (74.3%) X ² =5.95, p=0.015	17 (48.6%) 10 (28.6%) 18 (51.4%) 25 (71.4%) NS	1.846, $p=0.397$ 0.333, $p=0.846$

Table 2.
Continued

	Post-operative days			Sig. (intergroup)
	1 st day	7 th day	14 th day	
	Mean ± SD n (%) intervention/control	Mean ± SD n (%) intervention/control	Mean ± SD n (%) intervention/control	
Difficulty in choosing which food to eat or not				
0= Not at all 10= Considerable	2.4±2.5/6.6±2.4 U=138, p=0.000	1.7±2.1/5.0±2.9 NS	1.6±1.8/4.1±3.3 NS	9.756, p=0.008 14.233, p=0.001
The amount of water consumed a day after your surgery				
0-10 glasses/day	8.0±2.7/7.4±2.5 NS	8.9±2.6/7.3±2.3 U=425, p=0.020	9.1±2.3/7.1±2.3 U=332, p=0.000	14.928, p=0.001 1.012, p=0.608
Having 3 main meals a day				
Yes	21 (60%) 19 (54.3%)	24 (68.6%) 17 (48.6%)	26 (74.3%) 19 (25.7%)	2.714, p=0.257 0.471, p=0.790
No	14 (40%) 16 (45.7%)	11 (31.4%) 18 (51.4%)	9 (54.3%) 16 (45.7%)	
	NS	NS	NS	
The main food group consumed in your meals after your surgery				
CHO	3 (8.6%) 14 (40.0%)	3 (8.6%) 11 (31.4%)	6 (17.1%) 6 (17.1%)	13.299, p=0.007 2.495, p=0.143
Liquid	19 (54.3%) 7 (20.0%)	13 (37.1%) 7 (20.0%)	9 (25.7%) 6 (17.1%)	
Fiber	3 (8.6%) 5 (14.3%)	8 (22.9%) 8 (22.9%)	3 (8.6%) 5 (14.3%)	
Vegetables + fruits	4 (11.4%) 3 (8.6%)	5 (14.3%) 3 (8.6%)	6 (17.1%) 13 (37.1%)	
Protein	6 (17.1%) 6 (17.1%) X ² =13.5, p=0.007	6 (17.1%) 6 (17.1%) NS	7 (20.0%) 9 (25.7%) NS	
*X ² =chi-squared, SD:=standard deviation, U=Mann-Whitney U, Sig.=significance, NS=not significant, CHO=carbohydrate				

in the control group on the 14th postoperative day (p=0.020). Having difficulty cleaning the perineal area after defecation was significant on the 1st postoperative day (p=0.040), it was a challenging experience for the control group. The comparison of groups was significant in activity- exercise category. Feeling tired was more specific in the intervention group (p=0.009, Table 3).

Table 4 shows the comparison of both groups according to “sleep-rest”, “cognitive perception”, and “self-perception-self-esteem”. Patients in the control group were more concerned about their position during sleeping (p=0.000). There was a difference in the pain intensity of patients in the intervention group on the first postoperative day (p=0.000). Weakness/powerlessness in the control group on the 7th (p=0.030) and 14th postoperative days (p=0.000) was significant (Table 3).

Table 4 compares the groups according to “role and relationships”, “sexuality and reproduction”, “coping and stress”, and “values and beliefs”. Accordingly, there was no significant difference between the groups on all postoperative days in terms of role and relationships (p>0.05). However, comparisons of the two groups were significant. These results were the same for the sexuality and reproduction category. Patients in the intervention group were more successful in coping with stress on 1st post-operative day, whereas there was no significant difference between the groups on the other days (p>0.05).

No statistically significant difference was found between the groups on the postoperative days in the values-beliefs category (p>0.05) Table 4 and 5.

Discussion

Perception of health and health management

A qualitative study that examined patient experiences of living with a wound healing by secondary intention with the pilonidal disease described the outcomes as shock, disbelief, harming daily life, and deterioration in physical-psychosocial functioning wellbeing. In addition, feelings of frustration, powerlessness, and guilt were common (24). Although discharge education did not have any influence on the physical functions of the patients in Aşkın et al. (25) study, the present study determined that patients' postoperative health perceptions in both groups were low on the 1st postoperative day and significantly increased on the following days. However, the difference between the groups was not significant on postoperative days. The intervention group's perception of health was better, this could be the fact of feeling better and more confident after discharge training. Being free of some discomfort due to pilonidal sinus disease might have caused some relief as well.

Intervention group patients were aware of situations that require medical assistance on the first postoperative day.

Table 3. Differences Between Groups on the Parameters of Excretion and Activity-exercises				
	Post-operative days			
	1st day	7th day	14th day	Sig. (intergroup)
	n (%) Mean ± SD intervention/control	n (%) Mean ± SD intervention/control	n (%) Mean ± SD intervention/control	Intervention control
Excretion				
Having constipation after surgery				
Yes	24 (68.6%)	14 (40%)	4 (11.4%)	31.885, p=0.000 35.658, p=0.003
No	11 (31.4%)	21 (60%)	31 (88.6%)	
	NS	NS	X ² =4.15, p=0.04	
Having diarrhea after surgery				
Yes	3 (8.6%)	6 (17.1%)	6 (17.1%)	1.636, p=0.441 0.400, p=0.819
No	9 (25.7%)	7 (20%)	9 (25.7%)	
	32 (91.4%)	29 (82.9%)	29 (82.9%)	
Having pain/feeling uncomfortable during defecation after surgery				
Yes	29 (82.9%)	21 (60%)	10 (28.6%)	17.613, p=0.000 1.300, p=0.522
No	27 (77.1%)	24 (68.6%)	23 (65.7%)	
	6 (17.1%)	14 (40%)	25 (71.4%)	
	8 (22.9%)	11 (31.4%)	12 (34.3%)	
	NS	NS	X ² =9.68, p=0.020	
Knowledge of cleaning the perianal area after the surgery				
Yes	28 (80%)	32 (91.4%)	31 (88.6%)	6.500, p=0.032 0.286, p=0.867
No	13 (37.1%)	14 (40%)	12 (65.7%)	
	7 (20%)	3 (9.6%)	4 (11.4%)	
	X ² =13.24, p=0.000	X ² =20.54, p=0.000	X ² =21.76, p=0.000	
Difficulty in cleaning the perianal area after the surgery				
0= None	5.9±2.2/6.8±3.0	4.0±2.7/5.9±3.5	2.6±2.8/3.9±3.6	34.937, p=0.000 21.475, p=0.000
10= Considerable	U=445, p=0.040	NS	NS	
Activity-exercise				
Felling of tiredness after surgery				
0= None	6.9±2.7/5.7±2.9	4.4±2.8/3.5±2.9	2.2±2.3/1.5±1.4	42.448, p=0.000 45.712, p=0.000
10= Considerable	U=469, p=0.009	NS	NS	
The affection of activities due to surgery				
Sitting/standing				
0= None	8.0±2.1/7.6±2.5	6.3±2.3/5.6±2.5	4.6±3.1/4.4±2.7	35.961, p=0.000 40.212, p=0.000
10= Considerable	NS	NS	NS	
Walking				
0= None	7.6±1.9/6.5±2.3	5.7±2.5/4.8±2.9	3.7±2.8/3.6±3.2	54.121, p=0.000 32.574, p=0.000
10= Considerable	NS	NS	NS	
Climbing up and coming downstairs				
0= None	8.6±1.8/8.2±2.3	7.0±2.5/5.7±3.0	5.9±2.8/4.6±3.1	37.523, p=0.000 34.929, p=0.000
10= Considerable	NS	NS	NS	
Using public transportation				
0= None	7.3±3.4/7.0±3.1	5.7±3.4/5.8±2.9	3.8±3.2/4.1±3.2	39.747, p=0.001 33.327, p=0.000
10= Considerable	NS	NS	NS	
Driving your car				
0= None	7.8±4.3/8.8±1.45	6.3±3.9/8.3±2.1	5.3±3.6/6.5±2.4	16.595, p=0.000 14.381, p=0.010
10= Considerable	NS	NS	NS	
*X ² =chi-squared, SD=standard deviation, U=Mann-Whitney U, Sig.=significance, NS=not significant				

Table 4.
Differences Between Groups on the Parameters of Sleep-rest, Cognitive-perception, and Self Respect

	Postoperative days			Sig. (intergroup)
	1 st day	7 th day	14 th day	
	Mean ± SD n (%) intervention/control	Mean ± SD n (%) intervention/control	Mean ± SD n (%) intervention/control	
Sleep and rest				
Having concerns about which position to sleep				
0= None 10= Considerable	2.5±2.8/6.6±2.7 U=186, p=0.000	1.7±2.5/5.7±2.6 U=530, p=0.000	1.5±2.4/3.7±2.7 U=368, p=0.000	4.651, p=0.098 30.100, p=0.000
Change in sleep patterns				
0=None 10= Considerable	4.9±3.5/6.3±2.8 NS	3.3±3.0/3.1±3.0 NS	2.0±2.9/2.1±2.5 NS	15.836, p=0.000 35.078, p=0.000
Cognitive-perception				
Degree of pain right now				
0= None 10= Considerable	3.3±1.8/5.3±2.8 U=401, p=0.000	2.6±2.2/3.5±2.5 NS	1.0±1.4/1.9±1.7 NS	19.812, p=0.000 34.084, p=0.000
Any intervention you have done to relieve your pain				
Yes No	21 (60%)/12 (34.3%) 14 (40%)/23 (65.7%) X ² =4.64, p=0.030	21 (60%)/14 (40%) 14 (40%)/21 (60%) X ² =5.75, p=0.010	11 (31.4%)/13 (37.1%) 24 (68.6%)/22 (62.9%) NS	11.111, p=0.040 0.375, p=0.890
Self perception and self esteem				
Degree of weakness/powerlessness after surgery				
0= None 10= Considerable	6.4±2.6/6.1±3.0 NS	4.0±2.6/5.5±2.5 U=431, p=0.030	1.3±1.7/3.5±2.5 U=317, p=0.000	52.111, p=0.000 0.975, p=0.000
*X ² =chi-squared, SD=standard deviation, U=Mann-Whitney U, Sig.=significance, NS=not significant				

This may result from the patients receiving relevant information on the related subject during their visits to the outpatient clinic for dressing changes. Although showering was challenging for patients in both groups on all postoperative days, the intervention group faced some difficulties on the first postoperative day which decreased over time consequently. Patients in the intervention group may have uneasiness on the first postoperative day due to discharge training. Although education usually forces patients to act attentively it might as well cause stress.

Some difficulties experienced by the intervention group in oral care/brushing teeth 1st and 7th day postoperatively. As patients in the control group did not receive any special training, they were considered to have difficulties in dressing-undressing (7th and 14th postoperative days) and foot care (14th postoperative day). Patients in the intervention group had a better understanding of issues that need consideration postoperatively, which may be due to the discharge training implemented. Kara and Andsoy (5) observed that 97.1% of the patients who were exposed to discharge education intently cared about their surgical area while this rate was low in the uneducated group (57.1%).

Nutrition and metabolic status

Intervention group patients resumed diet changes on postoperative days. In the first post-operative day control group, patients had some difficulties in selecting the foods they should consume, but this situation disappeared in the following days. This result could be obtaining information from different sources (e.g., surgeons, the internet, or peers) in the following days. Fluid consumption was similar in both groups on the first postoperative day, but patients in the intervention group were more careful on this subject in the following days. This result could be linked to discharge training implemented in the intervention group. This result is also relevant to the main foods selected for meals. Kara and Andsoy (5) also reported that almost all patients (90%) who were, informed before the surgery consumed sufficient fluid.

Excretion

There was no significant difference between the groups in experiencing constipation on the 1st and 7th days postoperatively. Patients in the control group had constipation on the 14th postoperative day which was significant. Patients in the intervention group were more intense in fluid intake and diet regulations, as well as food selection. Having diarrhea in the postoperative period was

not significant, and this was considered favorable. Keeping the perianal area clean after defecation requires attention after pilonidal surgery. Specifically, personal hygiene and increasing bathing frequency, ensuring wound care after surgery are substantial practices. Patients in the intervention group were more aware of perianal cleaning while control group patients reported difficulty on the first day but subsided in the following days as they learned to do some implementations by trial and error as time progresses. A study done with 841 patients who underwent pilonidal sinus

surgery reported that patients had difficulty during voiding and/or defecation since remaining in a sitting position was compelling (9). There was a significant difference between the groups on the 14th postoperative day in terms of having pain/discomfort during defecation in this study This may be due to the influence of discharge training introduced.

Activity-exercise

Primary closure of chronic pilonidal sinus allows patients early return to their activities, it also has a low recurrence

Table 5. Differences Between Groups on the Parameters of Role and Relationships, Sexuality and Reproduction, Copying and Stress Values and Beliefs				
	Post-operative days			Sig. (intergroup)
	1st day	7th day	14th day	
	Mean ± SD n (%) intervention/control	Mean ± SD n (%) intervention/control	Mean ± SD n (%) intervention/control	Intervention control
Role and relationships				
The affection of roles in the family due to surgery				
0= None 10= Considerable	6.6±3.2/6.2±3.0 NS	5.4±3.2/5.9±3.1 NS	4.4±3.3/4.5±2.9 NS	15.228, p=0.000 20.388, p=0.000
The affection of relationships with friends and family due to surgery				
0= None 10= Considerable	4.9±3.2/4.0±2.8 NS	3.2±3.4/3.1±2.5 NS	1.4±2.5/1.8±2.4 NS	31.750, p=0.000 31.952, p=0.000
The affection of relationships with spouse/friend due to surgery				
0= None 10= Considerable	5.1±3.5/5.4±3.3 NS	4.0±3.5/5.0±3.0 NS	3.0±3.4/3.0±2.8 NS	14.273, p=0.001 24.146, p=0.000
Having difficulty starting school/work again due to surgery				
0= None 10= Considerable	7.2±3.2/6.9±2.9 NS	6.2±3.1/5.5±2.9 NS	5.0±3.0/3.9±3.2 NS	28.714, p=0.000 32.209, p=0.000
Difficulty experienced in talking about the current health problem to others				
0=None 10= Considerable	5.0±3.4/4.3±3.1 NS	3.8±3.1/3.3±2.8 NS	2.9±3.3/2.1±2.3 NS	14.824, p=0.001 33.857, p=0.000
Sexuality and reproduction				
Difficulty in the perception of his/her body				
0= None 10= Considerable	4.6±3.7/4.5±3.4 NS	3.9±3.7/3.8±3.1 NS	3.2±3.6/3.4±2.9 NS	9.443, p=0.009 7.000, p=0.030
The affection of sexual life				
0= None 10= Considerable	4.4±4.3/4.4±4.0 NS	3.6±3.9/4.1±3.8 NS	3.0±3.6/3.7±3.8 NS	16.42, p=0.000 4.255, p=0.119
Coping and stress				
Extend help coping strategies used with stressful situations				
0= None 10= Considerable	4.6±3.1/3.1±2.8 U=441, p=0.040	5.1±3.7/4.1±2.9 NS	6.4±3.4/7.8±6.3 NS	16.000, p=0.000 18.231, p=0.000
Values and beliefs				
Having difficulty fulfilling religious duties				
0= None 10= Considerable	5.5±4.0/5.3±3.5 NS	4.9±3.7/4.2±3.1 NS	4.0±3.6/2.6±2.3 NS	12.610, p=0.002 12.614, p=0.002

*X²=chi-squared, SD=standard deviation, U=Mann-Whitney U, Sig.=significance, NS=not significant

rate (26). Fatigue scores of patients in both groups decreased significantly in the following days during this study. Fatigue severity on the first postoperative day was significant, where patients in the intervention group reported being tired. This result may be the result of patients' characteristics and/or their expectations Stewart et al. (16), determined that most of the patients experienced both losses of control and weakness. Patients started to resume their-daily living activities 3 weeks after the surgery, and the body weight of male patients increased due to lack of exercise after surgery. In this study, there was no significant difference between the groups in other parameters related to activity exercise (walking, climbing up and down stairs, getting on public transport, driving their vehicles). In a study comparing patients who underwent phenol administration and surgical intervention, the phenol-administered group experienced less postoperative pain and rapid epithelization. In the same study, 85.4% of patients in the excision group returned to their daily activities two weeks after the surgery (26). Çağlayan et al. (27), compared patients with primary closure and Limberg flap surgery and reported that resuming daily activities (walking without pain, remaining in the comfortable position during voiding/defecation, and going back to work) was faster in patients with Limberg flap.

Sleep-rest

In the present study, the intervention group's concerns were lower on which position to retain during sleeping. Patients in both groups had great concerns about maintaining the right sleeping position on the first postoperative day, which decreased in the following days. This difference could be a positive outcome of discharge training in reducing patients' anxiety in the intervention group. Kara and Andsoy (5) reported that patients who were exposed to education (94.3%) and the ones who did not receive any discharge education (88.6%) were careful not to lie in the surgical area.

Cognitive perception

Pain can occur in the surgical area for a few days after the operation because of nociceptors. Demiryas Donmez (9) reported that patients' pain scores seven days after pilonidal sinus surgery ranged between 1-3 in 94.8% of the patients, and between 4-6 in 5.2% according to the (VAS 0-10). Patients usually report pain during dressing changes after surgery (9,28).

In addition to the analgesic effect of medications taken, patients should be informed on practices that are important in pain management before discharge from the hospital. The present study shows that pain severity in the control group is the higher first postoperative day and pain intensity was higher in the control group on all postoperative days although the result is statistically insignificant. Patients in the intervention group may have benefited from methods thought them to cope with pain during discharge training and helped them during recovery.

Self-perception and self-esteem

McCaughan et al. (24) have argued that surgical wounds affect the psychological well-being of patients. In the present study, patients in both groups had similar self-perception in the first interview; however, mean scores of the self-perception subheadings decreased in the control group on the following days and they continued to perceive themselves as powerless. This result could be linked to training introduced to patients in the intervention group, or due to the personality traits of this sample.

Role and relationships

Embarrassment was reported as low among pilonidal surgery patients which decreased over time (29). In this study, no significant difference was found between the groups on postoperative days regarding their role and relationships, talking about their current health problem. The mean scores decreased gradually after the first postoperative day in both groups which is considered a positive development in the patients' roles and relationships as they started to return to their daily lives.

Sexuality and reproduction

Concerns about sexuality and reproduction may be related to the nature of the surgery experienced however it is not seen as a significant determinant of patients either before or after surgery. A significant reduction in sexual dysfunction 6 and 12 weeks after surgery compared to preoperatively was reported (26). In this study, patients did experience some difficulty with self-perception, and affection for sexual life was moderate postoperatively, although results were statistically insignificant. This result may be because patients in both groups might have had less concerns on sexuality and reproduction as they recovered and felt better. Since sexuality and reproduction are very hard topics to discuss by patients, they may have acted reluctant on speaking about sexuality as well (30).

Coping and stress

Rudd et al. (31), stated in pilonidal sinus surgery, patients experience stress (in this study, there was a significant difference in the efficacy of patients' coping methods in both groups, only on the 1st postoperative day. The intervention group may have used effective coping strategies during recovery, and this could be related to discharge training.

Values and beliefs

Patients' beliefs facilitate their adaptation to both the disease and the postoperative period. In some cases, not being able to fulfill the requirements of religious beliefs due to surgery can cause some burden on patients (Nolan, 32). In this study, there was no significant difference between the groups in terms of values and beliefs pattern on postoperative days, although comparisons of groups were significant.

Conclusion

Parameters of health perception/health management, nutrition, excretion, sleep and rest, cognitive perception, self-perception-self-esteem patterns were influenced by discharge education. The planned discharge training based on Gordon's FHP patient follow-up form developed according to this model was an effective intervention in patients who underwent pilonidal sinus surgery.

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ORIGINAL ARTICLE

The Effect of Using Musical and Lighted Baby Crib Mobile on Newborns' Pain and Stress During Blood Draw; Randomized Controlled Trial

Işıklı Müzikli Dönencenin Yenidoğanlarda Kan Alma Sırasında Oluşan Ağrı ve Strese Olan Etkisi; Randozize Kontrollü Bir Çalışma

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Abstract

Objective: Newborns may experience pain and stress during blood draw procedures, and when these adverse reactions are not managed, they can lead to both physiological and psychological consequences. To evaluate the effect of using musical and lighted baby crib mobile on newborns' pain and stress during blood draw.

Method: A parallel-group and randomized controlled methodology was employed in this research. The study involved 60 newborns and their caregivers. Data were collected through the "newborn information form" and the "ALPS-neo pain and stress assessment scale".

Results: There is no statistically significant difference between the average pain and stress scores stated by parents and nurses for newborns ($p>0.05$) during the blood draw (intervention group= 9.20 ± 1.94 ; control group= 9.33 ± 2.17) and after the blood draw (intervention group= 9.18 ± 2.01 ; control group= $9.10\pm$). The average pain and stress scores stated by the parents and the nurse for the newborns in the intervention and control groups were compatible with each other ($p>0.05$).

Conclusion: It was revealed that the musical and lighted baby crib mobile was not effective in reducing newborn's pain and stress during blood draw. A scientifically grounded clinical investigation is advised to ascertain the impact of newborn crib mobiles on newborns' pain and stress levels.

Keywords: Pain, crib mobile, nursing management, needle intervention, stress, non-pharmacological intervention

Öz

Amaç: Yenidoğanlar, kan alma işlemi sırasında ağrı ve stresle karşılaşabilirler, bu olumsuz tepkiler yönetilemediğinde hem fizyolojik hem de psikolojik sonuçlara neden olabilmektedir. Işıklı ve müzikli dönencenin yenidoğanlarda kan alma işlemi sırasında oluşan ağrı ve strese olan etkisini incelemektir.

Yöntem: Bu çalışma paralel grup ve randozize kontrollü tasarımda gerçekleştirilmiştir. Araştırma 60 yenidoğan ve ebeveyn ile yürütüldü. Veriler "bilgi formu" ve "ALPS-neo ağrı ve stres değerlendirme ölçeği" kullanılarak toplandı.

Bulgular: Kan alımı sırasında (müdahale grubu= $9,20\pm 1,94$; kontrol grubu= $9,33\pm 2,17$) ve kan alımı sonrasında (müdahale grubu= $9,18\pm 2,01$; kontrol grubu= $9,10\pm$) ebeveynlerin ve hemşirenin yenidoğanlar için belirttiği ağrı ve stres puan ortalamaları arasında istatistiksel olarak anlamlı bir fark yoktur ($p>0,05$). Müdahale ve kontrol grubundaki ebeveynlerin ve hemşirenin yenidoğanlar için belirttiği ağrı ve stres puan ortalamaları birbiri ile uyumlu idi ($p>0,05$).

Sonuç: Müzikli ve ışıklı dönencenin yenidoğanlarda kan alma sırasındaki ağrı ve stresi azaltmada etkili olmadığı ortaya çıktı. Dönencenin yenidoğanlardaki ağrı ve stres üzerindeki etkisini belirlemek için kanıta dayalı klinik çalışmaların yapılması önerilmektedir.

Anahtar Kelimeler: Ağrı, dönence, hemşirelik yönetimi, iğneli işlem, stres, non-farmakolojik girişim

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Introduction

Newborns are exposed to needle procedures after birth, such as vitamin K injection, hepatitis B vaccine, screenings, and routine immunization (1). During the process, it may be necessary to repeat the procedures and take a blood sample according to the baby's condition (2). These are painful procedures for the newborn and cause stress for the baby during the procedure; they can also cause neurocognitive, physiological, metabolic, and behavioral problems (3-6). Experienced pain can negatively affect the newborn's future painful reaction (7). Therefore, poor pain management during procedures causes the newborn to suffer pain and to be exposed to short-term and long-term adverse effects (8).

The International Neuropsychiatric Pain Group and the American Academy of Pediatrics strongly recommend minimizing pain in newborns during procedures and prioritizes the use of non-pharmacological methods as the initial approach for pain management (9-11). Non-pharmacological methods aiming to provide analgesic effects during painful procedures by creating a relaxing environment are important because they do not have side effects (5,12,13). Breastfeeding (14), skin-to-skin contact (15), swaddling, music therapy, oral glucose (5), and pacifier use (16) are some of the non-pharmacological methods with proven pain-reducing effects in newborns.

Music therapy, a non-pharmacological method widely used in newborns, is a popular distraction method that reduces the perception of pain (17). In the study of Tang et al. (18) with premature newborns, it was found that the application of music therapy during central venous catheter placement reduced physiological and behavioral reactions. The study conducted by Ozdemir and Tüfekci (19) with 120 healthy newborns found that the presence of musical baby crib mobile in the vaccination rooms reduces newborns' pain levels and crying times. Similarly, different studies report positive results of listening/singing lullabies to babies during painful procedures (20,21). Although all these methods are simple, effective, and applicable (2,22), it is known that the rate of use of non-pharmacological methods in neonatal pain management is low in the world and our country (1,2,23,24). Nurses are responsible for managing pain by using various methods and preventing its negative effects on newborns (2,25).

Radesky and Christakis (26) stated that toys with sounds, lights, and different features effectively direct newborns' attention. For this reason, it is predicted that the baby

crib mobile, which combines these three features that will attract the attention of newborns, can be used as a distraction during needle interventions and can be effective in reducing pain and stress. There is, however, a gap in the available research on this subject. The purpose of this study was to address current limitations and provide practical knowledge for nursing care. The primary objective was to investigate the effect of using a musical and lighted baby crib mobile on babies' pain and stress during blood draws.

Material and Methods

This study was registered under clinical trials registry with registration number: NCT06428929.

Study Hypotheses

Hypothesis 1 (H1): During the blood draw, the musical and lighted baby crib mobile groups was effective in decreasing newborns' pain level.

Hypothesis 2 (H2): During the blood draw, the musical and lighted baby crib mobile groups was effective in decreasing newborns' stress level.

Study Design

The research utilized a parallel group design, involving an intervention group and a control group, and followed a randomized controlled experimental approach. The study's design and implementation adhered to the guidelines and principles specified in the consolidated standards of reporting trials checklist, as illustrated in Figure 1.

Study Sample

The study population comprised term newborns aged 0-28 days and their parents who applied the blood collection unit at a university hospital between January 2022 and July 2022.

No previous research has been identified that specifically examines the impact of utilizing a musical and lighted baby crib mobile on pain and stress experienced by newborns during blood draws. Therefore, aiming for a medium effect size (d : 0.60), a power of 80% ($1-\beta$ error), and a confidence level of 95% (α error), the sample size for each group was determined to be 36 newborns using G*Power 3.1.9.4. The sample size was increased by 10% to account for potential dropouts. Thus, the objective was to include a total of 80 newborns, with 40 newborns allocated to each group.

Inclusion criteria: Born between 38-42 weeks, being 0-28 days, absence of visual and auditory problems, not using any pain reliever or sedative medication in the last four hours, parents' willingness to participate in the study, parents' knowledge of Turkish, and parents' ability to read and write.

Exclusion criteria: Having a preterm birth, having a disease that causes chronic pain, having visual or auditory problems, and using any pain or sedative medication in the last four hours.

Main Points

- Blood draw procedure is a painful and stressful intervention for newborns.
- Distraction methods are an effective technic to increase physiological and psychological well-being.
- Musical and lighted baby crib mobile is distracted newborns with sound and light
- This study findings showed that musical and lighted baby crib mobile not effective to reduce newborn's pain and stress.

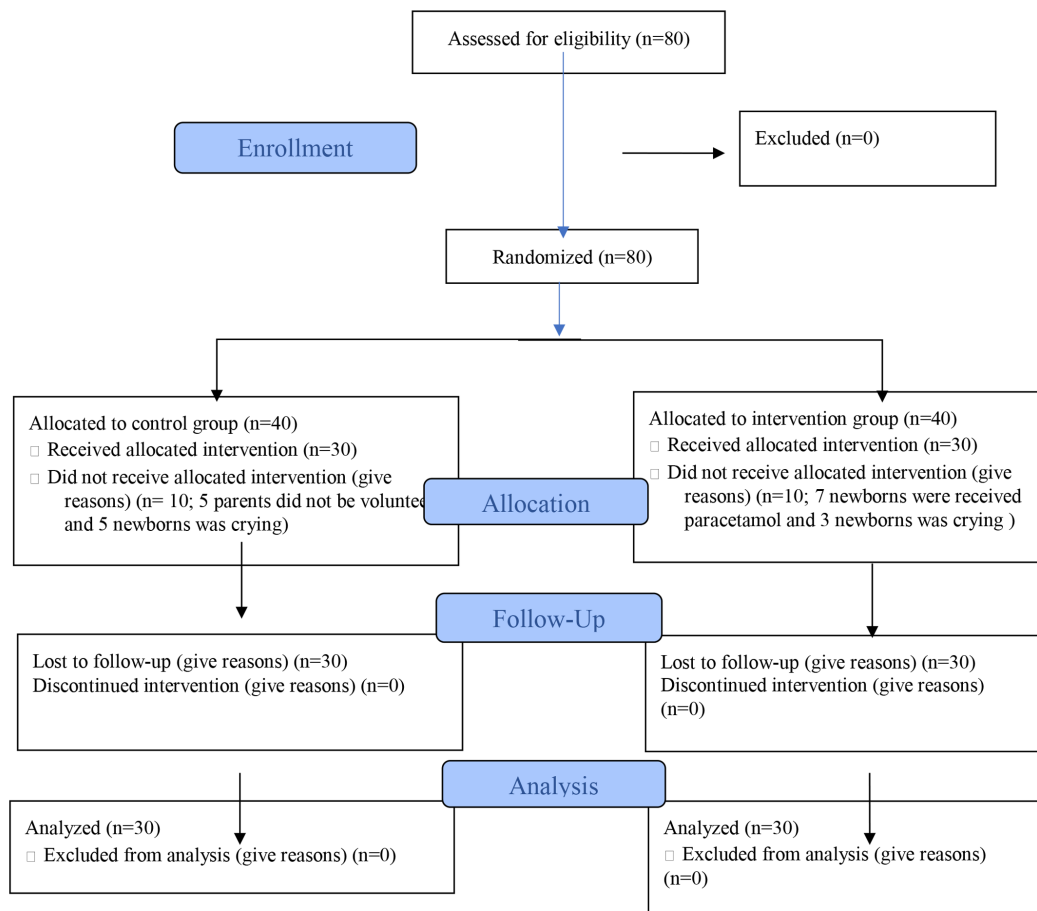


Figure 1.
CONSORT flowchart

Randomization

Newborns were assigned randomly to either the musical and lighted baby crib mobile (intervention) group, consisting of 40 newborns, or the control group, also comprising 40 newborns. The random assignment was conducted using a computer program (www.randomizer.org). Newborns whose parents did not meet the study criteria or declined to participate in the randomization process were not included in the study. Both parents and researchers were aware of the group assignments and therefore could not be blinded. The inclusion of newborns in the study was based on their adherence to the predefined inclusion criteria, following the sequential order of their admission to the hospital. However, 10 children from the control group (5 parents did not volunteer, and 5 newborns were crying) and 10 children from the intervention group (7 newborns received paracetamol, and 3 newborns were crying) were excluded from the study. Consequently, the research was completed with a total of 60 newborns. A post-hoc analysis was conducted, revealing an effect size of $d=0.06$, an alpha error probability (α err prob) of 0.05, and a sample size that achieved 80% power.

Data Collection Tools

The data collection process involved the utilization of two instruments: The “newborn information form” and the “ALPS-Neo pain and stress assessment scale”. These tools were employed to gather relevant data during the study.

Newborn information form: The “newborn information form” was specifically developed by the researchers and comprised seven questions (16-18). These questions aimed to gather descriptive characteristics of the newborns, including their age, gender, prior experience with needle attempts, and the number of needle attempts they had undergone. The form served to collect pertinent information regarding the participants’ background and experiences related to the study.

ALPS-neo pain and stress assessment scale: The scale was originally developed to assess the levels of pain and stress experienced by newborns, including both premature and full-term newborns (27). A validity and reliability study of the scale specifically for the Turkish population was subsequently conducted by Ceylan and Bolışık (28). The scale employs a 3-point Likert-type format and consists of

five items: Newborn's facial expression, breathing pattern, tone of extremities, hand and foot activities, and activity level. Observational assessments are used to evaluate these items. Increased scores on the scale reflect elevated levels of stress and pain perceived by the newborns. According to the scale, scores ranging from 3 to 5 indicate mild pain and stress, while scores above 5 indicate severe pain and stress. The scale is used as a standardized tool to assess and quantify the newborns' pain and stress levels during the study. Cronbach's alpha coefficient was between 0.70-0.81. In this study Cronbach's alpha coefficient was between 0.90-0.95.

The musical and lighted baby crib mobile: It measures 43.5x33x9.5 cm and is made of plastic. It is recommended for use in newborns 0-12 months. It has music that makes it easier for babies to fall asleep by reducing stress. This baby mobile has a projection and music function. In addition, the mobile has a 360° flexible swivel bracket that can be adjusted as desired. The surface of the apparatus of the mobile, which is designed to be environmentally and baby friendly, is smooth. There are four rattles on the mobile (Figure 2).

Study Protocol

Standard blood draws procedure: In the blood collection unit where the research took place, healthcare professionals do not regularly employ pharmacological or non-pharmacological methods to alleviate the discomfort and anxiety arising from needle procedures in newborns. Instead, they rely on customary practices such as having family members present and providing positive encouragement. The nurse (H) in charge of the blood collection unit informs the parents about the procedure and then performs the needle interventions.

Intervention group: Prior to the procedure, the researcher (R) provided detailed information about the study procedure and its purpose to the parents of the newborns assigned to the musical and lighted baby crib mobile group. To prevent any contamination or potential harm

to the newborns, the mobile was securely positioned 60 cm above the newborn's eye level. Once the parents were informed and had given their written consent, a face-to-face interview was conducted to collect data using the "newborn information form". Subsequently, the musical and lighted baby crib mobile was activated. Exactly one minute after the activation of the mobile, a nurse (H) proceeded with the blood draw. Both parents and nurses were instructed to closely observe the newborn's behavior throughout the procedure and immediately afterward, aiming to assess the level of pain and stress experienced by the child. Right after the completion of the procedure (after the needle was removed from the vein and a tampon was placed to stop bleeding, approximately one minute after the procedure), the nurse and parents were asked to mark the highest level of pain and stress observed in the baby using the "ALPS-Neo pain and stress rating scale".

Control group: The newborns in the control group received standard care from the unit. No pharmacological or non-pharmacological pain-reducing methods were utilized, except for allowing the presence of parents with the newborns. Both parents and nurses were instructed to closely observe the newborn's behavior during and immediately after the procedure to assess the levels of pain and stress experienced by the child. After the procedure, the nurse and parents were requested to identify the peak levels of pain and stress observed in the baby during and immediately after the procedure. This assessment was made specifically after removing the needle from the vein and applying a tampon to stop bleeding, which occurred approximately one minute after the procedure. This assessment was done using the "ALPS-Neo pain and stress rating scale".

Statistical Analysis

The data analysis was performed using the IBM SPSS software, a licensed package for Windows, specifically designed for statistical analysis (IBM 28). Various statistical measures were employed to analyze the descriptive data, including mean, standard deviation,

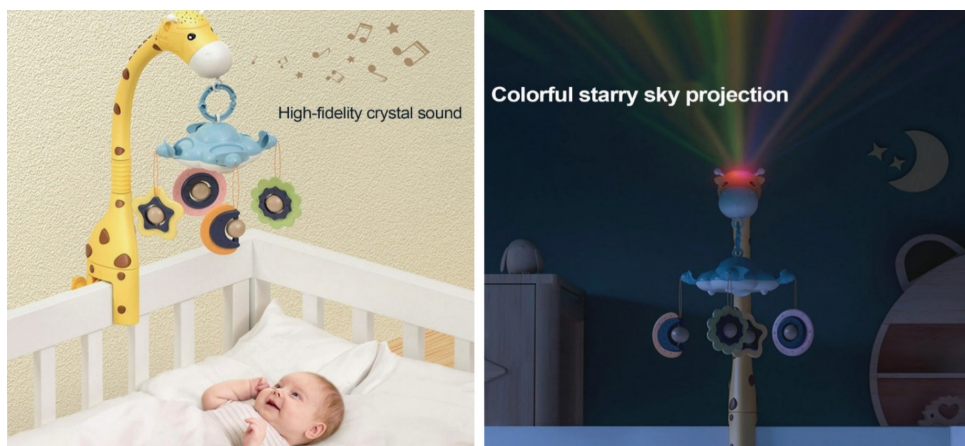


Figure 2.
The musical and lighted baby crib mobile

frequency, and percentage distributions. These statistics provided a comprehensive understanding of the data's central tendency, variability, and distribution. The normal distribution of the mean scores obtained from the ALPS-neo pain and stress assessment scale was assessed using the Shapiro-Wilk-W test. The Pearson chi-square test and Mann-Whitney U test were employed to compare the socio-demographic characteristics of the newborns in the two groups. The Mann-Whitney U test and Wilcoxon signed-rank test were used to compare the mean scores on the ALPS-neo pain and stress assessment scale between the two groups. The significance level was set at $p < 0.05$, and the results were evaluated at a 95% confidence interval.

Results

Table 1 presents the distribution of descriptive characteristics among the newborns based on the groups. The distribution of newborns' age, weight, height, gender, previous experiences of needle intervention, number of needle interventions experienced, and the presence of chronic diseases were homogeneous across the intervention and control group ($p > 0.05$).

The distribution of the ALPS-neo pain and stress assessment scale scores, as reported by both parents and nurses, is presented in Table 2. Based on the parent's report during the blood draw intervention, the mean ALPS-neo pain and stress assessment scale score for the intervention group was 9.20 ± 1.94 , while for the control group, it was 9.33 ± 2.17 .

However, according to the parent's report, the two groups had no statistical difference ($t = 422.500$, $p = 0.491$). Similarly, based on the nurse's report, the mean ALPS-neo pain and stress assessment scale score for the intervention group was 9.18 ± 2.01 , whereas for the control group, it was 9.10 ± 2.31 . Additionally, there was no statistical difference between the intervention and control groups according to the nurse's report ($t = 449.500$, $p = 0.991$). Furthermore, a comparison between the nurse's and parent's reports did not reveal a significant difference. The nurse's and parent's reports were similar ($p > 0.05$), indicating agreement between the two assessment sources.

Following the blood draw intervention, according to the parent's report, the mean ALPS-neo pain and stress assessment scale score for the intervention group was 8.57 ± 2.11 , whereas for the control group it was 8.26 ± 2.65 . However, the two groups had no statistical difference based on the parent's report ($t = 413.500$, $p = 0.546$). Similarly, based on the nurse's report, the mean ALPS-neo pain and stress assessment scale score for the intervention group was 8.53 ± 2.04 , while for the control group it was 8.07 ± 2.69 . Again, there was no statistically difference among intervention and control groups according to the nurse's report ($t = 408.000$, $p = 0.496$). Furthermore, when comparing the nurse's and parent's reports, no significant difference was found. The nurse's and parent's reports were similar ($p > 0.05$), indicating agreement between the two assessment sources.

Table 1.
The Descriptive Characteristics of the Newborns by Groups

Variables	Intervention group n=30		Control group n=30		Test	p
	Mean \pm SD		Mean \pm SD			
Age	17.67 \pm 8.20		16.17 \pm 7.64		407.000	0.524**
Weight	3171.50 \pm 713.64		3492.33 \pm 568.32		336.000	0.092**
Height	50.13 \pm 2.09		50.83 \pm 2.39		328.500	0.068**
Gender	n	%	n	%	1.067	0.302*
Girl	13	43.3	17	56.7		
Boys	17	56.7	13	43.3		
Experiences of the needle intervention						
Yes	29	96.7	26	86.7	1.964	0.161*
No	1	3.3	4	13.3		
Number of needle intervention experiences						
1 time	1	3.3	3	10.0	1.667	0.435*
2 times	4	13.3	2	6.7		
3 times and more	25	83.3	25	83.3		
Status of chronic diseases						
Yes	1	3.3	2	6.7	3.018	0.221*
No	29	96.7	28	93.3		

*=chi-square test, **=Mann-Whitney U test, SD=standard deviation

Discussion

The distraction strategy is a valuable treatment approach often employed by nurses to modify the environment and promote overall health and well-being (17). Within the realm of distraction techniques, music therapy stands out as a particularly promising avenue. Research suggests that music therapy can yield notable improvements in both behavioral and physiological indicators. These improvements include reductions in heart rate, respiration rate, blood pressure, oxygen levels, and muscle tension (29). The American Music Therapy Association defines music therapy as the evidence-based utilization of music interventions within a therapeutic relationship, aimed at addressing individualized goals. This therapeutic approach encompasses various modalities, including vocals and instruments, to address a wide range of physical and psychological conditions (30). The primary objective of this study was to explore the potential benefits of utilizing a musical and lighted baby crib mobile in alleviating pain and stress experienced by newborns during blood draws. However, the study's findings yielded unexpected results, as they did not support the effectiveness of the musical and lighted baby crib mobile in reducing pain and stress in newborns during blood draws. Consequently, our study hypotheses were ultimately rejected. These findings provide valuable insights into the limitations of this specific intervention and underscore the need for further research and development in this area.

In our current study, both parental and nursing assessments of pain and stress experienced by newborns did not show significant differences between the intervention and control groups. These results contrast with the findings of previous research that have demonstrated the positive impact of various interventions on neonatal pain and stress. Bekar and Efe (20) conducted a well-designed randomized controlled study to investigate the effects of mother-sung lullabies on pain experienced by newborns during vaccination, as well as maternal anxiety levels. Their study yielded compelling results, showing that the use of mother-sung lullabies effectively reduced both the pain experienced

by newborns during vaccination and maternal anxiety levels. Similarly, Tang et al. (18) conducted a study with a focus on investigating the effects of music interventions on pain responses in premature newborns. Their findings were noteworthy, revealing that musical intervention during the insertion of peripheral central venous catheters led to significant reductions in stress hormone levels, physiological parameters, and behavioral responses associated with pain. In another study by Ozdemir and Tüfekci (19), the efficacy of using musical mobiles to alleviate pain during newborn vaccinations was investigated. Their findings demonstrated that newborns exposed to musical mobiles exhibited lower pain scores both during and after vaccination, as well as reduced crying duration compared to the control group. Despite the consistently positive outcomes reported in studies related to the effects of music and similar interventions on the physical and emotional well-being of newborns (17-20), our current study did not find a positive effect associated with the use of the baby mobile crib on neonates. It is important to acknowledge that a potential explanation for this disparity may lie in the duration of use and the distance at which the baby mobile crib was held during the intervention. However, it is crucial to highlight that there is currently no existing evidence or clinical recommendations supporting the use of baby mobile cribs in neonatal care. Moving forward, future research endeavors should prioritize investigating the impact of the duration for which baby crib mobiles are used, as well as exploring other potential factors that may influence their effectiveness in improving the comfort and well-being of newborns. Future research endeavors should prioritize investigating the impact of the duration for which baby crib mobiles are used, as well as exploring other potential factors that may influence their effectiveness in improving the comfort and well-being of newborns.

Music therapy for neonates is a professional adaption of planned music activities such as singing, playing, and listening to evidence-based music. It is intended to address the sensory, physical, and emotional demands of neonates and their parents and support the attachment

Table 2.
The Distribution of the ALPS-Neo Pain and Stress Assessment Scale According to the Parent's and Nurse's Report

	Intervention group n=30	Control group n=30	Test	p	Effect size
	Mean ± SD	Mean ± SD			
During intervention					
Parent's report	9.20±1.94	9.33±2.17	422.500	0.491*	0.07
Nurse's report	9.18±2.01	9.10±2.31	449.500	0.991*	0.04
Test, p	t=0.994; p=0.998**	t=-0.447; p=0.655**			
After intervention					
Parent's report	8.57±2.11	8.26±2.65	413.500	0.546*	0.13
Nurse's report	8.53±2.04	8.07±2.69	408.000	0.496*	0.19
Test, p	t=-0.342; p=0.180**	t=-1.342; p=0.180**			

*=Mann-Whitney U test, **=Wilcoxon signed-rank test, SD=standard deviation

process (30). Although music interventions have a positive effect on the metabolic, physical, and emotional outcomes of babies, the results of this study show that more studies are needed on the use of baby crib mobile, which is one music intervention. Music therapy for neonates represents a specialized approach involving carefully planned musical activities like singing, playing instruments and listening to evidence-based music. Its primary goal is to cater to the sensory, physical, and emotional needs of neonates and their parents while fostering the attachment process (31). While existing research indicates the positive impact of music interventions on various aspects of neonatal care, such as metabolic, physical, and emotional outcomes, the findings of our study underscore the need for further investigations specifically concerning the use of baby crib mobiles as a music-based intervention.

Study Limitations

The results of this study highlight the importance of expanding our understanding of the potential benefits and limitations associated with baby crib mobiles in neonatal care. As a music intervention, baby crib mobiles may offer a unique avenue for providing comfort and stimulation to neonates. However, our study did not yield the anticipated positive effects, prompting the recognition that more comprehensive research is necessary to discern the precise circumstances under which baby crib mobiles may be most effective. In conclusion, while music therapy has demonstrated its value in neonatal care, the specific role of baby crib mobiles as a music intervention remains a topic that warrants further investigation. Future studies should aim to provide a more comprehensive understanding of the use of baby crib mobiles in neonatal care settings and their potential impact on neonatal health and well-being.

Conclusion

Although music therapy is widely used for newborns, in this study, it was found that playing music with a baby crib mobile did not affect pain and stress outcomes in newborns. However, while there are many publications on the effective results of music therapy, it would not be acceptable to state that it is not effective only according to the results of the present study. The small sample size of this study and the similar assessment for pain and stress by the same measurement tool may have affected the results. Future studies focus on reaching conclusive results regarding the impact of music on newborn physiology, research design and data collection should be reliable, as well as have adequate power to identify intervention effects.

Acknowledgment

We would like to thank the parents who participated in the study.

Ethics Committee Approval: This study was conducted in accordance with the principles outlined in the Declaration

of Helsinki. Approval was granted by the Ethics Committee of Trakya University, Faculty of Medicine Scientific Research Ethics Committee for the implementation of the study (number: 01/05, dated: 03/02/2022), and written permission was obtained from Trakya University Health Research and Application Center, Department of Child Health and Diseases.

Informed Consent: Written consent was obtained from parents. It was informed that the data obtained from the study will only be used for this scientific research.

Author Contributions: Surgical and Medical Practices – R.S., H.E., E.H.S.; Conception – R.S.; Design – R.S.; Data Collection and/or Processing – R.S., H.E.; Analysis and/or Interpretation – R.S., E.H.S.; Literature Review – R.S., H.E.; Writing – R.S., E.H.S.

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ORIGINAL ARTICLE

Experiences of Mothers with Infants Admitted to Neonatal Intensive Care During the COVID-19 Pandemic: A Qualitative Study

COVID-19 Pandemisinde Bebeği Yenidoğan Yoğun Bakımda Yatan Annelerin Deneyimleri: Nitel Bir Çalışma

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Abstract

Objective: The aim of this study was to reveal the experiences, opinions, and suggestions of mothers with infants admitted to the neonatal intensive care unit (NICU) during the period of the Coronavirus disease-2019 (COVID-19) pandemic, as parental participation in the NICU.

Method: The study's data were obtained through semi-structured interview form and the sample of this qualitative study consisted of 11 volunteer mothers with infants admitted to the NICU between May 4 and June 24, 2021. Face-to-face, individual, in-depth interviews were conducted with the mothers. The data were analyzed using the thematic analysis method.

Results: Two themes and six sub-themes were obtained. The two main themes were: (1) Difficulties of being a mother during the pandemic, and (2) difficulties experienced during mothers' participation in infant care during the pandemic. Mothers stated that they were unable to experience motherhood; that they experienced constant fear, anxiety and worry; and that they did not receive adequate support from their families and health professionals. They reported that they could only visit their infants when close to the discharge date, could not participate in the care process, did not receive adequate information from healthcare professionals, and did not feel fully prepared to care for their infants after leaving hospital.

Conclusion: This study showed that due to visitation restrictions, NICU mothers struggled to fulfill their maternal role, demonstrating the inadequacy of family-centered care practices during the-COVID-19 pandemic. During crisis periods such as pandemics, strategies must be employed to develop infant-mother attachment and increase mothers' participation in the care of their infants.

Keywords: COVID-19, experiences of mothers, family-centered care, neonatal intensive care unit, visitor restrictions

Öz

Amaç: Bu çalışmanın amacı, Koronavirüs hastalığı-2019 (COVID-19) pandemisi döneminde yenidoğan yoğun bakım ünitesinde (YYBÜ) ebeveyn ziyaretinin kısıtlanmış olması nedeniyle YYBÜ'ye başvuran bebeği olan annelerin deneyimlerini, görüşlerini ve önerilerini ortaya çıkarmaktır.

Yöntem: Çalışmanın verileri yarı yapılandırılmış görüşme formu aracılığıyla elde edilmiştir. Bu nitel çalışmanın örneklemi, 4 Mayıs-24 Haziran 2021 tarihleri arasında YYBÜ'ye kabul edilen bebekleri olan 11 gönüllü anneden oluşmaktadır. Annelerle yüz yüze, bireysel, derinlemesine görüşmeler yapılmıştır. Veriler tematik analiz yöntemi kullanılarak analiz edilmiştir.

Bulgular: İki tema ve altı alt tema elde edilmiştir. İki ana tema şöyledir: (1) Pandemi döneminde anne olmanın zorlukları ve (2) Pandemi döneminde annelerin bebek bakımına katılımı sırasında yaşanan zorluklar. Anneler anneliği yaşayamadıklarını; sürekli korku, kaygı ve endişe yaşadıklarını; ailelerinden ve sağlık çalışanlarından yeterli desteği alamadıklarını belirtmişlerdir. Bebeklerini ancak taburcu tarihine yakın bir zamanda ziyaret edebildiklerini, bakım sürecine katılmadıklarını, sağlık çalışanlarından yeterli bilgi alamadıklarını ve hastaneden çıktıktan sonra bebeklerinin bakımına tam olarak hazır hissetmediklerini bildirmişlerdir.

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Sonuç: Bu çalışma, ziyaret kısıtlamaları nedeniyle YYBÜ annelerinin annelik rollerini yerine getirmekte zorlandığını ve COVID-19 pandemisi sırasında aile merkezli bakım uygulamalarının yetersiz kaldığını göstermiştir. Pandemi gibi kriz dönemlerinde, bebek-anne bağlanmasını geliştirmek ve annelerin bebeklerinin bakımına katılımını artırmak için stratejiler uygulanmalıdır.

Anahtar Kelimeler: COVID-19, annelerin deneyimleri, aile merkezli bakım, yenidoğan yoğun bakım ünitesi, ziyaretçi kısıtlamaları

Introduction

Due to the risk of contamination during the Coronavirus disease-2019 (COVID-19) pandemic, many neonatal intensive care units (NICUs) implemented strict visitation policies (1,2). In a global-level study of visitation restrictions in NICUs during the COVID-19 pandemic, data were obtained from 277 units, revealing that only 27% of NICUs use the single-family room design, which allows parents to remain in the unit at all times. The study also revealed that there was a significant decrease in psychosocial support services provided to families during this period (1). Strict infection control precautions have been found to obstruct parental involvement in care, which is one of the main principles of family-centered care (FCC) in NICUs. In this regard, mothers could not breastfeed their infants, and parents could not participate in care practices or interact with their infants through direct contact (2,3). Such measures have restricted FCC that supports unlimited parental presence in NICUs aimed at protecting and promoting the health of vulnerable newborns and their mothers (4).

The admission of an infant to the NICU is a stressful process that may adversely affect the psychosocial health of parents and interfere with their parental roles (5). Studies conducted during the pre-COVID-19 period have shown that parents with infants admitted to the NICU experience emotional problems such as anxiety and distress (6,7), serious mental issues such as severe depression, post-traumatic stress disorder (6), and feelings of helplessness and guilt (7). In addition to the challenges posed by medical conditions and limited access to formal and informal support networks during the pandemic, parents experienced other sources of stress such as the fear of being separated from their infants and the fear that they or their infants would contract the virus (8). Studies conducted in the NICU during COVID-19 have confirmed that mothers' stress levels increased during this period (9,10), adversely affecting their social/family relationships and their ability to assume the role of motherhood (9). Therefore, NICU health professionals

were encouraged to implement policies designed to better support parents (4,11).

The implementation of visitation restrictions and, accordingly, FCC initiatives in the NICU during the COVID-19 pandemic, differ across countries and institutions (1,3,4). One study conducted with 1,148 parents in 12 countries (including Turkey, Australia, Canada, France, New Zealand, and Switzerland) during the pandemic revealed that more than 90% of respondents reported that their presence was allowed in the NICU, although this rate was below 50% in China, Turkey, Poland, and Ukraine (3). Data obtained from the World Health Organization indicated that in Turkey, where the average number of preterm births (12.41%) is higher than the global average (10.60%) (12), FCC practices were not widely implemented (13,14), despite successful examples of either FCC or kangaroo practices during the pre-COVID-19 period (15). Measuring the psychological impact of COVID-19 on parents and frontline healthcare professionals deepens the understanding of how the pandemic is impacting FCC practices and dynamics in NICUs (16). Because parents were not able to be with their infants due to the strict measures imposed during the COVID-19 pandemic, it was inevitable that mothers would be adversely affected; therefore, the protection and maintenance of mothers' physical, emotional, and social well-being is essential for the health of both the child and the family, as well as of society (11). A better understanding of the experiences of NICU mothers during the COVID-19 pandemic, during which strict restriction measures were employed, may contribute to the improvement of clinical practices and healthcare institution policies and procedures.

Material and Method

Aim and Design of the Study

The study was a descriptive qualitative design, which provided to a comprehensive narrative of participants to explain their views and life experiences of the phenomenon under investigation (17). This study aimed to reveal mothers' experiences, opinions, and suggestions concerning the hospitalization and discharge of their infants during COVID-19 visitation restrictions in the NICU. The current study used a thematic analysis approach to explain the experiences of NICU mothers, and data were collected using the individual, in-depth interview method.

Setting and Sample

The study was conducted in the NICU of a university hospital in İstanbul, the largest province by population in Turkey. The NICU contained 53 incubators (37 third-level,

Main Points

- The current study empirically revealed that the difficulties experienced by mothers with regard to both themselves and their infants, difficulties of neonatal intensive care unit (NICU) mothers' fulfilling their maternal roles and, inadequacy of family-centered care practices due to visitation restrictions during the pandemic.
- It also showed that in crisis situations such as the Coronavirus disease-2019 (COVID-19) pandemic, clinical nurses in the NICU are not adequately involved in practices aimed at involving mothers in care.
- It reveals the need for visitation policies and/or guidelines designed to involve parents in care during crisis situations such as the COVID-19 pandemic.

14 second-level, and 8 first-level beds). According to data obtained in 2021, 889 newborns received treatment and care in that unit in a year, and 87.1% were premature cases. Staff employed in the NICU included a full-time neonatologist, four pediatricians, 50 staff nurses, one charge nurse, one training nurse, and 11 care support personnel. Before the pandemic, parents were allowed visits without time restrictions, as part of the FCC approach. Mothers and fathers participated in the care of their infant, and the implementation of FCC practices was supported by NICU nurses. Mothers participated in their baby care under the supervision of nurses, especially during the baby's nursing and feeding diaper change hours. However, due to the pandemic, the Ministry of Health imposed strict visitation restrictions across the country (including in NICUs) (18), and parents were only relayed daily information by the attending physician. The parent only saw their baby after the birth and before the discharge. This study used the purposeful and maximum variation sampling method. For this purpose, it was taken into consideration that the babies varied in terms of gestation week, length of stay in the NICU, mothers' age, education, and number of births.

The data collection process continued until data saturation was reached. One of the sampled mothers' babies was hospitalized in the NICU because of transient tachypnea of the newborn, and the others were hospitalized in the NICU only because they were premature. The study's data were obtained through in-depth, semi-structured interviews, and the sample consisted of 11 mothers with infants admitted to the NICU between May 4 and June 24, 2021. All mothers were over the age of 18, had no communication deficiencies, and volunteered to participate in the study. Participants' socio-demographic characteristics are shown in Table 1.

Data Collection

The data collection forms included an introductory information form (containing questions about the socio-demographic characteristics of the mothers and infants) and a form containing six semi-structured interview questions prepared based on literature by the researchers (19,20). The data were collected using the individual, in-depth interview method. Pilot interviews were conducted with two participants, using the semi-structured interview

Table 1.
Demographic Characteristics of the Study Participants

Information about the mothers					Information about the infant		
Code	Age	Education level	Multiple birth	Total time spend with baby in NICU before discharge	Weeks of gestation	Weight at birth in grams	Days of hospital stay
M1	31	High school	2	5 min	29	1670	46
M2	30	High school	2	10 min	36.5	3200	14
M3	41	High school	3	5 min	26	1100	53
M4	29	High school	2	5 min	35.5	2940	10
M5	23	Undergraduate	1	5 min	38	2390	19
M6	31	Undergraduate	1	4 hours	36	3820	7
M7	35	Primary school	3	10 hours	37	3650	11
M8	36	Secondary school	2	5 min	34	3085	22
M9	29	Undergraduate	2	5 min	22.5	579	147
M10	27	High school	1	5 min	30.5	1885	31
M11	29	High school	2	5 min	37	2760	18

NICU=neonatal intensive care unit

Table 2.
Semi Structured Interview Questionnaire

Questions
1. How did it make you feel to have a baby admitted to intensive care during the COVID-19 pandemic?
2. Could you share your experiences about your participation in the treatment and care of your baby while she/he was in neonatal intensive care?
3. What challenges you experienced/encountered while your baby was in neonatal intensive care?
4. How did you cope with the challenges you encountered? From whom you received support during this process?
5. How do you consider/perceive the support you received from the physicians and nurses in the neonatal intensive care unit?
6. As a mother with a baby in neonatal intensive care, would you like to share any other opinions and suggestions?

COVID-19=coronavirus disease-2019

form (Table 2). No changes were made to the questions as a result of the pilot interview. All interviews were conducted on the day of discharge. When discharge dates were finalized, potential participating mothers were informed about the study and were told that interviews would be audio recorded. After participants gave consent of participation, interviews were scheduled to occur at a convenient time on the day of discharge. A researcher holding a master's degree in pediatric nursing and experienced in qualitative research/interviews conducted all face-to-face interviews. Interviews were conducted in the training nurse's room in the NICU, and necessary measures were taken to ensure that there were no interruptions. At the beginning of the interview, participants signed an informed voluntary consent form, and interviews (audio recorded) lasted an average of 25 minutes, during which the researcher recorded written notes. At the end of each interview, the interviewer summarized the session before asking the participants whether they would like to revise any comments. Audio recordings of the interviews, as well as written notes, were then transcribed and reported. The interviewer then sent all audio recordings and written notes to the other researchers for analysis and storage.

Statistical Analysis

Thematic analysis was conducted in accordance with the literature (21). To familiarize data and generate initial codes, three researchers experienced in qualitative research repeatedly and separately read the transcripts of the interviews in order to obtain a sense of the complete data, and the data were encoded line by line without using any software program. In order to identify the main themes, the three researchers recorded potential themes and sub-themes by separately collating the codes. The themes and sub-themes were then reviewed in meetings in which all researchers participated, terminating once consensus was achieved.

Rigour and Trustworthiness

In order to achieve rigour, this study used four criteria (credibility, dependability, confirmability, and transferability), established by Lincoln and Guba (22). All participants gave consent to voluntarily participate in the study, and no personal relationship existed between the participants and the researchers. Participants were encouraged to freely express their opinions, and interviews were conducted in a comfortable and quiet environment, ensuring credibility. In order to ensure conformability, all interviews were conducted by one researcher, with three researchers independently and actively participating in the data analysis process. In order to ensure dependability, a semi-structured interview form was used during the interviews, and in order to ensure consistency and validity in the data, themes and sub-themes were identified and finalized by three researchers through consensus. Transferability was achieved via the provision of rich descriptions and verbatim quotes, allowing readers to conclude whether the present study's findings relate to their own settings. The Standards for Reporting Qualitative Research was used to report this study.

Results

Two themes and six sub-themes were identified as a result of this study's interviews. These are (Figure 1):

- (1) Difficulties of being a mother during the pandemic
 - (1.1) I could not feel like a mother
 - (1.2) I experienced fear, anxiety, and worry
 - (1.3) I didn't receive any support
- (2) Difficulties experienced during mother's participation in infant care during the pandemic
 - (2.1) I want to bond with my baby
 - (2.2) I want to be informed
 - (2.3) I want to be ready to take care of my baby after discharge.

Theme 1: Difficulties of being a mother during the pandemic

1.1. I could not feel like a mother

The majority of mothers stated that they were not able to see or touch their infants, could not experience real motherhood, and experienced distress due to visitation restrictions during the COVID-19 period.

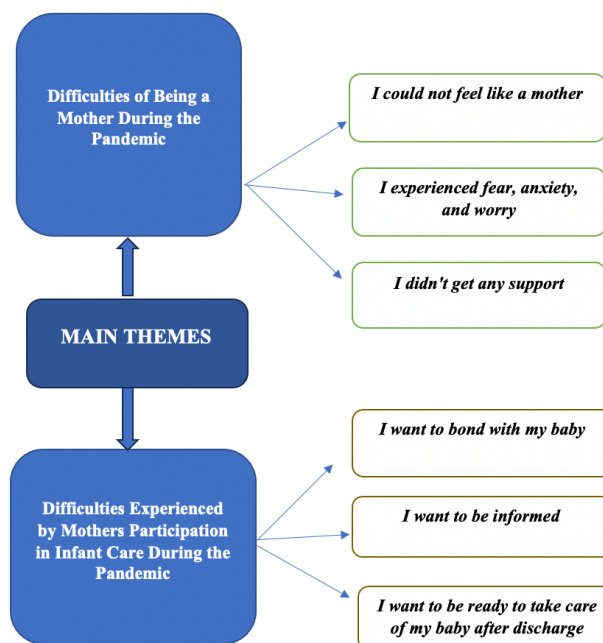


Figure 1.
Theme and subtheme

"Imagine that you have given birth, had surgery, but you don't have your baby with you. You want to see her, but you can't...you can't imagine how empty I felt when I got home" (M-10).

"It was hard not to see her, not to hear her voice, not to be able to breastfeed her. Mothers can't stay apart from their babies. It's very difficult. As a mother and father...we wanted to feel and know that we were her parents" (M-1).

"The first few days we didn't have anything with us, not even his picture. We couldn't even see him. It was the most oppressive feeling, not being able to see him. It was very bad; I felt so empty" (M-4).

"I am a mother, yet I didn't have my baby with me. It has been six months, and he doesn't know how I smell or what I sound like. He always heard others, the voices of nurses. Sometimes I was jealous of them..." (M-11).

"Even though I couldn't breastfeed my baby, I used the breast pump regularly. Since I couldn't be a mother during this period, at least I could do this. I'm worried about how my baby's mental health will be affected once he becomes an adult. I wonder if he will feel incomplete" (M-3).

1.2. I experienced fear, anxiety, and worry

The majority of the mothers stated that they experienced fear, anxiety, and stress, both due to having an infant admitted to the NICU and due to the COVID-19 pandemic, which also caused them to experience sadness and pain.

"I mean, we were comfortable because we believed that she was in good hands, but not knowing how he was growing and not being able to predict how he would be affected bothered us. It was upsetting and caused us stress" (M-2).

I was afraid that my breast milk production would be disrupted, and I was very afraid that if I went to the hospital, I would get COVID-19" (M-11).

"That's why my mental health turned upside down. Imagine that you can't see your baby for five months; you can't touch him. May god not inflict such a thing on anyone. I think it's one of the saddest situations for a mother; we had no choice but to be patient" (M-9).

"Every day, my family asked whether they called or what they said. They said things like, 'Why don't they show you the baby?', 'How is that possible?', 'The baby needs to hear your voice and smell you.' I became really depressed and cried for hours. So there was nothing but desperation. It's hard, very hard" (M-10).

"It was sad not being able to be there for my baby, not being able to hold him, touch him, or breastfeed him. And I felt that I was missing his growth, like he was growing up without me. My heart remains in the NICU" (M-4).

1.3. I didn't receive any support

Due to the COVID-19 period and restricted visits and lockdowns, to which individuals over a certain age are particularly subjected, mothers stated that although their spouses tried to help them, they did not receive the type of support from close family members (such as mothers or mothers-in-law) normally given while at home during partum and postpartum periods. In addition, they stated that they wanted to receive additional support from healthcare professionals during the care process and that they experienced stress and anxiety during NICU admissions.

"...I could have breastfed him just like I'm doing now. It's one of the issues I'm not comfortable with. In my opinion, mothers should be allowed around the babies during this process. We should have gotten more support in this regard" (M-5).

"I've heard her voice today, for the first time in months. What a pain for a mother, and how sad this is. Nurses should provide more support to mothers" (M-10).

"I was alone most times, and there were times that were emotionally challenging. My husband has been supportive, but I don't think it's enough" (M-6).

"I was not mentally well, and only my husband was supportive. During such a time, we were left alone. What kind of disease is this that doesn't allow our mothers or friends to visit us? There is no support at all" (M-2).

"No one's there for you during this period. It's just me. My husband has supported me a little, that's all. I wish I could get support from the hospital. I wish they would have involved the mothers in their babies' care" (M-8).

Theme 2: Difficulties experienced during mother's participation in infant care during the pandemic

2.1. I want to bond with my baby

The mothers participating in the study shared their concerns about the fact that they could not visit or see their infants during the pandemic. Most of them stated that they were only able to see their infants days after birth, or even close to the discharge date, and that they were unable to establish a mother-infant bond. Some mothers also raised concerns about how such lack of bonding would affect their infants (development), both in the short and long term.

"I don't know, we couldn't physically touch her, but I was able to provide milk, even if it was just two drops. I knew that even that was valuable, especially during this period. It was the only thing that could strengthen the bond between us. Maybe he would grow faster if he felt that his parents were there beside him" (M-8).

"We just brought milk twice a day...I put a handkerchief on my chest and sent it to him, so that she could sleep with my smell" (M-5).

"No, I was just able to breastfeed today. He didn't suck enough because he forgot about me, forgot my smell. He preferred the bottle to my breast. What if he keeps preferring bottle-feeding? What about the bond I have to build with him?" (M-7).

"How will that baby grow and develop? She needs her mother. I know that intensive care is important for her survival, but we also need to think about the psychological aspect, not just about the physical growth of the baby" (M-11).

"We couldn't see her, and they also performed the ROP examination. If we were there with our baby during that examination, maybe she would have felt less pain because we could have held her hand" (M-3).

2.2. I want to be informed

The participants reported that they regularly received information about their babies from their physicians during weekdays, and they indicated that they were satisfied with this information. However, they also stated that they did not receive information from the nurses because the nurse's response was always that they did not have authority to relay such information.

"The doctors kept us informed on weekdays by phone, and the nurses kindly greeted us when we brought milk..." (M-5).

"As a parent, you are not seeing your baby anyway. At least give us information about what is happening, and get our permission for procedures" (M-1).

"I was picking up the phone with excitement when they called, but they were saying a lot of things in just one minute. I wanted to hear more good things, but they were cramming everything I was looking forward to for days into one minute" (M-10).

"The nurses were not able to give us sufficient information... Babies are so small, and we worry a lot. We couldn't see him anyway, but at least we could have relaxed if given more information" (M-8).

"Nurses didn't say anything to us, and when we asked, they just said things like, 'We can't give you information right now.' We asked, 'How is she doing?', 'Is she able to breathe?', and they said that only doctors can give information about the baby. That was so bad for me. They should put themselves in our shoes. We want them to feel empathy for us" (M-7).

2.3. I want to be ready to take care of my baby after discharge

Mothers stated that they had concerns about the home care process after their infants were discharged from the NICU. They also shared feelings about their competence in providing care, stating that they did not feel prepared and that they worried that pre-discharge procedures were inadequate, since they had not participated in care.

"I'm glad that he will be discharged, but I'm scared, too, because I have never touched my baby. I raised my other son, but he was healthy. Will I be able to take care of this baby after being discharged from intensive care after five months? I don't know what I can do. I wish they could allow us in for a week, maybe, before discharge, so that we could touch our babies and so they could give information about home care, I mean in cooperation. I would feel more comfortable then" (M-9).

"We need to perform aspiration at home. I wish this training had started earlier. They said they would only teach me, but they also should have taught my husband. I'm not the only one who's going to take care of our baby. They should also provide training to families. I've watched videos at home about performing aspiration, but I don't think it would be easy in practice. We are very worried about what we will do and will call the nurses as a last resort" (M-11).

Maybe the hospital can arrange special rooms or provide PPE, etc.; mothers should not be separated from their babies..." (M-7).

Discussion

This qualitative study, which aimed to reveal the phenomenon of mothers' experiences, opinions, and suggestions concerning the hospitalization and discharge of their infants during COVID-19 in the NICU, showed that mothers experienced intense emotional problems such as anxiety, stress, and helplessness caused by the interruption of mother-infant interaction. In addition, they expressed that they felt powerless, as they could not see, breastfeed, or touch their infants. Although the demographics of the mothers and their babies were different, similar statements were made by all mothers. While pregnancy and postpartum periods (23), as well as the period spent as the mother of an infant admitted to the NICU (5), were an important source of stress for mothers, NICU visitation restrictions caused by the pandemic were an additional stressor for mothers and/or family members (9,10). According to a study conducted in Turkey, mothers with infants receiving care in the NICU reported that "My arms were left empty... I could only see my baby through the glass, it is very sad and painful" (24). However, strict visitation restrictions during the pandemic prevented mothers from even seeing their child behind glass. Previous studies have found that parental separation from infants in the NICU led to insecurities concerning parental roles, resulting in feelings of disconnection or alienation from the infant (5,25). Regardless of postpartum depression and anxiety, it has been shown that the effective participation of mothers in the care process results in an increase in maternal caring behavior and a decrease in stress levels (26). These results highlight the importance of keeping mothers and their infants together in all circumstances in the NICU in order to maintain their mental health and well-being. In this context, it may be useful for NICUs to implement visitation procedures that follow approaches such as tele-medicine, telephone counseling, and online applications that promote

mother-infant interaction through the communication between technology-supported nursing, other healthcare professionals, and parents. It is also recommended that NICUs enable families to see their babies using applications such as webcams during strict visitation restrictions caused by crisis periods such as pandemics.

Another finding in this study was that mothers did not receive adequate support from their families and healthcare professionals. Abrupt visitation restrictions during the pandemic prevented relatives and friends from supporting mothers with infants in the NICU (27), causing them to feel alone and unassisted during the delivery and postpartum periods (8,28). Since access to social support and resources was limited due to COVID-19 measures, NICUs experienced a decrease in breastfeeding and other support services (1). The current study's results are consistent with previous studies, revealing the need for health institutions to review actions taken during crisis situations caused by the pandemic, as well as for the need to develop strategies designed to support the participation of families (1,27). Considering the necessity of mothers' well-being, these results emphasize the importance of providing psychological and social support to mothers with infants in the NICU. During pandemic periods, NICU nurses must employ successful communication skills in order to understand the needs of parents and assuage parents' increasing concerns and fears. However, this is not an easy task because the interaction between nurses, other healthcare team members, and parents in the NICU is a multifaceted and complex process. Therefore, NICU nurses need effective training not only to enhance their awareness of and compassion for parents' individual, cultural, emotional, and psychological needs but also to plan and provide their care based on such parental needs.

Another important result obtained from this study concerns the problems in mother-infant bonding caused by parental separation from infants. Mothers stated that their inability to care for their infants had both short-term (reducing pain, contributing to their infants' growth, etc.) and long-term (impact on infants' mental health) effects. These results support evidence-based information indicating that physical closeness between the parent and newborn after birth contributes to the development of attachment (15,27). In addition, as previous experimental studies have shown that FCC care initiatives improve neonatal and parental outcomes such as infant weight gain, parental happiness, and parental caring behavior (15,28), the concerns of the mothers participating in this study are noteworthy. It may be useful to establish institutional follow-up care for better short- and long-term mother-infant outcomes after discharge, thereby maintaining mother/infant well-being and identifying needs related to the healthy growth and development of infants.

Another finding was that mothers with infants admitted to the NICU did not receive information about the baby's condition and progress, as well as preparation for the care process at home. In a systematic review conducted during

the COVID-19 period, it was found that due to lack of staff and support, mothers were not encouraged to breastfeed, their knowledge and skills concerning the care process were not sufficiently developed, and 80% of mothers in units with restricted visits stopped breastfeeding. The same study showed that in NICUs with private rooms allocated to families, parents were allowed to be with their infants at all times (29). Regardless of the method by which the mother and other family members are included in the care process, their role at the bedside is extremely important, even when executed via virtual devices. Although the practices of NICU clinicians and managers depend on the healthcare environment conditions in which they work, their role is to prioritize and lead FCC practices (11,27). In this context, during visitation restrictions caused by pandemics or other crisis periods, the need to provide NICU nurses with various resources such as on-line parent education materials, virtual visitation programs, discharge preparations, follow-up infant care, and web-based applications is crucial. Regardless of circumstances, NICU nurses, NICU managers, and policy makers are encouraged to develop strategies and projects designed to involve parents in infant care. Moreover, the views and suggestions of parents concerning NICUs during COVID-19 can provide important clues and insights that can be used to better involve parents in infant care.

The last important finding obtained from this study was that nurses did not relay adequate information to mothers and/or parents. The opinions of mothers participating in the current study may have been affected by excessive nursing workloads during the pandemic, feelings about an unknown future, stressful work environments, rapidly changing units/departments caused by the absence of infected colleagues, inadequate knowledge and skills/competencies, and lack of nurse autonomy. Some studies conducted in Turkey have also discussed the lack of autonomy among nurses (30,31). Stewart et al. (32) has stated that in order to ensure the health of individuals and society at the global level, the role of nurses in the healthcare system must be strengthened, and strategies designed to improve nurse autonomy must be implemented. It is recommended that in order to improve parental participation in NICU, autonomy and decision-making competencies of nurses be increased by expanding role and responsibilities in clinical practice and supporting nurse education and development through in-service trainings.

Study Limitations

This study is limited to the opinions of mothers with infants admitted to the NICU at the institution where the study was conducted. Another limitation is that this study did not consider NICU nurses' opinions.

Conclusions

This study reveals the opinions and experiences of parents with infants admitted to the NICU during the pandemic, concerning both the difficulties of being a mother and participation in the care process during this period. The

findings show that mothers require different types of support, including emotional support, social support, and the provision of adequate information. In accordance with these results, it may be concluded that nurses and institutional managers should take mothers' concerns into account when planning and providing care services. Nurses should actively communicate with parents, provide sufficient emotional support, and reduce parents' anxieties regarding their everyday concerns for their infants. Such support can help relieve parents' psychological stress. While hospitals develop policies to ensure the safety of patients and parents during such crisis periods, they should also adopt innovative approaches designed to actively involve parents in the care process.

The study also showed that the parents of infants admitted to the ICU during COVID-19 quarantine procedures experienced stress, primarily because they were not allowed to visit their infants. This study therefore highlights the importance of being cautious of such restrictions, reducing them when necessary. Future studies might focus on the long-term psychological consequences experienced by such parents, as well as on the later growth and development of infants who received care and treatment in NICUs during the pandemic.

Practice Implications

Mothers are affected by a variety of difficulties due to the strict NICU visitation restrictions during the COVID-19 pandemic. Mothers need different types of support, including emotional support, social support, and the provision of adequate information during crisis situations such as the COVID-19 pandemic. In order to develop policies designed to ensure the safety of patients and parents during such crisis periods, hospitals should adopt innovative approaches aimed at actively involving parents in the care process. Nurses and institutional managers should take mothers' concerns into account when planning and providing care for infants in NICU.

In order to protect the health of mothers and infants during crises such as pandemics, restriction policies and guidelines are required. The current study has emphasized points of consideration for healthcare professionals by revealing the experiences of mothers with infants in the NICU during the pandemic.

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Informed Consent: Participants were first verbally invited to join the study before giving written consent in accordance with the informed voluntary consent form.

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ORIGINAL ARTICLE

The Incidence, Risk Factors, and Effects of Constipation in Critical Patients: An Observational Cross-sectional Study

Yoğun Bakım Hastalarında Konstipasyon İnsidansı, Risk Faktörleri ve Etkileri: Gözlemsel Kesitsel Bir Çalışma

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Abstract

Objective: This study aimed to investigate the early, late, and total constipation frequency, related factors, and their effects on the hospitalization day, gastric residual volume, vomiting, distension, and diarrhea, the feeding type, white blood cells, and C-reactive protein levels, and body temperature.

Method: Data from this observational cross-sectional study were collected in an anesthesia and reanimation intensive care unit of a public hospital in Bolu, Turkey. The sample included 116 patients who met the criteria of the study. The sample size was determined using power analysis according to the results of a pilot study. The patient information form, daily observation form, and Bristol stool consistency scale were used for collecting the data.

Results: The constipation frequency was 63.8% in the unit. The early constipation frequency was 18.9%, and the late constipation frequency was 6.8%. The hospitalization day in these groups was longer than those without constipation. Also, the patients receiving mechanical ventilator support, enteral tube feeding, and diuretic medication had a higher risk for constipation. The enema/laxative was applied to half of the patients who developed constipation in the unit, after which more than half developed diarrhea. Distension and enteral feeding were more frequent in late-type constipation patients. The levels of white blood cells, C-reactive protein levels, and body temperature between all groups were not statistically different ($p>0.05$).

Conclusion: The frequency of constipation was higher in the intensive care unit, even when the defecation period was considered four days. Receiving mechanical ventilator support, enteral tube feeding, and diuretics increased the risk of constipation.

Keywords: Critical care, constipation, intensive care, nursing

Öz

Amaç: Bu çalışma erken, geç ve toplam konstipasyon sıklığı, ilişkili faktörler ve bunların hastaneye yatış günü, mide rezidüel hacmi, kusma, distansiyon, diyare, beslenme şekli, beyaz kan hücreleri, C-reaktif protein seviyeleri ve vücut sıcaklığı üzerine etkilerinin incelenmesini amaçladı.

Yöntem: Bu gözlemsel kesitsel çalışmanın verileri, Türkiye’de Bolu ilinde bulunan bir devlet hastanesinin anestezi ve reanimasyon yoğun bakım ünitesinde toplandı. Örneklem, çalışmanın kriterlerini karşılayan 116 hastayı içerdi. Örneklem büyüklüğü, pilot çalışmanın sonuçlarına göre güç analizi kullanılarak belirlendi. Verilerin toplanmasında hasta bilgi formu, günlük gözlem formu ve Bristol dışkı kıvam ölçeği kullanıldı.

Bulgular: Yoğun bakımda konstipasyon sıklığı %63,8 idi. Erken konstipasyon sıklığı %18,9, geç konstipasyon sıklığı ise %6,8 olarak belirlendi. Bu gruplarda hastanede kalış günü konstipasyonu olmayanlara göre daha uzundu. Ayrıca mekanik ventilatör desteği, enteral tüple beslenme ve diüretik ilaç kullanan hastalarda konstipasyon riski daha yüksekti. Yoğun bakımda konstipasyon gelişen hastaların yarısına lavman/laksatif uygulandı, sonrasında yarısından fazlasında diyare gelişti. Geç tip konstipasyon hastalarında distansiyon ve enteral beslenme daha sık görüldü. Beyaz kan hücreleri, C-reaktif protein seviyeleri ve vücut sıcaklığı tüm gruplar arasında istatistiksel olarak anlamlı değildi ($p>0,05$).

Sonuç: Yoğun bakım ünitesinde dışkılama süresi dört gün olarak kabul edildiğinde bile konstipasyon sıklığının daha yüksek olduğu görüldü. Mekanik ventilatör desteği almak, enteral tüple beslenmek ve diüretik kullanmak konstipasyon riskini artırmaktadır.

Anahtar Kelimeler: Kritik bakım, konstipasyon, yoğun bakım, hemşirelik

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Introduction

The defecation need is one of the physiological requirements, which Maslow (1) defined as the most essential requirement. Constipation is a frequently encountered problem in bowel elimination and exists among nursing diagnoses of critical patients in general (2,3).

Although constipation is generally defined as defecating less than three times a week, it can also be expressed by various symptoms such as hard consistency of the stool, difficulty in defecation, and abdominal discomfort and swelling (4). However, decrement in the number of defecation is not used as a criterion for constipation in critical patients since incomplete defecation and difficulty in elimination are hard to determine due to patients' limited communication (5).

Different approaches are available in the literature for the detection of defecation numbers, where the frequency of constipation is determined in patients in the intensive care unit (ICU). In some studies, patients who did not defecate for three days were accepted as constipated (6-9), whereas in other studies, patients who did not defecate for four or more days were considered as constipated probably because enteral feeding was delayed during the first day of the ICU (10,11). Although the definitions of constipation are different in literature, the frequency of constipation remained high in intensive care patients, varying between 34 and 83% (6-10,12,13).

Also, the risk factors causing constipation in patients of ICUs differ from the general population, which is similar to the differences seen in the definition and frequency of constipation. Critically ill patients are more prone to constipation due to factors such as neurological, endocrine, and metabolic problems, usage of medical devices, sedation, opioid, and vasoactive drugs along with parenteral nutrition and immobility (6-9,11-14).

Constipation is an important issue, especially in intensive care patients, requiring careful discussion since it has negative effects as well as high incidence and excessive risk factors. Furthermore, untreated constipation in these patients delays enteral feeding prolonging the time of weaning from the mechanical ventilator, which consequently increases the duration of stay in the ICU (6). Additionally, it involves complications such as distention, nausea-vomiting, an increase in bacterial infection rate, high morbidity, and mortality (13).

Main Points

- Constipation duration can consider four days without defecation in critical patients because of some nutritional problems. Even in this consideration, the frequency of constipation is high in critical patients.
- Nurses should closely monitor the patients receiving mechanical ventilator support, enteral tube feeding, and diuretic medication since they have a higher risk for constipation.
- Nurses should be aware of enema/laxative-induced diarrhea because of high prescriptions. They should consider that distention and enteral feeding are more related to the late-type constipation.

Therefore, holistic nursing care is very important in intensive care patients to prevent constipation and complications that may develop from it. Nurses should evaluate the patient's risk factors for constipation, defecation activity daily, and intestinal motility to maintain a comfort level for patients. Moreover, since intestinal motility provides vital information about the functioning of the body, it was proposed as the sixth vital sign (15). However, only a limited number of studies explore the frequency and clinical characteristics of constipation in intensive care patients in terms of guiding evidence-based practices for nurses.

Material and Method

Objectives

The study aimed to determine the frequency of constipation, especially early and late constipation, and factors related to them, and also investigate some of their effects such as the duration of stay in the ICU, the amount of gastric residual volume (GRV), developing vomiting, distention, and diarrhea, change in the feeding type, levels of white blood cells (WBC), C-reactive protein (CRP) and body temperature.

Study Design

The study was an observational cross-sectional study. We had observed the patients in the ICU since starting their hospitalization prospectively for their constipation, early and late constipation duration, and some parameters. At the same time, we recorded the data on a daily observation form.

Setting and Participants

The data were collected from the anesthesia and reanimation ICU in a state hospital of Bolu in 2019. To determine the number of observations in our study, a pilot study was conducted with 20 patients. These patients were also included in the main study. The constipation rate in the ICU was determined as 67% in the pilot study. Considering this ratio, the sample size was calculated using the PASS 11 program. Accordingly, at least 86 patients had to be included in the study keeping a 95% probability and 10% deviation. The sample consisted of 116 patients who were reachable during the study, met the inclusion criteria, and volunteered to participate the study. However, the constipation type of the 21 patients who left the ICU without defecation could not be determined (Figure 1). These patients were not included in the comparison analyses according to the type of constipation and the characteristics of the patients.

Data Collection

From the beginning of the study, the defecation frequency of each patient admitted to the ICU was monitored carefully. The informed consent was received from the patients who met the inclusion criteria or their relatives (for unconscious patients). The necessary information to fill up the collection forms was obtained from patient folders, patients' relatives, and observation. During the study, patients in the ICU with no bowel movements for four days were accepted

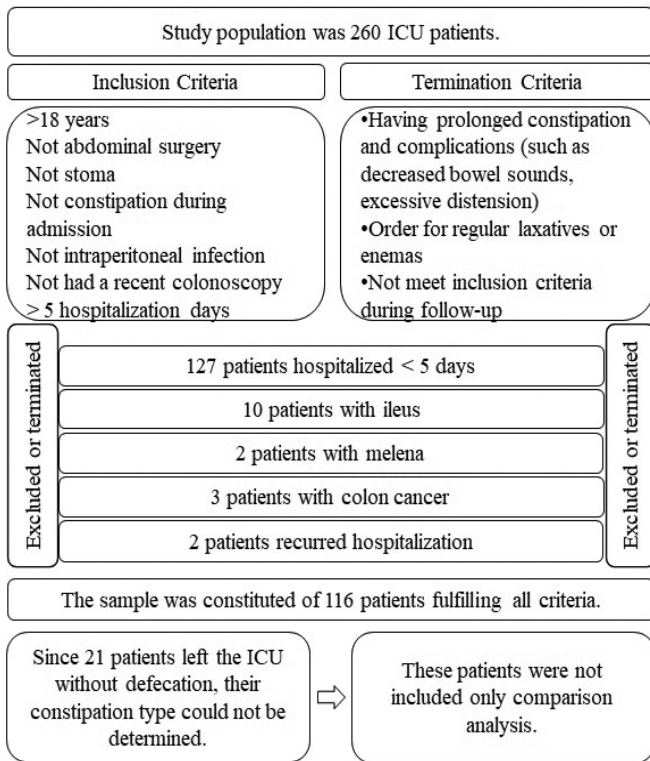


Figure 1.
Study population and sample

as constipated (10,11). The patients were divided into two groups based on the type of constipation, i.e., early and late constipation. The ones without defecation for five days were evaluated in the early constipation group, while the patients without defecation for six days or more were evaluated in the late constipation group. The enema and laxative treatment was not applied to the patients until seven days from the first day of without defecation. From the 7th day onwards, an enema or laxative treatment was applied to the patients who could not defecate. During the laxative/enema treatment process, the patient was followed up for diarrhea development. Laboratory data related to our research included CRP and WBC obtained from routine analysis results.

Data Collection Instruments

The data were collected using the patient information and daily observation form prepared by the researchers based on the literature (8-11) along with Bristol stool stiffness scale. Five experts (one intensive care doctor, two intensive care nurses, one ICU responsible nurse, and one academician nurse) were consulted on these forms.

Patient Information Form

This form consisted of two parts: The descriptive features, the history of the disease, and the history of constipation. In the first part of the form, descriptive data were obtained such as the patient’s age, gender, the admission unit in

intensive care, mobilization status, chronic diseases, the last defecation date, the defecation frequency, and constipation history. In the second part, the clinical features such as drug usage due to constipation and sedative status were evaluated.

Daily Observation Form

The form was filled out every day, starting from the patient’s admission to the ICU and throughout the hospitalization period. Here, some crucial data were recorded, such as defecation type according to patient’s Bristol stool stiffness scale, Glasgow Coma scale (GCS), acute physiology and chronic health assessment (APACHE2), WBC, and CRP levels, average fever values, mechanical ventilator status, nutrition type and route, presence of pneumonia associated with ventilator and other infections, the amount of GRV, presence of distension and vomiting, changes in the type and amount of nutrition, mobilization status, usage of laxative/enema as a result of constipation and then the existence of diarrhea because of the laxative treatment.

Bristol Stool Stiffness Scale

The duration and properties of the stool in the colon were evaluated using the scale developed by Lewis and Heaton (16), along with the changes that were followed after the treatment. The researchers classified the stool on a scale of 1-7, from slow intestinal transit (Type 1) to liquid stool (Type 7). However, no validity and reliability studies are available for the Bristol stool stiffness scale, which is frequently used in the evaluation of constipation in literature (17-19).

Data Analysis

The data were analyzed using a statistical program. In descriptive statistics, some crucial parameters are given, such as mean for numerical variables, standard deviation, minimum and maximum values, and number and percentage values for categorical variables. Normality assumption was examined using the Shapiro-Wilks test. To analyze the differences between the groups, the significance test was used as the difference between the two means if normality assumptions were provided, whereas, in case of assumptions not being provided, the Mann-Whitney U test was used. The differences between the categorical variables were examined using the chi-square test. The meaningfulness between the groups was analyzed using the Tukey test for One-Way Variance Analysis and Dunn’s Kruskal-Wallis test for multiple comparisons. The significance level was considered if $p < 0.05$.

Ethical Approval

The study was approved by the Bolu Abant İzzet Baysal University Clinical Research Ethics Committee (30.11.2018/343). Verbal and written consent certificates were obtained from the patients and/or their relatives participating in the study. Also, the institution permission had been obtained.

Results

Descriptive Characteristics and Constipation History

The average age of patients who participated in this study was 75.5±1.4 years, which included 55.2% of women. Also, 61.2% were evaluated as immobile during their admission to the ICU. Previous constipation complaints were determined in 30.2% of patients while 26.6% defecated twice a week or less. Meanwhile, these patients had chronic diseases such as diabetes, stroke, or Parkinson's, with 42.9% of the patients using laxative drugs (Table 1).

Clinical Characteristics and Constipation in the ICU

In the ICU, some medications probably associated with constipation were used in the patients. It was determined that 82.8% of the patients used diuretics while 75.0% used anticholinergic drugs. Also, 46.6% and 75.9% used sedative drugs and mechanical ventilator (MV), respectively, while 6.9% of the patients in the ICU had mobility. Meanwhile, 16.4%, 1.7%, and 9.5% of patients developed an infection, ventilator-associated pneumonia (VAP), and vomiting, respectively.

The average hospitalization days of patients in the ICU were calculated as 17.1±19.3. Other clinical features are given in Table 2.

During the study, the constipation frequency of patients in the ICU was determined to be 63.8%, where 18 patients developed early constipation and 35 patients developed late constipation.

The examination of the first stool types in patients with constipation revealed diarrhea in 56.6% of patients (Type 6-7), normal stool type in 28.3% (Type 3-4-5), and constipation in 15.1% of patients (Type 1-2). The mean value for constipation development in patients during their stay in the ICU was found to be 1.2±0.6, while the mean duration of constipation was 6.6±1.7 days, and the mean of the first constipation day was 6.0 3.0 (Table 3).

Distension related to constipation was observed in 8.1% of the patients, while changes in nutrition due to constipation were observed in 1.4% of the patients. The enema/laxative treatment was applied to 51.4% of patients

Table 1.
Descriptive Characteristics and Constipation History of the Patients

Descriptive characteristics	Mean ± SD	Min-max
Age	75.5±1.4	27-95
Gender	n	%
Female	64	55.2
Male	52	44.8
Mobility status		
Mobile	45	38.8
Immobile	71	61.2
Constipation history		
Presence of constipation before admission to ICU		
No	43	37.1
Yes	35	30.2
Unknown	38	32.7
Frequency of defecation before admission to ICU		
7 times per week	25	21.6
3 times per week	22	19.0
Twice per week	18	15.4
Once per week	9	7.8
More than a week	4	3.4
Unknown	38	32.8
Using drugs for constipation	15	42.9
Chronic disease associated with constipation		
Diabetes	30	85.7
Stroke	3	8.6
Parkinson disease	2	5.7

SD=Standard deviation, ICU=intensive care unit

Table 2.
Clinical Characteristics of the Patients

Clinical characteristics	n	%
Using drugs associated with constipation in the ICU		
Diuretic	96	82.8
Anticholinergic	87	75.0
Vasoactive	69	59.5
Calcium channel blocker	56	48.3
Analgesic	24	20.7
Anticonvulsant	16	13.8
Opioid	11	9.5
Others*	9	7.7
Using sedative drugs	54	46.6
Using mechanical ventilator	88	75.9
The number of patients mobilized	8	6.9
The development of infections	19	16.4
The development of VAP	2	1.7
	Mean ± SD	Min-max
The duration of stay in the ICU	17.1±19.3	5-104
GCS	10.64±2.9	3-15
APACHE2	21.7±1.1	1-75
WBC (K/uL)	12.9±1.0	3.8-84.9
CRP (mg/L)	79.6±3.6	1-144
Body temperature	36.6±0.1	36.3-36.9
The duration of mechanical ventilator support (days)	11.6±9.0	1-30
The duration of enteral nutrition (days)	10.4±8.4	1-32
The duration of parenteral nutrition (days)	6.5±5.0	1-27
Amount of GRV	275±170.57	50-830

*=Antipsychotic, antispasmodic, antidepressant, **VAP=ventilator-associated pneumonia, ICU=intensive care unit, GCS=Glasgow Coma scale, APACHE 2=acute physiology and chronic health assessment 2, WBC=white blood cell, CRP=C-reactive protein, GRV=gastric residual volume

who had developed constipation. Furthermore, 68.4% of patients developed diarrhea after receiving enema/laxative treatment (Table 3).

Comparison Between Descriptive and Clinical Characteristics of Patients According to the Constipation Status and Types

We initially compared the descriptive and clinical characteristics of patients with and without constipation (data not shown) and found no statistically significant difference between the descriptive and clinical characteristics of patients and constipation development ($p>0.05$).

The descriptive and clinical characteristics of patients who did not have constipation but developed early and late-type constipation were examined, which is shown in Table 4. Accordingly, no statistically meaningful

difference was found between the patients' descriptive characteristics and groups ($p>0.05$). The mean value of the days of hospitalization in the ICU was found to be higher in the group with constipation compared to the group without constipation and was according to the clinical characteristics of the patients ($p<0.01$). Compared to the group without constipation, the diuretic drug usage was higher in the early constipation group, while the mean days of enteral feeding were higher in the late constipation group ($p<0.05$). Increased distension was developed in the late constipation group compared to the early type group ($p<0.05$). Furthermore, the number of constipation development in the late-type group was higher than those in the early-type constipation group ($p<0.05$).

Discussion

Patients in the ICU are more likely to encounter factors such as immobility, drug usage, mechanical ventilator, and

Table 3.
Characteristics of the Constipated Patients in the Intensive Care Unit

Constipation characteristics	n	%
Developing constipation in ICU	74	63.8
Constipation type (n=74)		
Early constipation	18	34.0
Late constipation	35	66.0
Undetermined *	21	-
The first stool types in patients with constipation (n=53)		
Diarrhea (Type 6-7)	30	56.6
Normal (Type 3-4-5)	15	28.3
Constipation (Type 1-2)	8	15.1
Vomiting	11	9.5
Distension (n=74)*	6	8.1
Nutritional change due to constipation (n=74)**	1	1.4
Number of patients using enema/laxative (n=74)**	38	51.4
Enema/laxative-induced diarrhea (n=38)	26	68.4
	Mean ± SD	Min-max
The number of constipation developments during the stay in the ICU	1.2±0.6	1-4
The duration of constipation (days)	6.6±1.7	4-11
First constipation day from admission	6.0±3.0	4-25

*=Patients who left the ICU while constipation continues, **=it was evaluated on patients with constipation, **ICU=intensive care unit, SD=standard deviation, ICU=intensive care unit

changes in nutrition which may affect their defecation processes owing to their critical condition. For these patients, it is recommended that four or more days of non-defecation is defined as constipation, contrary to its definition in the general population (10,11). In our study, this approach was used as a reference and in more than half of the patients, we observed the development of constipation. In the literature, constipation frequency varies between 34% and 83% (6-10,12,13). Similarly, the frequencies of early and late constipation obtained in different studies also vary (7-10,12,13). These differences may be due to the sample characteristics, measurement tools, and definitions of constipation in various studies.

Previous constipation history and some clinical features of intensive care patients may cause the development of constipation. In contrast to other studies, we examined the constipation history of patients before admitting them to the ICU. Although the defecation duration was evaluated as four days, the frequency of constipation was observed to be approximately two times higher in intensive care compared to that found in the evaluation of patients before admission to the ICU. Additionally, no significant difference was observed in terms of constipation history between patients who developed constipation and those who did not develop constipation. Furthermore, no significant difference was found between the groups in terms of patients' descriptive

characteristics, including age, gender, mobilization status at admission, and clinical characteristics such as drugs used and the average number of days spent on mechanical ventilation. These findings may indicate the homogeneous distribution of the groups.

Some medications used in the ICU, such as diuretics, sedatives, vasoactive, etc., can also affect the development of constipation (5,20). We determined that although the usage of diuretics triggered constipation, the use of sedatives (midazolam) and opioids (transdermal fentanyl) did not show a significant difference in the development of constipation.

The effect of diuretic usage on constipation has not been investigated in related studies. Prat et al. (8) determined that the sedation usage (midazolam and sufentanil) was higher in patients who developed constipation. However, Nassar et al. (7) found no relationship between opioid usage and constipation development, while Fukuda et al. (12) reported an association between an opioid, i.e., fentanyl group drugs, and constipation. Transdermal fentanyl is less effective in developing constipation compared to morphine (21). The use of fentanyl as an opioid in our study may have affected the result. As a result, we also considered the use of drugs that do not cause or cause less constipation in intensive care patients.

Table 4.
Descriptive and Clinical Characteristics of Not Constipated, and Early and Late-type Constipated Patients

Constipation status				
Descriptive and clinical characteristics	No constipation (n=42)	Early constipation (n=18)	Late constipation (n=35)	p
Age (\bar{x}) \pm SD	77.83 \pm 12.67	77.94 \pm 10.92	74.17 \pm 16.38	0.46
Gender (female/male)	25 (59.5)/ 17 (40.5)	11 (61.1)/ 7 (38.9)	18 (51.4)/ 17 (48.6)	0.71
Mobility status				
Immobile	23 (54.8)	14 (77.8)	21 (60.0)	0.24
Mobile	19 (45.2)	4 (22.2)	14 (40.0)	
Presence of constipation before admission to ICU				
No	16 (38.1)	7 (38.9)	16 (45.7)	0.33
Yes	14 (33.3)	4 (22.2)	14 (40.0)	
Unknown	12 (28.6)	7 (38.9)	5 (14.3)	
Frequency of defecation before admission to ICU				
7 times per week	11 (26.2)	3 (16.7)	7 (20.0)	0.21
3 times per week	9 (21.4)	5 (27.8)	5 (14.3)	
Twice per week	5 (11.9)	1 (5.6)	11 (31.4)	
Once per week	4 (9.5)	1 (5.6)	4 (11.4)	
More than a week	1 (2.4)	0 (0.0)	2 (5.7)	
Using drugs for constipation	7 (50.0)	0 (0.0)	8 (57.1)	0.06
Presence of chronic disease associated with constipation				
Absent	25 (59.5)	16 (88.9)	26 (74.3)	0.06
Available	17 (40.5)	2 (11.1)	9 (25.7)	
Chronic disease associated with constipation				
Diabetes	15 (88.2)	2 (100)	7 (77.8)	0.08
Stroke	1 (5.9)	0 (0.0)	1 (11.1)	0.65
Parkinson disease	1 (5.9)	0 (0.0)	1 (11.1)	0.65
Using drugs associated with constipation in the ICU				
Diuretic	32 (76.2)	18 (100.0)	30 (85.7)	0.02
Anticholinergic	32 (76.2)	12 (66.7)	27 (77.1)	0.69
Vasoactive	25 (59.5)	12 (66.7)	18 (51.4)	0.55
Calcium channel blocker	19 (45.2)	9 (50.0)	18 (51.4)	0.85
Analgesic	11 (26.2)	6 (33.3)	6 (17.1)	0.40
Anticonvulsant	6 (14.3)	2 (11.1)	5 (14.3)	0.94
Opioid	5 (11.9)	1 (5.6)	3 (8.6)	0.71
Sedative drug use				
No	25 (59.5)	9 (50.0)	14 (40.0)	0.23
Yes	17 (40.5)	9 (50.0)	21 (60.0)	
The number of patients mobilized	2 (4.8)	2 (11.1)	3 (8.6)	0.65
The development of infections	6 (14.3)	6 (33.3)	5 (14.3)	0.20
The development of VAP	0 (0.0)	1 (5.6)	1 (2.9)	0.27
Vomiting	5 (11.9)	3 (16.7)	2 (5.7)	0.42

Table 4.
Continued

Constipation status				
Descriptive and clinical characteristics	No constipation (n=42)	Early constipation (n=18)	Late constipation (n=35)	p
Distension *	-	1 (5.6)	5 (14.3)	0.016
Enema/laxative-induced diarrhea *	-	3 (60.0)	23 (74.2)	0.603
The duration of stay in the ICU (day) (\bar{x}) \pm SD	15.64 \pm 19.61	24.47 \pm 24.23	20.52 \pm 19.35	0.00
GCS	10.88 \pm 2.88	10.28 \pm 2.62	10.20 \pm 2.57	0.52
APACHE2	22.64 \pm 13.26	22.81 \pm 13.16	19.83 \pm 8.38	0.71
WBC (K/uL)	13.22 \pm 12.57	11.54 \pm 6.55	10.58 \pm 3.73	0.79
CRP (mg/L)	81.61 \pm 32.15	85.11 \pm 30.37	70.62 \pm 33.27	0.21
Body Temperature	36.58 \pm 0.13	36.57 \pm 0.13	36.58 \pm 0.12	0.95
The duration of mechanical ventilator support (days) (\bar{x}) \pm SD	13.88 \pm 10.55	14.5 \pm 9.37	11.5 \pm 8.67	0.38
The duration of enteral nutrition (days) (\bar{x}) \pm SD	8.38 \pm 7.38	11.82 \pm 8.59	13.21 \pm 9.05	0.04
The duration of parenteral nutrition (days) (\bar{x}) \pm SD	7.59 \pm 6.17	6.54 \pm 4.16	5.71 \pm 4.89	0.29
Amount of GRV	330.91 \pm 166.76	188.75 \pm 71	251.67 \pm 211.44	0.15
The number of constipation developments during the stay in the ICU*	-	1.06 \pm 0.24	1.46 \pm 0.74	0.02
First constipation day from admission *	-	6.44 \pm 4.80	6 \pm 2.01	0.46
The first stool types in patients with constipation*				
Diarrhea (Type 6-7)	-	11 (61.1)	20 (57.1)	0.84
Normal (Type 3-4-5)	-	5 (27.8)	9 (25.7)	
Constipation (Type 1-2)	-	2 (11.1)	6 (17.2)	

*=it was evaluated on patients with constipation, ****VAP=ventilator-associated pneumonia, ICU=intensive care unit, GCS=Glasgow Coma scale, APACHE 2=acute physiology and chronic health assessment 2, WBC=white blood cell, CRP=C-reactive protein, GRV=gastric residual volume, SD=standard deviation

Similar to other studies, our study also determined longer days of enteral feeding in patients with constipation (8,9). Bittencourt et al. (22) determined that constipation is more frequent than diarrhea in patients who are fed with the enteral route. Also, the use of fiber-free enteral nutrition products and mechanical ventilators was associated with constipation. We could not achieve homogeneity in our study in terms of nutritional products due to the differences in diagnoses of the disease, length of the study, and inability to supply the same products. Feed starting time is also essential to evaluate the effect of enteral feeding on constipation. The risk of developing constipation is stated to be low in patients who start enteral feeding early (10). However, due to the lack of enteral feeding protocol in the ICU of our study, there was no availability of a standard feeding day or starting dose. Therefore, we could not

evaluate the effect of time on constipation related to the start of enteral feeding.

Among the other clinical features related to the development of constipation in the ICU, a similarity was observed in the average number of days on mechanical ventilation between patients with early and late constipation and patients without constipation. Although the effect of the mechanical ventilator on the gastrointestinal system is not clear (23), literature has reported different results in explaining the relationship between constipation and the usage of a mechanical ventilator.

Although Prat et al. (8,9) and Gacouin et al. (13) reported constipation in patients who stayed more on mechanical ventilation, Fukuda et al. (12) and Guerra et al. (10) found no

relationship between the usage of a mechanical ventilator and the development of constipation. This difference may be due to the characteristics of patients and the drugs being used.

We determined that the patients in early and late constipation groups stayed longer in ICU than patients without constipation. Although our study results were similar to Prat et al. (8,9) and Fukuda et al. (12), the results differed from those of Nassar et al. (7) and Guerra et al. (10). The length of stay in the ICU may increase exposure to other constipation risk factors such as risky medications, inactivity, and enteral nutrition.

We found no difference between the development of constipation and the amount of GRV, which was similar to the literature (7,13). The enema/laxative treatment was applied to half of the patients with constipation, and after the treatment, more than half developed diarrhea. Additionally, for the first time, we examined vomiting and distension as a result of constipation in our study. No relationship was observed between vomiting and constipation development in patients, while increased distension was developed in the late constipation group. Our data confirm the relationship between constipation and distension, which was also reported in the previous literature (24,25).

We found no relationship between the development of VAP and constipation. Prat et al. (8) reported a higher rate of VAP in patients with constipation. Also, Gacouin et al. (13) reported higher VAP development in the late defecation group. The results of our study showed some differences when compared to the literature data. We observed that two patients (1.7%) developed both VAP and constipation. While one of these patients was in the early constipation group, the other one was in the late constipation group. The low VAP frequency in the unit, the application of a care package to prevent VAP, and the low sample number may have affected our data.

Our study was different from the literature since, for the first time, we determined the first type of defecation in patients after constipation using the Bristol stool consistency scale. As a result, the first form of defecation after constipation was determined as diarrhea (type 6-7) in more than half of the patients. While some of these patients developed diarrhea as a result of laxative usage, diarrhea in patients without the use of laxatives suggested a slow rate of routine intestinal transit. Hence, our data confirmed the constipation period in ICU patients to be six days.

Furthermore, no statistically significant difference was detected between the development of constipation and the values of GCS, APACHE2, WBC, CRP, and body temperature. However, in one study, CRP, WBC, and body temperature values increased more in the late defecation patients compared to the early defecation patients, which may be associated with inflammatory activity and organ failure (12). Some factors were believed to affect the mobilization status

of the intensive care patients, such as prognosis (APACHE2) and consciousness state (GCS), which might be associated with constipation. However, in our study, no difference was found between the groups. Finally, we observed that the numbers of constipation was higher in late constipation patients, which may indicate the relationship between recurrent constipation and the development of chronic constipation in intensive care patients.

Study Limitations

The data are limited to the patients who were followed up on certain dates in the hospital. Also, a standard nutritional product, weaning from the ventilator, and mobilization program for the patients could not be maintained.

Conclusions

Although the duration of defecation was evaluated as four days, the frequency of constipation in the ICU was found to be approximately two times higher than that found in the evaluation of patients/their relatives before admission to the ICU. The enema/laxative was applied to half of the patients with constipation after which, more than half of the patients developed diarrhea. Additionally, the hospitalization time of patients in both constipation groups was longer than the group without constipation. We observed that patients who developed constipation were given more diuretics. Increased constipation and distension were developed in late-type constipation than in early-type constipation patients. Furthermore, we concluded that patients with constipation were more frequently fed via enteral feeding with a higher number of enteral feeding days in late-type constipation than those without constipation. Holistic nursing care is very important in preventing constipation and its complications in ICU patients. Therefore, nurses should evaluate the patient's risk factors for constipation, defecation activity, and daily bowel movements to maintain the patient's comfort. The nurse should evaluate the patients who are started on diuretics, have a longer stay in the ICU, and switch to enteral nutrition more frequently in terms of constipation. Nurses should attempt to prevent or eliminate constipation via non-pharmacological interventions in line with the patients' evaluation of the defecation pattern. Nurses should attempt to prevent or eliminate constipation via non-pharmacological interventions in line with the patients' evaluation of the defecation pattern. The study recommends investigating related factors with constipation in intensive care such as using MV, and the development of VAP in larger sample groups. Also, the same study can be conducted in different patient groups.

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Informed Consent: Verbal and written consent certificates were obtained from the patients and/or their relatives participating in the study.

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ORIGINAL ARTICLE

The Fear of COVID-19 and Marital Adjustment in Pregnancy: Descriptive and A Cross-sectional Design

Gebelikte COVID-19 Korkusu ve Evlilik Uyumu: Tanımlayıcı ve Kesitsel Çalışma

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Abstract

Objective: This research was planned to investigate the marital adjustment of pregnant women and their Coronavirus disease-2019 (COVID-19) fear during the COVID-19 pandemic period and identify the association between these two variables.

Method: This study was performed with a descriptive and cross-sectional design from October 2021 to January 2022.

Results: A total of 193 pregnant and married women participated in the research. It was discerned that the variable of marital adjustment perception had no effect on women's Fear of COVID-19 Scale scores ($p>0.05$) whereas it had a statistically significant effect on their Marital Adjustment Test, Relationship Style Sub-Scale, and Agreement Sub-Scale scores ($p<0.05$). Besides, it was identified that women's Fear of COVID-19 Scale scores had no statistically significant relationship with their scores on the Marital Adjustment Test and its dimensions ($p>0.05$).

Conclusion: It was determined in the present study that the fear of COVID-19 did not affect the marital adjustment levels of pregnant women significantly, and as the marital adjustment scores of the participants increased, their agreement and relationship style scores also increased.

Keywords: Pregnancy, fear of COVID-19, marriage, adjustment, fear

Öz

Amaç: Bu araştırma Koronavirüs hastalığı-2019 (COVID-19) pandemisi sırasında gebelerin evlilik uyumunu ve COVID-19 korkusunu değerlendirmek ve bu iki değişken arasındaki ilişkiyi belirlemek amacı ile planlanmıştır.

Yöntem: Tanımlayıcı ve kesitsel tipte olan bu araştırma Ekim 2021-Ocak 2022 tarihleri arasında yürütülmüştür.

Bulgular: Araştırmaya 193 gebe ve evli kadın katılmıştır. Kadınların evlilik uyumu algısı COVID-19 Korkusu Ölçeği puanlarını etkilemezken ($p>0,05$), Evlilik Uyum Ölçeği toplam, ilişki tarzı ve anlaşma alt ölçeği puanlarını etkilediği bulunmuştur ($p<0,05$). COVID-19 Korkusu Ölçeği ile Evlilik Uyum Ölçeği toplam ve alt ölçekleri puanları arasında ilişki bulunmadığı saptanmıştır ($p>0,05$).

Sonuç: Bu çalışmanın sonucunda gebelikte yaşanan COVID-19 korkusunun evlilik uyumunu etkilemediği ancak evlilik uyumunun anlaşma ve ilişki tarzı ile yüksek düzeyde pozitif yönde bir ilişkiye sahip olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Gebelik, COVID-19, evlilik, uyum, korku

Introduction

Pregnancy is a process in which women undergo biopsychosocial changes (1,2). In this process, the woman assumes certain developmental roles such as accepting the

pregnancy, reorganizing her relations with her mother and spouse, forming a relationship with her unborn baby, and getting prepared for the childbirth experience (3). While the woman copes with these situations, the man is also affected

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by these changes that occur during the pregnancy process (2). So that the woman can have a successful experience during this process, the spouse's involvement in the process is important (3). At this point, marital adjustment is one of the concepts that come forward. As per the study by Deliktas Demirci et al. (4), marital adjustment is defined as the reciprocal relationship between the acceptance of pregnancy, the adaptation to the motherhood role, and maternal attachment. In other words, pregnancy and marital adjustment are concepts that both affect each other and are affected by each other (5). Marital adjustment in pregnancy is affected by variables such as social support, motherhood role, acceptance of pregnancy, pregnant woman's education level, marriage duration, whether the woman has household responsibilities, income level, the status of having a planned pregnancy, and whether the spouses are in a love marriage (4,6-10). Nosrati et al. (11) stated that affective changes, anxiety, and fears felt during the pregnancy period were factors that were likely to affect the marital adjustment negatively.

The fear of Coronavirus disease-2019 (COVID-19) is defined as reactions that arise along with the intense stimulation of the fear of being infected with the virus causing the COVID-19 disease (12). The most significant psychological influence of the COVID-19 pandemic was asserted to be fear (13). It was put forward that factors such as the health anxiety, the use of social media, the worry felt about the well-being of one's loved ones, the inability to access information regarding the virus, uncertainties and the failure to act, fears about the financial consequences of the COVID-19 pandemic, the hesitation to come together with strangers, and virus control and elimination behaviors that challenged the individuals were among the factors that explained the fear of COVID-19 (14-18). Women experience greater degrees of COVID-19 fear in comparison to men (19-21). In the study by Fitzpatrick et al. (22), certain groups were found to have higher greater COVID-19 fear levels, while it was also a quite striking finding that women and married individuals were among the sensitive groups.

Additionally, being in the pregnancy period during the COVID-19 pandemic comes forward as another factor that negatively affects women (23). The effects of past epidemics on pregnant women varied, and due to changes in both hormonal levels and in the immune system, pregnancy made women a risky group in this process (24). Considering that the pregnancy is accompanied by affective changes (1), it is considered that the fear of COVID-19 may also have had negative effects on the woman's affective state and deeply influenced the woman's life. Marital adjustment can be one of these effects. Upon the examination of studies in the

literature, it was found that there were not enough studies on this particular topic (2). Thus, studies to be performed on this topic with different samples are needed as well as more comprehensive knowledge about the topic in the relevant literature. In this respect, this research was planned to investigate the marital adjustment and COVID-19 fear levels of pregnant women in the COVID-19 pandemic period and identify the association between these two variables.

Thus, the below research questions were put forward:

- What are the pregnant women's marital adjustment levels like?
- What are the pregnant women's COVID-19 fear levels like?
- Is there any difference in pregnant women's marital adjustment and COVID-19 fear levels as per their socio-demographic characteristics, pregnancy-related characteristics, and marital adjustment perception?
- Does the fear of COVID-19 felt by pregnant women affect the pregnant women's marital adjustment?

Material and Method

Design and Sample

The research was conducted with a descriptive and cross-sectional design. The research population was the married pregnant women registered at three family health centers selected by lot in the Central Anatolia Region of Turkey, were in any trimester of pregnancy, were aged over 18 years, and agreed to take part in this study. It was determined that the number of pregnant women aged over 18 years and registered at these family health centers was 473 (n=473). The minimum required size of a sample for the research was computed using the OpenEpi Version 3.0 (OpenEpi, 2021) (25), and in this respect, the minimum sample size was found as 173 (n=473, p=50% ±5, d= ±0.05, confidence interval: 90%) and the research was finalized with 193 women. In addition, a pilot study was conducted with 10 pregnant women before the study in order to test the understandability of the data collection forms of the study and to eliminate possible problems. The understandability of the questions was determined and the data collection phase began. Pregnant women included in the pilot study were not included in the research sample. Pregnant women were asked to fill out the data forms as soon as they were available during the day.

Data Collection

The data were obtained using a personal information form, the marital adjustment test, and the fear of COVID-19 scale.

The data collection process took place between October 2021 and January 2022. The data were provided by the participants women with an online questionnaire form (Google Forms) due to the ongoing COVID-19 pandemic.

Main Points

- Pregnancy affects marital adjustment.
- The fear of Coronavirus disease-2019 is higher among women and married individuals.
- Pregnant women who have high-level marital adjustment perception also have high-level agreement and relationship style.

Instruments

The Personal Information Form

The personal information form was a form consisting of 13 items that was developed by researchers to find out women's and their spouses' socio-demographic characteristics, women's pregnancy-related characteristics, and their marital adjustment perceptions.

The Marital Adjustment Test (MAT)

Locke and Wallace (26) developed the MAT that aimed to measure marital adjustment and the satisfaction felt from the marital relationship, and Kışlak (27) performed a validity and reliability study to adapt the MAT to Turkish. Comprised of two sub-scales, the MAT has 15 items offering different numbers of choices to select. The first MAT sub-scale (the first nine items) shows the status of the respondent's agreement or disagreement whilst the second MAT sub-scale (the last six items) refers to the respondent's relationship style (27). Each MAT item is scored depending on the number of its choices. In this respect, the item 1 is scored from 0 to 6, items 2-9 are scored from 0 to 5, the item 10 is scored respectively as 0, 0, 1, the item 11 is scored as 3, 2, 1, 0, the item 12 is scored as 0 for the choice of "disagreement" and as 1 for choices of "on the go" and "stay at home" in the two sub-items, the item 13 is scored as 0, 1, 2, 3, the item 14 is scored as 2, 1, 0, and lastly, the item 15 is scored as 0, 1, 2, 2 (27). A respondent obtaining 43 points or above from the MAT is considered to have a well-adjusted marital relationship while a respondent obtaining a score below 43 points is accepted as having no well-adjusted marital relationship. In the assessments of the validity and reliability of the scale that were performed by Kışlak (27), Cronbach's alpha coefficient of the scale was reported to be 0.80. In the current study, it was calculated as 0.83 for the MAT.

The Fear of COVID-19 Scale (FCV-19S)

The FCV-19S was created by Ahorsu et al. (28), and its validity and reliability study in Turkish was carried out by Satici et al. (29). Composed of seven questions, the FCV-19S is scored as per a five-point Likert scale (1- I strongly disagree, 5- I strongly agree). No inversely scored items are included in the FCV-19S. The lowest and highest possible score on the FCV-19S is 7 and 35. Higher FCV-19S scores show that the respondent has higher levels of fear of the COVID-19 pandemic. In the Turkish validity and reliability study for the FCV-19S, the Cronbach's alpha value of the scale was reported to be 0.82. In the current study, this coefficient was calculated as 0.88.

Ethical Considerations

Before implementing the study, ethical approval was received from the non-invasive clinical trials Ethics Committee of the Atatürk University (B.30.2.ATA.0.01.00/280), and permission was provided in writing by the institution where the study would be carried out (commission decision no: 2021/05). All

procedures in the study, institutional research committee's ethical standards and the 1964 Helsinki Declaration and its subsequent amendments or in accordance with comparable ethical standards has been carried out. Pregnant and married women who signed the informed consent form were included in the study.

Statistical Analysis

The IBM Statistical Package for the Social Sciences (SPSS) 22.0 was used to analyze the data. Percentage, arithmetic mean, standard deviation, median, and minimum and maximum values were used to express descriptive statistics. The normality of the distribution of the data was checked using the Shapiro-Wilk test and Q-Q plots. For the normally distributed data, the Mann-Whitney U test was used to compare two groups independent of each other, whereas the Kruskal-Wallis H test was utilized to compare more than two groups independent of each other. Spearman's correlation analysis was conducted to identify the relationship between the two variables. The level of statistical significance was accepted to be a p-value smaller than 0.05 ($p < 0.05$).

Results

First, Table 1 displayed women's socio-demographic characteristics. Of all participant women, 33.7% were aged 25-29 years, 41.5% were graduates of a university undergraduate program, 62.2% had an income equaling their expenses, and 43.1% were married for 1-3 years. Next, of the women's spouses, 36.3% were aged 30-34 years, 42.0% were graduates of a university undergraduate program, and 87.6% had nuclear families.

Second, Table 2 exhibited women's pregnancy-related characteristics. Of all participant women, 75.6% had a planned pregnancy, 49.2% were having their first pregnancy, 68.4% had a gestational age of 27-41 weeks, 64.8% had social support during pregnancy, and 50.3% perceived their marital adjustment as good.

Third, upon the review of Table 3 that indicated women's MAT and FCV-19S scores, it was revealed that the mean MAT scores, the mean MAT agreement and relationship style sub-scale scores, and the mean FCV-19S scores of the participants were consecutively 46.95 ± 7.69 , 36.19 ± 5.94 , 10.76 ± 2.51 , and 19.04 ± 7.05 points.

Fourth, Table 4 showed the breakdown of women's mean FCV-19S and MAT scores as per their socio-demographic characteristics. The analyses revealed no significant difference in women's mean FCV-19S and MAT scores as per the variables of age, employment status, spouse's age, and family type ($p > 0.05$).

Besides, it was identified that the variable of education level had no statistically significant effect on women's FCV-19S scores ($p > 0.05$) whereas women who were primary school graduates and women who were graduates of a university undergraduate program obtained higher mean scores from

Table 1.
Participant Women's Socio-demographic Characteristics

Characteristics	Number (n)	Percentage (%)
Age		
18-24 years	42	21.8
25-29 years	65	33.7
30-34 years	61	31.5
35-49 years	25	13
Education level		
Primary school	45	23.3
High school	50	25.9
Undergraduate program	80	41.5
Graduate program	18	9.3
Employment status		
Working	68	35.2
Not working	125	64.8
Perceived income level		
Income below expenses	46	23.8
Income equaling expenses	120	62.2
Income above expenses	27	14
Duration of marriage		
Below 1 year	17	8.8
1-3 years	83	43.1
4-7 years	51	26.4
8-10 years	18	9.3
10 years or above	24	12.4
Spouse's age		
18-24 years	15	7.8
25-29 years	53	27.4
30-34 years	70	36.3
35-49 years	55	28.5
Spouse's education level		
Primary school	45	23.3
High school	58	30.1
Undergraduate program	81	42
Graduate program	9	4.6
Family type		
Nuclear family	169	87.6
Extended family	24	12.4
Total	193	100

the MAT and its agreement sub-scale than other groups of women with different education levels and this difference in the comparisons of the groups was found to be significant

(consecutively $p=0.010$ and $p=0.028$). Also, it was found that women who were high school graduates obtained a lower mean score from the MAT relationship style sub-scale than other groups of women with different education levels and this difference between the groups was found to be significant ($p=0.020$).

What is more, it was discerned that the variable of income level had no significant influence on the MAT relationship style sub-scale scores of the women ($p>0.05$), while, in contrast, women who had an income equaling their expenses obtained higher mean scores from the MAT

Table 2.
Participant Women's Pregnancy-related Characteristics

Characteristics	Number (n)	Percentage (%)
Status of having a planned pregnancy		
Yes	146	75.6
No	47	24.4
Gravidity		
1	95	49.2
2	52	26.9
3	29	15.1
4 or above	17	8.8
Gestational age		
1-13 weeks	12	6.2
14-26 weeks	46	23.8
27-41 weeks	132	68.4
41 weeks or above	3	1.6
Status of having social support during pregnancy		
Yes	125	64.8
No	68	35.2
Perception of the marital adjustment		
Moderate	26	13.4
Good	97	50.3
Very good	70	36.3
Total	193	100

Table 3.
Participant Women's MAT and FCV-19S Scores

Scales and sub-scales	$\bar{X} \pm SD$	Median (min-max)
MAT	46.95±7.69	48 (16-60)
Agreement sub-scale	36.19±5.94	36 (6-46)
Relationship style sub-scale	10.76±2.51	11 (3-14)
FCV-19S	19.04±7.05	19 (7-35)

SD=standard deviation, MAT=marital adjustment test, FCV-19S=fear of COVID-19 scale, COVID-19=Coronavirus disease-2019

Table 4.
The Breakdown of the Women’s Mean FCV-19S and MAT Scores as Per Their Socio-demographic Characteristics

Characteristics	FCV-19S	MAT		
		Agreement sub-scale	Relationship style sub-scale	Overall MAT
	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Age				
18-24 years	17.00±7.79	36.26±5.92	10.33±2.66	46.60±7.96
25-29 years	19.94±7.41	36.25±6.52	11.12±2.00	47.37±7.81
30-34 years	19.28±5.60	35.80±5.35	10.56±2.79	46.36±7.43
35-49 years	19.52±7.69	36.88±6.00	11.00±2.69	47.88±7.86
Test*	$\chi^2=3.960$	$\chi^2=1.260$	$\chi^2=2.395$	$\chi^2=1.437$
	p=0.266	p=0.739	p=0.495	p=0.697
Education level				
Primary school	18.62±6.44	36.58±5.80 ^a	10.56±2.26 ^a	47.13±7.67 ^a
High school	18.58±7.42	34.58±5.86 ^b	9.92±2.96 ^b	44.50±7.97 ^b
Undergraduate program	19.90±7.16	37.58±5.03 ^a	11.31±2.34 ^c	48.89±6.67 ^a
Graduate program	17.50±7.10	33.56±8.37 ^b	11.11±1.81 ^c	44.67±9.25 ^b
Test*	$\chi^2=2.370$	$\chi^2=9.120$	$\chi^2=9.798$	$\chi^2=11.433$
	p=0.499	p=0.028	p=0.020	p=0.010
Employment status				
Working	18.31±7.04	35.88±6.17	11.24±2.12	47.12±7.28
Not working	19.43±7.05	36.36±5.82	10.50±2.66	46.86±7.93
Test**	z=-1.305	z=-0.247	z=-1.780	z=-0.254
	p=0.192	p=0.805	p=0.075	p=0.800
Perceived income level				
Income below expenses	17.91±7.88 ^a	34.50±5.86 ^a	10.22±2.45	44.72±7.49 ^a
Income equaling expenses	20.31±6.73 ^b	36.48±6.05 ^b	10.95±2.57	47.43±7.90 ^b
Income above expenses	15.30±5.28 ^c	37.81±5.01 ^c	10.81±2.27	48.63±6.43 ^c
Test*	$\chi^2=13.427$	$\chi^2=6.577$	$\chi^2=4.066$	$\chi^2=6.177$
	p=0.001	p=0.037	p=0.131	p=0.046
Duration of marriage				
Below 1 year	17.18±7.52	36.59±6.46	10.53±3.18 ^{ab}	47.12±9.12
1-3 years	19.48±7.12	36.58±6.13	11.30±2.24 ^a	47.88±7.57
3-5 years	18.73±7.08	36.02±5.17	10.73±2.02 ^{ab}	46.75±6.36
5-7 years	19.89±6.19	34.67±5.81	9.17±3.07 ^b	43.83±8.50
7-10 years	18.83±7.32	36.08±6.74	10.29±2.88 ^{ab}	46.38±8.91
10 years or above	$\chi^2=1.816$	$\chi^2=2.582$	$\chi^2=9.948$	$\chi^2=4.706$
Test*	p=0.769	p=0.630	p=0.041	p=0.319
Spouse’s age				
18-24 years	16.80±6.83	34.53±5.69	10.47±2.92	45.00±8.34
25-29 years	19.51±7.92	37.30±5.19	11.13±2.27	48.43±6.74
30-34 years	19.27±6.57	35.56±6.71	10.21±2.69	45.77±8.53
35-49 years	18.89±6.88	36.38±5.56	11.16±2.28	47.55±7.08
Test*	$\chi^2=1.556$	$\chi^2=2.893$	$\chi^2=5.655$	$\chi^2=3.602$
	p=0.669	p=0.408	p=0.130	p=0.308

Table 4.
Continued

Spouse's education level	18.56±7.00	35.91±5.89 ^a	10.33±2.54 ^a	46.24±7.94 ^a
Primary school	19.78±6.70	35.93±6.05 ^a	10.29±2.78 ^a	46.22±8.15 ^a
High school	18.37±7.29	37.30±4.82 ^b	11.46±2.01 ^b	48.75±6.02 ^b
Undergraduate program	22.67±6.89	29.33±9.77 ^c	9.56±3.21 ^c	38.89±11.19 ^c
Graduate program	$\chi^2=3.966$	$\chi^2=9.341$	$\chi^2=9.946$	$\chi^2=10.573$
Test*	p=0.265	p=0.025	p=0.019	p=0.014
Family type	19.20±7.06	36.18±6.07	10.83±2.46	47.01±7.80
Nuclear family	17.92±7.03	36.25±5.03	10.25±2.80	46.5±7.02
Extended family	z=-0.530	z=-0.153	z=-1.008	z=-0.518
Test**	p=0.596	p=0.879	p=0.313	p=0.604

*=the Kruskal-Wallis H test, **=the Mann-Whitney U test, ***=superscripts ^a, ^b, and ^c show the statistically significant between-group differences in mean scores as per each characteristic, and there is no statistically significant difference between groups with the same superscript, SD=standard deviation, MAT=marital adjustment test, FCV-19S=fear of COVID-19 scale, COVID-19=Coronavirus disease-2019

and its AGREEMENT SUB-SCALE than women who had an income below their expenses whilst women who had an income above their expenses obtained higher mean scores from the MAT and its agreement sub-scale than the other two groups of women with different income levels, and all these variations in the scores of the two groups of women were found significant (successively p=0.046 and p=0.037). Additionally, it was identified that women who had an income below their expenses had a higher FCV-19S mean score compared to women who had an income above their expenses while women who had an income equaling their expenses had higher FCV-19S mean scores compared to the other two groups with different income levels, and all these differences between the groups of women was statistically significant (p=0.001).

Furthermore, it was found that the variable of marriage duration had no statistically significant influence on women's FCV-19S, MAT, and MAT agreement sub-scale scores (p>0.05) whereas women who were married for 8-10 years had a lower MAT relationship style sub-scale score than women who were married for 1-3 years, and this difference was significant (p=0.041).

Next, it was discerned that the variable of spouse's education level had no significant influence on the FCV-19S scores of the participants (p>0.05), while conversely, women whose spouses were primary school graduates and women whose spouses were high school graduates obtained lower mean scores from the MAT, the MAT agreement sub-scale, and the MAT relationship style sub-scale than the other two groups of women, and all these differences in the comparisons of the groups was significant (respectively p=0.014, p=0.025, p=0.019).

Fifth, Table 5 indicated the breakdown of women's FCV-19S and MAT scores as per their pregnancy-related characteristics. No statistically significant variation was found in women's mean FCV-19S and MAT scores as per the variables of gestational age and the status of having social support during pregnancy (p>0.05).

Besides, it was found that the status of having a planned pregnancy had no statistically significant effect on women's FCV-19S and MAT agreement sub-scale scores (p>0.05) whereas women who had a planned pregnancy obtained higher mean scores from the MAT and its relationship style sub-scale than women who did not have planned pregnancies and this variation between the two groups of women was significant (successively p=0.004, p=0.042).

Moreover, it was discerned that the variable of gravidity had no statistically significant effect on women's FCV-19S, MAT, and MAT agreement sub-scale scores (p>0.05), while, as opposed to this result, women who had 4 or more pregnancies obtained a lower mean score from the MAT relationship style sub-scale than the two groups of women that had 1 pregnancy and 2 pregnancies and this difference between the groups of women turned out to be significant (p=0.007).

Furthermore, it was identified that the variable of the perception of the marital adjustment had no statistically significant influence on women's FCV-19S scores (p>0.05) whereas it had a statistically significant influence on women's MAT, MAT relationship style sub-scale, and MAT agreement sub-scale scores (p<0.05). In this regard, women who perceived their marital adjustment as very good obtained higher mean scores from the MAT and its relationship style sub-scale and agreement sub-scale than other groups of women with different perceptions, and this variation in the comparison of the groups of women was found significant (p=0.000).

Sixth, Table 6 showed the breakdown of women's mean FCV-19S scores as per the status of having a well-adjusted marital relationship. Considering the cutoff point designated for the MAT, it was found that the status of having a well-adjusted marital relationship had no statistically significant effect on women's FCV-19S scores (p>0.05).

Lastly, upon the review of the analysis of the correlation between women's MAT and FCV-19S scores in Table 7, it was discerned that women's FCV-19S scores had no statistically

Table 5.
The Breakdown of the Women’s Mean FCV-19S and MAT Scores as Per Their Pregnancy-related Characteristics

Characteristics	FCV-19S	MAT		Overall MAT
		Agreement sub-scale	Relationship style sub-scale	
	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Status of having a planned pregnancy				
Yes	19.18±6.67	36.52±5.88	11.09±2.27	47.61±7.38
No	18.57±8.18	35.17±6.06	9.72±2.92	44.89±8.34
Test**	z=-0.833	z=-1.502	z=-2.865	z=-2.034
	p=0.405	p=0.133	p=0.004	p=0.042
Gravidity				
1	18.74±6.75	37.00±6.28	11.29±2.26 ^a	48.29±7.81
2	19.04±7.34	35.54±5.09	10.63±2.43 ^a	46.17±6.66
3	20.97±6.60	35.41±5.76	10.03±3.02 ^{ab}	45.45±8.27
4 or above	17.41±8.43	35.00±6.51	9.35±2.40 ^b	44.35±8.16
Test*	$\chi^2=3.362$	$\chi^2=5.302$	$\chi^2=12.113$	$\chi^2=7.619$
	p=0.339	p=0.151	p=0.007	p=0.055
Gestational age				
1-26 weeks	18.62±7.51	35.69±6.39	10.31±2.51	46.00±7.82
27 weeks or above	19.21±6.87	36.41±5.74	10.95±2.49	47.36±7.63
Test**	z=-0.712	z=-0.656	z=-1.729	z=-1.297
	p=0.476	p=0.512	p=0.084	p=0.195
Status of having social support during pregnancy				
Yes	19.27±6.66	36.71±5.70	10.95±2.38	47.66±7.24
No	18.60±7.75	35.24±6.28	10.40±2.70	45.63±8.36
Test**	z=-0.685	z=-1.598	z=-1.285	z=-1.515
	p=0.493	p=0.110	p=0.199	p=0.130
Perception of the marital adjustment				
Moderate	19.12±7.45	30.15±4.64 ^a	9.08±3.14 ^a	39.23±7.08 ^a
Good	18.80±6.87	35.44±4.91 ^b	10.35±2.35 ^b	45.79±6.49 ^b
Very good	19.33±7.23	39.47±5.60 ^c	11.94±1.88 ^c	51.41±6.58 ^c
Test*	$\chi^2=0.192$	$\chi^2=58.870$	$\chi^2=30.027$	$\chi^2=58.012$
	p=0.908	p=0.000	p=0.000	p=0.000

*=the Kruskal-Wallis H test, *=the Mann-Whitney U test, **=superscripts ^a, ^b, and ^c show the statistically significant between-group differences in mean scores as per each characteristic, and there is no statistically significant difference between groups with the same superscript, SD=standard deviation, MAT=marital adjustment test, FCV-19S=fear of COVID-19 scale, COVID-19=Coronavirus disease-2019

significant correlation with their MAT total and sub-scale scores (p>0.05).

Discussion

The results of this study showed that of all participating women, 75.6% had a planned pregnancy, 49.2% were having their first pregnancy, 68.4% had a gestational age of 27-41 weeks, 64.8% had social support during pregnancy, and 50.3% perceived their marital adjustment as good. Abdollahpour et al. (30) reported that 69% of the women

had social support during pregnancy, and women who had an unwanted pregnancy had lower social support levels compared to those who had a wanted pregnancy, where this difference between the results of the two groups was significant (p<0.05). Also in other studies, it was discerned that having a planned pregnancy increased the received social support (31,32). Thus, the above-cited studies are in support of our study.

Besides, in the current research, it was found that women obtained a mean MAT score (46.95±7.69 points) and a

Table 6.
The Breakdown of the Women’s Mean FCV-19S Scores as Per the Status of Having A Well-adjusted Marital Relationship

Status of having a well-adjusted marital relationship*	n	FCV-19S
		$\bar{X} \pm SD$
Yes	134	18.74±6.59
No	59	19.69±8.00
Test**		z=-0.887 p=0.375

*=the cut-off point for the MAT was taken as 43.5 points, **=the Mann-Whitney U test, SD=standard deviation, MAT=marital adjustment test, FCV-19S=fear of COVID-19 scale, COVID-19=Coronavirus disease-2019

Table 7.
The Correlation Between Women’s MAT and FCV-19S Scores

Scales and sub-scales		FCV-19S	MAT agreement sub-scale	MAT relationship style sub-scale
MAT agreement sub-scale	r	-0.027		
	p	0.705		
MAT relationship style sub-scale	r	0.047	0.587**	
	p	0.513	0.000	
MAT	r	-0.002	0.966**	0.767**
	p	0.983	0.000	0.000

**=the Spearman’s correlation analysis, MAT=marital adjustment test, FCV-19S=fear of COVID-19 scale, COVID-19=Coronavirus disease-2019

mean FCV-19S score (19.04±7.05 points) above the medium level. Unlike the current study, in a study that analyzed the relationship of pregnancy stress to the fear of COVID-19, it was discerned that the mean score of FCV-19S (21.39±6.38) was above the medium level (33). This difference between research findings may have arisen from the fact that the two studies were performed with different samples in different cultures. On the other hand, the finding of the study by Şahin Altun et al. (34) stating that the mean MAT score was above the medium level was in parallel with the result of our study.

In the review of the literature conducted in the context of our study, it was identified that the fear of COVID-19 positively affected depression, anxiety, and somatization (35). Wu et al. (36) stated that as per the comparison of women’s anxiety levels before and after the onset of the COVID-19 pandemic period, pregnant women had higher levels of anxiety in the period following the declaration of COVID-19 as a pandemic. Also, the study by Saccone et al. (37) asserted that most pregnant women were worried to a severe extent in the COVID-19 pandemic while the study by Durankuş and Aksu (38) identified that the process of the COVID-19 pandemic period caused a rise in the pregnant

women’s depression and anxiety levels. Departing from the results of the above-cited studies in the relevant literature (35-38), the identification of medium-level fear of COVID-19 in pregnant women in the current research makes us think that pregnant participants may have been also at risk of psychological problems such as anxiety and depression.

Moreover, no statistically significant difference was discerned in this study in women’s mean FCV-19S and MAT scores as per the variables of age, employment status, spouse’s age, and family type (p>0.05). This result of the current research differs from results in the relevant literature in terms of certain variables (age, spouse’s age, employment status). In a study conducted to identify the factors affecting the marital adjustment in women, findings are in a similar vein to the finding of this study regarding the variables of age and family type, however, unlike the current study, there were statistically significant differences in women’s marital adjustment levels as per the variables of woman’s working style and spouse’s age (p<0.05) (34). In another study performed on working individuals’ marital adjustment, a statistically significant difference in pregnant women’s mean MAT scores was on their age groups was identified (p<0.05), and 82.10% of the pregnant women in the group aged 35-44 years did not have a well-adjusted marriage (39). In the literature, some studies found statistically significant relationships between marital adjustment and demographic variables (34,40,41), however, in similarity to the result of our study, certain researchers stated there was no statistically significant relationship in this regard (42,43). Along with this situation, it is considered that the variables related to sociological, psychological, and environmental conditions that differed over time may have led to a difference in the effect of these variables on marital adjustment, and also, the differences between findings may have stemmed from the differences between regions where studies were carried out.

Furthermore, in the current research, it was identified that, as per the gestational age and the status of having social support during pregnancy, there was no statistically significant difference in the women’s mean the FCV-19S, MAT total, and MAT sub-scale scores (p>0.05). In contrast with the result of this study, a study that was performed to identify the relationship of marital adjustment to perceived social support during pregnancy found that, while the levels of perceived social support increased, the marital adjustment levels of the participants decreased (8). This situation could have stemmed from differences in the sample size as well as cultural differences. In the present study, it was also found that the status of having a planned pregnancy had no significant influence on women’s FCV-19S and MAT agreement sub-scale scores (p>0.05). Nonetheless, women who had a planned pregnancy obtained higher mean scores from the MAT and its relationship style sub-scale than women who did not have a planned pregnancy (successively p=0.004, p=0.042). Like the result of our study, the study by Dursun (44) found that, as per the status of having a planned pregnancy, a statistically significant difference

existed in pregnant women's mean MAT scores ($p < 0.05$). In this context, it can be stated that having a planned pregnancy had no effect on the fear of COVID-19 whilst it positively affected the marital adjustment. Additionally, in the current research, it was identified that the variable of gravidity had no statistically significant effect on women's FCV-19S, MAT, and MAT agreement sub-scale scores ($p > 0.05$). However, women who had 4 or more pregnancies obtained a lower mean score from the MAT relationship style sub-scale than the two groups of women who had 1 pregnancy and 2 pregnancies, and this difference between the groups of women was statistically significant. This situation may have arisen from the fact that pregnant women's responsibilities increased along with the increase in the number of children of whom the pregnant women took care.

Next, it was ascertained in this study that the perception of the marital adjustment showed no statistically significant influence on women's FCV-19S scores ($p > 0.05$) whilst it displayed a statistically significant influence on the MAT, MAT relationship style sub-scale, and MAT agreement sub-scale scores of the women ($p < 0.05$). Women who perceived their marital adjustment as very good obtained higher mean scores from the MAT and its relationship style sub-scale and agreement sub-scale than other groups of women with different perceptions, and this difference found in the comparison of the groups was statistically significant ($p = 0.000$). In this regard, it is thought that this situation may have stemmed from the fact that women in the region where the research was conducted had a culturally positive perspective of the marriage and this positive perspective had implications on their marital adjustment. In a similar vein to our study, the studies performed in Turkey found that women had a positive perception of the marriage (45,46). Also, in a metaphoric analysis, it was identified that the metaphors created by women about marriage were positive (47). Hence, all these study results are consistent with our findings.

Lastly, upon the review of the analysis of the correlation between women's MAT and FCV-19S scores, it was found that women's FCV-19S scores had no statistically significant correlation with scores of theirs on the MAT and its sub-scales ($p > 0.05$). It was identified that women's MAT scores had statistically significant strong positive correlations with their MAT Agreement Sub-Scale and MAT relationship style sub-scale scores ($p = 0.000$). Along with this situation, it is considered that the pregnant woman who had a well-adjusted marriage process may have had an agreement more easily, and also, having a well-adjusted marriage may have positively affected the pregnant woman's relationship style. Metaphors created about marriage in a metaphoric analysis, that is, "+Single body: It is to become one person", "+Light: When light beams are spread around and shared as love and respect, they serve as an occasion to increase the happiness", "+Tree: It takes root with each passing day. When it is a young tree, if it is not planted reluctantly, rather, if it is planted in the right period that is well-suited to its climatic conditions, it takes root, progressively grows, and gains magnificence over there for years ahead and

makes everyone admire its beauty" (47), are in support of our above finding. Besides, during the research period, the relative de-escalation of the COVID-19 pandemic crisis since its beginning, the removal of prohibitions implemented due to the pandemic, and the launch of the normalization process may have affected pregnant women's COVID-19 fear levels as well as their marital adjustment outcomes that were based on their COVID-19 fear.

Study Limitations

The fact that the data were collected using an online questionnaire form (Google Forms) rather than in-person interviews due to the COVID-19 pandemic, the completion of the data collection stage in around four months, the pregnant women who have internet access at home or on their mobile phone; any tablet, computer or smartphone, and the generalizability of research results solely to its population are limitations of this research.

Conclusion

The fear of COVID-19 felt by pregnant women had no implication on their marital adjustment. Pregnant women who perceived their marital adjustment as very good also had a significantly high level of marital adjustment. It is important to ensure that pregnant will have a reduced extent of fear in the COVID-19 pandemic period and to provide pregnant women with consultancy and training services in an effort to strengthen their positive marital adjustment perceptions even further. Besides, to develop the relevant literature on this topic, it is recommended that research studies with larger populations be conducted on the topic.

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Ethics Committee Approval: Before implementing the study, ethical approval was received from the non-invasive clinical trials Ethics Committee of the Atatürk University (B.30.2.ATA.0.01.00/280), and permission was provided in writing by the institution where the study would be carried out (commission decision no: 2021/05).

Informed Consent: Pregnant and married women who signed the informed consent form were included in the study.

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ORIGINAL ARTICLE

The Effect of Distance Learning in the Pandemic on the Depression, Anxiety, Stress, and Occupational Commitment of Senior Nursing Students: A Cross-sectional Study

Pandemide Uzaktan Eğitimin Hemşirelik Son Sınıf Öğrencilerinin Depresyon, Anksiyete, Stres ve Mesleki Bağlılıklarına Etkisi: Kesitsel Bir Çalışma

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Abstract

Objective: The study was conducted to determine the effects of distance learning during the pandemic on the depression, anxiety, stress, and professional commitment of senior nursing students.

Method: This study is descriptive and cross-sectional design. The population of the study consisted of senior students and the sample consisted of students who agreed to participate in the study (n=235). Data were collected at the academic year 2020-2021. The data were obtained with the socio-demographic characteristics form, depression, anxiety, stress 21 scale, and the scale of commitment to professional in nursing.

Results: As a result of the study, the mean depression level of the students was 7.05±4.42, the mean anxiety level was 5.44±4.24, the mean stress level was 7.42±4.01, and the mean score of the nursing professional commitment scale was 80.63±10.68. It was determined that female students feeling more stress than male students. In addition, there was a negative statistical relationship between increased depression, anxiety and stress and decreased professional commitment.

Conclusion: It was observed that students' depression, anxiety and stress levels increased, and their professional commitment decreased due to distance education. It is recommended that nurse educators provide support to students against psychological changes and develop strategies that will increase their professional commitment.

Keywords: Depression, anxiety, stress, senior nursing student, professional commitment

Öz

Amaç: Araştırma, pandemi döneminde uzaktan eğitimin hemşirelik son sınıf öğrencilerinin depresyon, kaygı, stres ve mesleki bağlılıklarına etkisini belirlemek amacıyla yapıldı.

Yöntem: Bu çalışma tanımlayıcı ve kesitsel bir çalışmadır. Çalışmanın evrenini son sınıf öğrencileri, örneklemini ise araştırmaya katılmayı kabul eden öğrenciler oluşturdu (n=235). Veriler 2020-2021 akademik yılında toplandı. Veriler sosyo-demografik özellikler formu, depresyon, kaygı, stres 21 ölçeği ve hemşirelikte mesleğe bağlılık ölçeği ile elde edildi.

Bulgular: Çalışma sonucunda öğrencilerin depresyon düzeyinin ortalaması 7,05±4,42, kaygı düzeyinin ortalaması 5,44±4,24, stres düzeyinin ortalaması 7,42±4,01 olarak, hemşirelikte mesleğe bağlılık ölçeği puan ortalaması ise 80,63±10,68 olarak bulundu. Kadın öğrencilerin erkek öğrencilere göre daha fazla stres hissettikleri belirlendi. Ayrıca artan depresyon, kaygı ve stresin mesleki bağlılığı azalttığı arasında negatif yönde istatistiksel ilişki olduğu saptandı.

Sonuç: Öğrencilerin uzaktan eğitim nedeniyle depresyon, anksiyete ve stres düzeylerinin arttığı ve mesleki bağlılıklarının azaldığı görülmüştür. Hemşire eğitimcilerinin öğrencilere psikolojik değişimlere karşı destek sağlamaları ve mesleki bağlılıklarını artıracak stratejiler geliştirmeleri önerilmektedir.

Anahtar Kelimeler: Depresyon, anksiyete, stres, hemşirelik son sınıf öğrencisi, mesleğe bağlılık

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Introduction

Coronavirus disease-2019 (COVID-19), which emerged in late 2019, was seen by the World Health Organization (WHO) in 118,000 people in 114 countries as of 11 March 2020. It was declared a pandemic after it caused the deaths of 4291 people (1). This pandemic gave rise to myriad problems in many areas. One of these areas was education. Schools were closed in many countries during the COVID-19 pandemic (2,3). It also effected the education system worldwide and to caused radical changes to traditional teaching methods (4). Some schools have started to continue their education by choosing systems that support distance learning (3).

In the wake of COVID-19, the traditional teacher-centered education model has turned into student-centered model. E-learning is advantageous in that lessons are available anywhere and anytime. However, it also suffers from some disadvantages such as lack of student feedback, requirement for self-motivation, dependence on the expensive digital tools and internet and difficulty in transferring affective and psychomotor skills (4,5). Although theoretical courses in nursing education have been conducted through distance education in the past, educational activities for practical courses have been negative affected and changed in the face of the COVID-19 pandemic (6).

Some studies report that students must use many digital platforms or devices that they are not accustomed to during the transition to online education, and their interactions with instructors, peers, and patients are adversely affected (7-9).

The WHO (2020) has observed a very high reoccurrence of depression and identified it as the fourth significant cause of disease worldwide (10). Depression is increasingly widespread among university students, largely due to stress, which is an important and inevitable part of their studies (11).

Anxiety is a common symptom in society and can significantly reduce the quality of life of individuals. Stress and anxiety can weaken the immune system and make individuals vulnerable to diseases such as COVID-19. Evidence shows that in this process, like the public, students in the health field experience problems such as stress and anxiety and cannot fulfill their social duties (12,13).

Students may feel more stress due to the new expectations they face as part of enrolling in the nursing profession

and the underlying unclearly regarding their academic advancement amid socializing into the nursing profession along pandemic. Studies have shown that nursing students are significantly more stressed than faculty members; some socio-demographic characteristics affect this, due to which they experience academic burnout (14-16).

Professional commitment includes personal commitment to professional values and goals, acting in consonance with these working towards professional activities, values, and being honorable of their professional careers (17). As nursing professional values and professionalism are improved through education and interacting with educators, the professionalism or lack of instructors can greatly affect the professional commitment of nursing students (18). By contact with role models, students can improve a positive attitude towards the nursing career, develop emotional identity, role expectations, and a sense of belonging (19). However, it has been determined that the stress feeling along pandemic process and the underlying complexity in clinical settings reduce the professional commitment of nursing students (20,21).

During the pandemic process, nursing students had to take distance learning. Therefore, their interaction with appropriate role models is limited. In this case, it is thought that their professional commitment may be affected.

Material and Method

Aim

This study aims to determine the effects of distance learning along pandemic, one of the extraordinary situations on depression, anxiety, stress, and the professional commitment of senior nursing students.

Design

This study is descriptive and cross-sectional design.

Participants

Participants were students at a city-based university in Turkey's Mediterranean Region, studying in a faculty of health science. Only senior nursing students who volunteered to participate in the study were included. First, 2nd, and 3rd year students were not included in the study. The sample consisted of 235 senior nursing students who answered the questions completely between May and June 2021.

Data Collection

Socio-demographic characteristics form: In this form, there are questions about age, gender, having a psychological disorder, distance learning during the pandemic, and nursing during the pandemic.

Depression, anxiety, and stress (DAS-21) scale: The scale created by Lovibond and Lovibond (1995) was converted

Main Points

- During the pandemic, students may be quite vulnerable to mental health problems and may experience mental health problems.
- During the pandemic process, the distance learning method interrupted especially skill development and clinical education.
- It was determined that senior nursing students experienced depression and anxiety.
- Nursing students' depression, anxiety, and stress conditions negative affected their professional commitment.

into a 21-item short-form by Henry and Crawford (22). The 21-item short-form (DAS-21) of the scale was adapted into Turkish by Sarıcam (23). This scale is a 4-point Likert-type scale and comprises seven questions each measuring “depression, stress and anxiety dimensions”. In the depression dimension, the aim is to measure emotions and situations such as pessimism, slackness, and difficulty in starting any work, low morale, grief, worthlessness, malaise, and reluctance, feeling life meaningless. Anxiety dimension includes the evaluation of emotions and situations such as fear, panic, anxiety, as well as the body’s reactions to them. In the stress dimension, the aim is to measure emotions and situations such as not being comfortable, having difficulty in comfort, anger, anger, impatience, and intolerance. If the depression score averages are higher than 5 score, the anxiety score averages are higher than 4 score, and the stress point averages are higher than 8 score, which indicates the presence of these emotional states. The Cronbach Alpha values for this study were as follows: 0.88 for depression, 0.87 for anxiety, and 0.84 for stress.

Professional commitment in nursing scale (PCNS): The scale was created to establish the level of professional commitment of nurses [Lu et al. (24)]. The scale was adapted into Turkish by Çetinkaya et al. (25). The four-point Likert-type scale consists of 26 items. The score to be taken from the whole scale is from 26-104. The higher the mean scores obtained from the professional commitment in nursing scale, the higher the professional commitment. The Cronbach alpha value of the scale in this study was 0.91.

Data Collection Process

The research was conducted online, as distance learning was carried out during the COVID-19 pandemic. Socio-demographic characteristics form and scales questions were processed into “Google forms” and a shareable link was created. Data collection forms were sent to students’ e-mail addresses. Formed approval page was introduced to the students on the entry page of the forms and the students who accepted answered.

Statistical Analysis

Research data were evaluated using the IBM Statistical Package for the Social Sciences (version 26.0) package program. When evaluating the demographic data obtained, frequencies (number, percentage) were used for categorical variables and descriptive statistics [mean, standard deviation (SD)] were used for numerical variables. One-Way ANOVA tests and Independent-Samples t-test were used to compare quantitative continuous data between independent groups. Relationships between scales were evaluated using Pearson Correlation Analysis. Statistical significance cut-off value was accepted as $p < 0.05$.

Ethical Consideration

Permissions from the relevant institutions and Süleyman Demirel University’s Ethics Committee approval (date: 10.11.2021, number: 53/5) were obtained to conduct the

research. Informed consent was signed by the students before starting the research. It was stated to the students that their participation in the study was voluntary, that they could terminate their participation at any point, and that the information they provided would not be used outside of the research.

Results

Socio-demographic Characteristics of Nursing Students

The mean age of the nursing students was 22.25 ± 1.43 , with 76.4% female and 83% female (Table 1). Importantly, 88.5% of the students stated that they did not have a psychological disorder, whereas 82.1% stated that the distance learning given during the pandemic increased their stress. Also, 77.4% of them stated that they thought that the distance learning they received was not sufficient, and 76.6% of them stated that they were not ready to start their profession with the distance learning they received. However, 62.6% of the students stated that they would like to work in the pandemic when they graduate.

DAS-21 Level of Participants

The depression mean scores of the students were higher than 5 ($M=7.05$, $SD=4.42$), the anxiety score mean was higher than 4 ($M=5.44$, $SD=4.24$) and the stress score mean was lower than 8 ($M=7.42$, $SD=4.01$) was determined. In this case, it can be said that students’ depression and anxiety levels are high and their stress levels are low. When the mean scores of the students’ commitment to the nursing profession were examined, they were found to score $M=80.63$, $SD=10.68$, and their commitment to the profession was at a good level (Table 2).

Relationship Between Participants Demographic Data, Perceived Depression, Anxiety, Stress Levels, and Professional Commitment

In Table 3, comparisons of students’ characteristics and DAS-21 and NPCCS were given. In the study, female students were observed to experience more stress than male students ($t=2.268$, $p=0.024$). It was determined that distance learning increased the level of depression ($t=3.321$, $p=0.001$), anxiety ($t=3.693$, $p=0.000$) and stress ($t=3.464$, $p=0.001$) in students. The stress ($t=-2.497$, $p=0.013$) level of the students who did not think that the distance learning given during the pandemic was sufficient to start the profession was found to be higher. Depression ($t=-4.346$, $p=0.000$), anxiety ($t=-3.276$, $p=0.001$) and stress ($t=-4.834$, $p=0.000$) levels of students who did not feel ready to do their job with distance learning during the pandemic process were higher was found to be excessive. Depression ($F=5.593$, $p=0.004$) and anxiety ($F=3.134$, $p=0.045$) levels were higher in students who had a negative view of the nursing profession before the pandemic. Along with the pandemic, students who currently have a negative view of the nursing profession were found to have higher depression ($F=16.225$, $p=0.000$), anxiety ($F=4.904$, $p=0.008$) and stress ($F=13.587$, $p=0.000$) levels. Depression ($F=5.992$, $p=0.003$) and stress ($F=4.845$,

Table 1.
Participants' Characteristics (n=235)

Participants' characteristics	n	%
Age mean of age = 22.25±1.43		
Gender		
Female	195	83.0
Male	40	17.0
Have you been diagnosed with a psychological disorder before?		
Yes	27	11.5
No	208	88.5
Did distance learning increase your stress about education during the pandemic process?		
Yes	193	82.1
No	42	17.9
Do you think that the distance learning you received during the pandemic process is enough to start the profession?		
Yes	53	22.6
No	182	77.4
Do you feel ready to work as a profession with the distance learning you received during the pandemic process?		
Yes	55	23.4
No	180	76.6
What was your perspective on the nursing profession before the pandemic?		
Positive	165	70.2
Negative	26	11.1
Indecisive	44	18.7
How is your perspective on the nursing profession with the pandemic?		
Positive	111	47.2
Negative	53	22.6
Indecisive	71	30.2
Are you willing to do your job during the pandemic process when you graduate?		
Positive	147	62.6
Negative	23	9.8
Indecisive	65	27.7

Table 2.
Mean Scores of DASS and PCNS (n=235)

	Min	Max	Mean	SD
Depression	0	20	7.05	4.42
Anxiety	0	20	5.44	4.24
Stress	1	20	7.42	4.01
PCNS	55	101	80.63	10.68

PCNS=professional commitment in nursing scale, DASS=depression, anxiety and stress scale, SD=standard deviation

p=0.009) levels were found to be higher in students who were not willing to do their job during the pandemic process upon their graduation (Table 3).

Students who thought that the distance learning they received during the pandemic was not sufficient (t=1.975, p=0.049) and who did not feel ready to do the profession (t=2.153, p=0.032) were found to be less committed to the profession. Students who perceived the nursing profession negatively before the pandemic (F=43.335, p=0.000) and during the pandemic (F=41.272, p=0.000) and did not want to do their job during the pandemic (F=31.728, p=0.000) were also found to have a lower professional commitment (Table 3).

Correlation of Depression, Anxiety and Stress Scale (DAS) and PCNS

As a result of the correlation analysis, there was a weak but negative significant relationship between professional commitment and depression (r=-0.271, p=0.000), anxiety (r=-0.165, p=0.011) and stress (r=-0.231, p=0.000) was determined (Table 4). According to this result, with an increase in DAS-21 levels of senior nursing students increase, their commitment to the nursing profession decreases.

Discussion

This research was conducted to determine the effects of distance learning on depression, anxiety, stress, and professional commitment of senior nursing students during the pandemic. It was observed that students' DAS-21 levels increased, and their professional commitment decreased due to distance education.

In this study, it was determined that female students were more stressed than male students. Asturias et al. (14) and Fawaz and Samaha (26) concluded that female students are more stressed than male students in their studies. During the pandemic, women feel more psychologically vulnerable than men due to additional responsibilities at home. The psychological impact of the pandemic is therefore significantly higher among women. In addition, women often have higher levels of stress, insomnia, anxiety, adjustment disorder, perceived stress, and depression than men (27).

It has been reported that students are very vulnerable to mental health problems and their mental health problems increase along pandemic (28,29). This may affect not only students' personal health and academic performance but also their contact with patients during clinical placement and the quality and safety of health care provided. During the pandemic process, the distance learning method has interrupted especially skill development and clinical education. Therefore, the stress and anxiety levels of the students who felt themselves professionally inadequate due to distance learning were found to be high in this study. In other studies, it can be observed that the experienced stress among nursing students increased moderately along pandemic, and fourth-year students had an experienced

Table 3.
Comparison of Mean Scores of Scales (n=235)

Participants' characteristics	DASS			PCNS $\bar{X} \pm SD$
	Depression $\bar{X} \pm SD$	Anxiety $\bar{X} \pm SD$	Stress $\bar{X} \pm SD$	
Gender Female ^a Male ^b	7.07±4.2 6.97±4.5 t=0.132 p>0.05	5.6±4.2 4.67±4.3 t=1.258 p>0.05	7.69±4.1 6.12±3.2 t=2.268 p=0.024	80.64±10.4 80.57±11.9 t=0.38 p>0.05
Have you been diagnosed with a psychological disorder before? Yes No	8.4±4.1 6.88±4.4 t=1.689 p>0.05	6.25±4.2 5.33±4.2 t=1.064 p>0.05	6.44±3.8 7.55±4.0 t=-1.351 p>0.05	81.03±11.7 80.58±10.5 t=0.208 p>0.05
Did distance learning increase your stress about education during the pandemic process? Yes No	7.49±4.5 5.04±3.3 t=3.321 p=0.001	5.9±4.3 3.3±2.6 t=3.693 p=0.000	7.83±3.9 5.52±4 t=3.464 p=0.001	80.48±10.5 81.30±11.2 t=-0.451 p>0.05
Do you think that the distance learning you received during the pandemic process is enough to start the profession? Yes No	6.52±5.1 7.21±4.1 t=-0.993 p>0.05	5.15±4.5 5.52±4.1 t=-0.568 p>0.05	6.22±4.3 7.77±3.8 t=-2.497 p=0.013	83.16±11.4 79.89±10.3 t=1.975 p=0.049
Do you feel ready to work as a profession with the distance learning you received during the pandemic process? Yes No	4.87±4.1 7.72±4.3 t=-4.346 p=0.000	3.83±3.5 5.93±4.3 t=-3.276 p=0.001	5.23±3.4 8.09±3.9 t=-4.834 p=0.000	83.32±11.9 79.81±10.1 t=2.153 p=0.032
What was your perspective on the nursing profession before the pandemic? Positive ^a Negative ^b Indecisive ^c	6.46±4.1 9.07±3.7 8.09±5.2 F=5.593 p=0.004 b>a,c	5.04±4.1 7.11±4.59 5.95±4.6 F=3.134 p=0.045 b>a,c	7.03±3.9 8.5±4.1 8.25±4.9 F=2.669 p>0.005	84.24±9.5 71.00±9.2 72.79±7.3 F=43.335 p=0.000 a>b,c
How is your perspective on the nursing profession with the pandemic? Positive ^a Negative ^b Indecisive ^c	6.25±4.1 9.92±4.8 6.18±3.6 F=16.225 p=0.000 b>a,c	4.81±4.1 6.98±4.5 5.26±4.1 F=4.904 p=0.008 b>a	6.74±3.7 9.83±3.9 6.69±3.8 F=13.587 p=0.000 b>a,c	85.39±9.8 71.45±7.56 80.04±9.3 F=41.272 p=0.000 a>b>c
Are you willing to practice your profession during the pandemic process when you graduate? Yes ^a No ^b Indecisive ^c	6.51±4.4 9.82±4.4 7.32±4.1 F=5.992 p=0.003 b>c>a	5.33±4.1 6.43±4.5 5.33±4.2 F=0.696 p>0.005	6.86±3.9 9.3±4.6 8.03±3.7 F=4.845 p=0.009 b>a	84.28±9.7 70.52±6.9 75.93±9.7 F=31.728 p=0.000 a>b,c

F=One-Way ANOVA test, t=Independent Student t-test, p<0.05 significant value, SD=standard deviation

stress score above the average (7,15,30). These results are like this study. However, Sveinsdóttir et al. (31), on the other hand, most of the students reported that their studies went well during the pandemic, that they liked online learning,

that they were able to organize them, that they had enough time to study, and that they received enough support. The study's results suggest that most of the students pursue their nursing education actively even though the COVID-19

Table 4.
Correlation of Depression, Anxiety and Stress Scale and Professional Commitment in Nursing Scale (n=235)

	Depression	Anxiety	Stress
Professional commitment in nursing scale	r=-0.271 p= 0.000	r=-0.165 p= 0.011	r=-0.231 p=0.00
r=Pearson Correlation, p<0.05 significant value			

pandemic. In addition, most of the students stated their physical and mental health as good and stated that they did not feel significant stress. This discrepancy in research findings can be described by the fact that Icelandic students were able to participate in the clinical part of their studies and therefore continue their programs mostly continuous despite the pandemic, while students from other countries could not.

Distance learning has been implemented in many countries during the pandemic. Most nursing students could not do face-to-face training. In this study, 77.4% of the students stated that they thought that they could not get enough education with distance learning in the pandemic to start the profession. Bdair (32) emphasizes that online learning can be used as an alternative method and that eliminating the difficulties related to online education (such as lack of students' feedback, students' lack of in using the software programs) will increase the quality of education. On the other hand, Singh et al. (5) determined that medical and nursing students experience headaches and anxiety in distance learning and that only 30% of them can interact with the instructors. The results of the study show that for distance learning to be effective, the necessary infrastructure and the competence of the instructor to provide online education should be provided.

Students in the health field are expected to fulfill their responsibilities to help people in a society overcome their physical and mental problems. Deng et al. (33) determined that the prevalence of anxiety and depression symptoms increased in higher education students comparatively the pre-pandemic period. Faronbi et al. (34) reported that nursing students receiving open and distance learning experience mild to moderate depression. Similarly, Bai et al. (35) found that Chinese nursing students had irritability, uncontrollable anxiety, relaxation problems, and depressed mood during the COVID-19 pandemic. Thus, it can be seen that the pandemic has brought many unknowns. Due to distance learning, nurse candidates who will graduate, although they have theoretical knowledge, cannot be sure of practical knowledge.

In this study, many of the students defined that they did not feel ready to start their profession in the pandemic with the distance learning they received along pandemic, and the depression, stress, and anxiety levels of these students were high. Studies show that although nursing and medical students have willingness and a high moral responsibility

to treat infected patients, their confidence in treating contaminated patients is low (36). This situation shows that distance learning given is not sufficient for clinical work in applied sciences, and various teaching methods used in distance learning such as video, movie watching, case discussion do not replace the real patient. Cheah et al. (37), in their study, determined that medical and nursing students have a high willingness and determination to treat COVID-19 patients, demonstrating their potential workforce as healthcare providers. Similarly, most students were willing to practice the profession in the pandemic, even though they think that they do not get enough education and do not feel ready for the pandemic.

Nursing students' professional commitment largely reflects their degree of commitment and positive attitudes toward their profession, which serve as strong predictors of their future commitment to work. Therefore, those with higher levels of professional commitment during academic study are likely to exhibit better professional commitment after becoming registered nurses (38). However, many studies have shown that negative emotions tend to affect health care workers and college students during the COVID-19 pandemic (39,40). Therefore, it is important to increase nursing students' professional commitment by reducing their negative emotions. Evidence from nursing students shows that their level of commitment to nursing programs is damaged by high levels of stress. In this study, it was found that as the depression, stress, and anxiety levels of the students increased, their professional commitment was negatively affected. Students may experience that they identify with this field of study, but when under stress, they may believe that they incomplete the necessary skills to be successful and/or they may perceive the nursing profession as something unwanted for them personally (21). Li et al. (41) who obtained similar findings in their study, emphasize that effective intervention strategies are urgently needed to ensure the healthy and sustainable development of nursing professionals during the COVID-19 pandemic process and to increase the level of professional commitment of nursing students by reducing negative emotions and improving their psychological capital.

It is thought that the positive professional perception of the student will increase the motivation, self-confidence, satisfaction in his professional life as a health care professional, and the standard of the health care service he provides. The service provided to society by a nurse equipped with a positive perception of profession and professional qualifications will be of higher quality. In this study, it was defined that students' negative professional perceptions increased during the pandemic compared to the pre-pandemic period, and their positive professional perceptions decreased. This could be attributed to the health policies (overwork, shortage of nurses, increased risk, insufficient wages, etc.) regarding nurses carried out in this country during the pandemic process. Similarly, Mao et al. (42) found that the social factors of the profession negatively affect the professional identity. In addition, they

found that first-year nursing students were more idealistic and committed to the profession, while final-year students were less committed. The reason for this is that as the level of education increases, the gap between the ideal in the profession and the realities is attributed to their experiences.

Study Limitations

The end of university and COVID-19 pandemic can be distressed term for students. therefore, stress levels may have been higher for this group of students depending on the timing of the survey.

Social desirability bias is another limitation of using self-report surveys. However, the study was conducted in only one nursing school. Therefore, generalization of the findings cannot be expected. In later research, they can use mixed or qualitative methodologies to examine their experiences more effectively.

Implication for Study

The COVID-19 pandemic process and the findings of this study assume significance in terms of strengthening the educational role of nurse educators and aiming to train nurses who will provide the most effective nursing care in different environments in changing and developing conditions. Therefore, this necessitates important changes that will change the educational environment not only during the pandemic process but also forever. In this context, the sharing of experience and the creation of accessible education opportunities by nurse educators with different resources and experiences are considered important in terms of developing more effective distance learning strategies. The findings can be used as a resource when structuring nursing programs or providing support for emotionally at-risk students. In addition, mental health screening and interventions should be carried out at appropriate intervals to prevent psychological disorders in such cases. However, factors that reduce students' professional commitment should be evaluated and interventions that increase professional commitment should be made.

Conclusion

In this study, it was observed that students' depression, anxiety and stress levels increased, and their professional commitment decreased due to distance education. For decrease negative feels, and increase professional commitment of nursing students, it is recommended that universities create opportunities for students with limited opportunities, constantly update their distance education infrastructure systems for all courses and develop more effective education methods for applied courses during the pandemic process.

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Ethics Committee Approval: Permissions from the relevant institutions and Süleyman Demirel University's Ethics Committee approval (date: 10.11.2021, number: 53/5) were obtained to conduct the research.

Informed Consent: Informed consent was signed by the students before starting the research.

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