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A Correlational Study of Self-Efficacy, Marital Status, and Quality of Life in Breast Cancer Patients in Aceh, Indonesia

Endonezya'nın Aceh Şehrindeki Meme Kanseri Hastalarında Öz Yeterlilik, Medeni Durum ve Yaşam Kalitesi Üzerine İlişkisel Bir Çalışma

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ABSTRACT

Objective: To investigate the relationship between self-efficacy, marital status, and quality of life among Banda Aceh Hospital chemotherapy patients in Indonesia.

Methods: The descriptive design was correlational with a cross-sectional approach. Sampling type of the research method used purposive sampling. The sample size of 100 breast cancer patients undergoing chemotherapy met the inclusion criteria. Instruments for this research used the Questionnaire Quality of Life-Breast Cancer (QOL-BC) and the Symptom Management Breast Cancer Self-Efficacy Scale (SMSES-BC). Multiple linear regression and spearman rank correlation were used in this analysis.

Results: Self-efficacy (*P*<.001), marital status (*P*=.023), and quality of life affect breast cancer chemotherapy patients. The regression coefficient value indicated that self-efficacy (B=1.013) was the primary factor influencing the quality of life of breast cancer patients who are undergoing chemotherapy treatment.

Conclusion: Self-efficacy and marital status affect breast cancer chemotherapy patients' quality of life in Aceh, Indonesia. High-self-efficacy patients manage themselves well. They avoid treatment side effects, whereas status patients are married, stay together, and improve their husbands' lives. Research findings This suggests that breast cancer patients and their families should be brought together to boost self-efficacy and motivation for treatment.

Keywords: Breast cancer, chemotherapy, marital status, quality of life, self-efficacy

ÖZ

Amaç: Endonezya'daki Banda Aceh Hastanesi kemoterapi hastalarında öz yeterlilik, medeni durum ve yaşam kalitesi arasındaki ilişkiyi araştırmak.

Yöntemler: Yöntem Kesitsel yaklaşıma sahip tanımlayıcı korelasyonel araştırma tasarımıdır. Kullanılan Örneklem türü amaçlı örneklemedir. Kemoterapi gören 100 meme kanseri hastasından oluşan örneklem büyüklüğü içerik kriterlerini karşılamıştır. Araştırma araçları olarak Meme Kanseri Yaşam Kalitesi Anketi (QOL-BC) ve Meme Kanseri Semptom Yönetimi Öz Yeterlilik Ölçeği (SMSES-BC) kullanılmıştır. Analizde çoklu doğrusal regresyon ve Spearman sıra korelasyonu kullanılmıştır.

Bulgular: Öz yeterlilik (P<.001), medeni durum (P=.023) ve yaşam kalitesi meme kanseri kemoterapisi alan hastaları etkilemektedir. Regresyon katsayısı değeri, kemoterapi tedavisi gören meme kanseri hastalarının yaşam kalitesini etkileyen birincil faktörün öz yeterlilik (B=1.013) olduğunu göstermiştir.

Sonuç: Öz yeterlilik ve medeni durum Endonezya'nın Aceh kentindeki meme kanseri kemoterapi hastalarının yaşam kalitesini etkilemektedir. Öz yeterliliği yüksek hastalar kendilerini iyi yönetirler. Statü hastaları evliyken, birlikte yaşarken ve eşlerinin yaşamlarını kolaylaştırırken tedavinin yan etkilerinden kaçınırlar. Araştırma bulguları tedavi olanların öz yeterliliğini ve motivasyonu artırmak için meme kanseri hastaları ve ailelerinin bir araya getirilmesi gerektiğini göstermektedir.

Anahtar Kelimeler: Meme Kanseri, Kemoterapi, Medeni Durum, Yaşam Kalitesi, Öz-yeterlilik

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INTRODUCTION

Breast cancer represents the most frequently detected type of cancer and stands as a prominent contributor to female mortality on a global scale.[1] In the year 2020, the global incidence of breast cancer accounted for 11.7% of all reported cases. The incidence of cancer cases in Asian countries is significantly elevated, including 45.4% of documented instances. Furthermore, it is noteworthy that the global mortality rate attributed to cancer stands at 6.9%. It is worth mentioning that Asian nations have the highest fatality rate, reaching 50.5%.[2] Based on the findings of the World Health Organization (WHO)[3], it has provided an estimation indicating that approximately 20 million patients will be diagnosed with cancer and 10 million will die in 2021. The number of breast cancer cases in Indonesia will be the highest among other cancer cases in 2020, reaching 30.8% with a mortality rate of 9.6%.[4] The increase in breast cancer cases follows advances in breast cancer diagnosis and treatment, which can increase life expectancy.[5] Breast cancer patients undergoing chemotherapy experience changes in all their life activities due to breast cancer metastasis. Breast cancer patients experience physical, mental, and economic problems for themselves and their families, requiring changes in the lifestyle and dynamics of family members.[6] Breast cancer patients showed a decreased quality of life in most functions and symptoms because of pain; when general health assessments and the quality of life were not worse than controls, optimism remained positive with the quality of life. According to Finck et al. [7] women diagnosed with breast cancer experience a decline in their quality of life, a phenomenon influenced by factors such as the disease progression, the treatment modality employed, and the duration of the malignancy. The administration of chemotherapy may lead to several unpleasant effects, encompassing but not limited to nausea, dysgeusia, peripheral neuropathy, reduced appetite, myalgia, peripheral oedema, and peripheral neuropathy.[8]

The study conducted by Akin et al.[9] indicated that cancer patients encountered a significant level of weariness, and the overall quality of life for those undergoing chemotherapy was severely compromised. Previous study results revealed that breast cancer patients who had higher self-efficacy had lower anxiety and better adaption to difficult situations, supporting the concept that self-efficacy improves quality of life.[10] Women with high self-efficacy can manage themselves better from the side effects caused by chemotherapy. Shen et al. [11] stated that hope, social support, and self-efficacy accumulate with quality of life. The research results from Papadakos, Berta, et al.[12] found that high self-efficacy can increase self-esteem in patients diagnosed with breast cancer for six months. Higher self-efficacy contributes significantly to higher chemotherapy self-management. The concept of self-efficacy has been found to have significant implications for various aspects of individual's well-being, including both physical and psychological health. It has been observed to influence pain management, the overall quality of life, one's self-image, the effectiveness of communication between healthcare professionals and patients, as well as individuals' behaviour in accessing health-related information.[13] The highest education of nurses in the cancer ward was master of nursing i.e. 1 person. The others were bachelor nursing 14 persons and nursing diploma (a 3 year nursing education in a university) as 13 persons. Nurses have an essential role in the psychosocial adjustment of women with breast cancer at the time of diagnosis to choose alternative interventions that are effective in improving psychosocial adaptation, thereby increasing self-ability, promoting social support, and motivating effective treatment.[14]

Their marital status significantly influences the quality of life experienced by breast cancer patients undergoing chemotherapy. The research results from Yuan et al.[15] stated that unmarried women have a higher risk of being diagnosed at the final stage with poor quality of life than married women. Wang et al.[16] also stated that unmarried women with ovarian cancer have an increased risk of death compared to married women.

The results of preliminary data collection showed that most breast cancer patients undergoing chemotherapy in Aceh, Indonesia, impacted their physical and psychological conditions, significantly affecting their self-efficacy and quality of life. Some breast cancer patients even felt helpless and intended to stop treatment. Chemotherapy due to a long distance from the hospital, economic limitations, and a lack of family support. Breast cancer is still a trend and issue in all countries, especially in Indonesia, because of the high levels of morbidity and mortality. However, previous research has examined much of the picture of quality of life and self-efficacy, focusing on chronic diseases in general. Nevertheless, there is a scarcity of study being conducted. A correlation has been seen between the marital status of individuals diagnosed with cancer and the influence of chemotherapy on their quality of life. The primary objective of this study is to produce original empirical data concerning the factors that have a substantial influence on the quality of life among breast cancer patients who are undergoing chemotherapy in the region of Aceh, Indonesia.

AIM

This study aimed to make a significant contribution to the improvement of self-efficacy behaviours among breast cancer patients in Aceh, Indonesia, by utilizing a suitably large sample size. The ultimate goal was to enhance the quality of life and autonomy of these individuals. The primary aim of this research was to determine the factors that most influence the quality of life of breast cancer patients undergoing chemotherapy in Aceh Province, Indonesia.

Research Question

1. What is the correlation between age, marital status, the highest level of education, the length of suffering from the breast cancer chemotherapy cycle, self-efficacy, and the chemotherapy cycle that influences the quality of life for breast cancer patients undergoing chemotherapy in Aceh Province, Indonesia?
2. Which factors have the strongest correlation with the quality of life in breast cancer patients undergoing chemotherapy in Aceh Province, Indonesia?

METHODS

Design

The present study employs a correlational descriptive design utilizing a cross-sectional approach. Associated factors (age, marital status, highest education, length of suffering from breast cancer chemotherapy cycle, self-efficacy, and quality of life) among patients with breast cancer undergoing chemotherapy in Aceh province of Indonesia.

Sample and Setting

This research used a purposive sampling method, namely a sample selection method based on specific aims and objectives set by the researcher. The inclusion criteria in this study were being 18 years or older at diagnosis, receiving post-operative chemotherapy, having a level of awareness of compos mentis, and not having been diagnosed with another type of cancer. The number of samples in this study used power analysis techniques. Sample size according to the G*Power application: using the p H1 affect a size correlation level of 0.136. Correlation ρ H1 - This refers to the correlation that the researcher wishes to detect. The smallest effect size that researchers wanted i.e. 0.136, which was in the medium category**.** Significance level value of α: 0.05, power 1-β: 0.80, and a number of predictors = 5, we obtained a sample size of 100 breast cancer patients who are undergoing chemotherapy treatment.

Data collection

The researcher asked the hospital for permission to conduct research. Then, the researcher requested for help from six enumerators who had received training in collecting research data. Data were collected during chemotherapy sessions. After obtaining approval and agreeing on the time for respondents willing to participate in this research, the researcher would collect data, starting with respondents who met the inclusion criteria. Then, the researcher would explain the aims and procedures of the study. The researcher would provide informed consent to be signed by the respondent. Then, researchers distributed questionnaires directly for respondents to fill out by motivating and convincing patients to fill them out truthfully. The researcher conducted a post-completion review of the questionnaire to verify the respondent's thorough completion of the instrument. Having the questionnaire completed by the respondent, it was rechecked to ensure it had been filled out entirely by the respondent. The present study was conducted within the adult chemotherapy facility at Aceh Hospital over the period spanning from January to December 2023.

Instruments

This study data was collected using the "Symptom Management Self-Efficacy Scale - Breast Cancer (SMSES-BC)" and the "Quality of Life-Breast Cancer (QoL-BC)" questionnaire.

Quality of Life-Breast Cancer (QoL-BC), which was created by Ferrell[17] in 2012. This questionnaire was a type of semantic differentiation scale with 46 questions in which there are four domains of quality of life, namely, physical health, 40 psychological well-being, social relationships, and relationships with the environment. This research questionnaire contains positive and negative questions. The validity test for the QoL-BC questionnaire was 0.78, and the reliability was 0.89.

Symptom Management Self Efficacy Scale - Breast Cancer (SMSES-BC), according to Liang et al.[18] in 2015, in order to evaluate the self-efficacy levels of breast cancer patients who are undergoing chemotherapy treatment, a comprehensive assessment is required. SMSES-BC consisted of 27 questions with a semantic differentiation scale composed of 3 subscales the problem-solving ability, the capacity to mitigate the adverse effects induced by chemotherapy and the capacity to regulate emotional responses. The SMSES-BC questionnaire had a correlation coefficient validity value of 0.40, while its reliability SMSES-BC, Cronbach's alpha value was 0.96.

The scale of answer choices for the QOL-BC and SMSES-BC questionnaire questions was 0-10. The measuring scale in the QOL-BC and SMSES-BC questionnaire used a ratio measuring scale. QOL-BC measuring results are 0-460, and

SMES-BC measuring results are 0-270. A higher score indicates a higher quality of life in breast cancer patients undergoing chemotherapy. A higher score indicates higher self-efficacy in breast cancer patients undergoing chemotherapy. QOL-BC and SMSES-BC used the mean value and standard deviation because the data is normally distributed.

Ethical Consideration

This research activity complies with the principles of the World Medical Association Code of Ethics (The Declaration of Helsinki). The local ethics committee of Aceh Hospital, Indonesia approved this research (Number: 066/EA/FK-RSUDZA/2022; Date: 18th April 2022). Written consent was obtained from participants in this study.

Statistical analysis

This research analysis used the Statistical Package Statistical Program for Social, version 27.0 (IBM Corp., Armonk, New York, the United States of America). This research used descriptive analysis and the Kolmogorov-Smirnov normality test, with the results of the data not being normally distributed with a value of P <.05. This study used bivariate Spearman's rank correlation analysis to identify the correlation of each variable: age, marital status, and education. Finally, the length of time spent suffering from breast cancer, chemotherapy cycles, and self-efficacy with the quality-of-life Multiple linear regression analysis was used in multivariate analysis to determine the correlation between age, marital status, highest education, duration of breast cancer, chemotherapy cycles, and self-efficacy with the quality of life. Nominal or numerical scale independent variables and numerical scale dependent variables used multiple linear regression analysis. [19]

RESULTS

Table 1 showed that the respondents in this study were all Muslim (100%), with the majority of their marital status being married (91.0%). Most of the respondents' highest education was middle education (51.0%), with the length of time patients had breast cancer generally being 30-38 months (22.0%). A set of chemotherapy cycles most frequently undergone by respondents was two (22.0%).

Table 2 showed that the mean value of respondent age is 48.22 (SD=8.858), quality of life had a mean value of 248.06 (SD=66.348), and self-efficacy had a mean value of 157.90 (SD=48.781).

In Table 3, the results showed a more significant correlation value for the self-efficacy variable with the quality of life (r=0.938) than for the other variables. The Spearman test analysis yielded a significant correlation *(P*< .001) indicating a strong association. The objective of this study was to examine the potential connection between self-efficacy and the quality of life in breast cancer patients undergoing chemotherapy. A positive correlation relationship showed that the higher the self-efficacy level value, the higher the quality-of-life value. The Spearman analytical test yielded a statistically significant correlation between marital status and quality of life (r = -0.227, *P* = .023), indicating a modest negative association. The ensuing research findings revealed a statistically significant positive link between recent schooling and quality of life (r = 0.386, *P*< .001).

Table 1. Frequency Distribution of Characteristics Respondent at Banda Aceh Hospital, Indonesia (n=100)

Variable	Frequency (n)	Percentage (%)
Religion		
Muslim	100	100
Marital Status		
Married	91	91.0
Not married	9	9.0
Highest Education		
Higher Education	17	17,0
Middle Education	51	51.0
Basic Education	29	29.0
No School	3	3,0
Length of Suffering from Breast Cancer (Months)		
3-11	15	15.0
12-20	21	21.0
21-29	14	114.0
30-38	22	22.0
48-56	14	14.0
57-65	9	9.0
66-74	5	5.0
Chemotherapy Cycle		
1	7	7.0
2	22	22.0
3	17	17.0
4	15	15.0
5	18	18.0
6	15	15.0
8	4	4.0
9	3	3.0

Table 2. Mean Age Score, Quality of Life and Self-Efficacy of Respondents at Banda Aceh Hospital, Indonesia (n=100)

Variable	Mean (M)	Standard Deviation (SD)
Age	48.24	8.858
Quality of Life	248.06	66.348
Self-Efficacy	157.90	48.781

Table 3. Distribution of Quality-of-Life Scores According to Respondents' Age, Length of Breast Cancer Suffering, Chemotherapy Cycle and Self-Efficacy at Banda Aceh Hospital, Indonesia (n=100)

Variable	Quality of Life	
	r	*P*
Age	0.179	.075
Marital Status	-0.227*	.023
Highest Education	0.386**	<.001
Length of Suffering from Breast Cancer	-0.034	.737
Chemotherapy Cycle	-0.129	.202
Self-Efficacy	0.938**	<.001

r, Pearson coefficient; *P*, significance level (*P* < .05)

The findings of the multiple linear regression analysis, as presented in Table 4, indicated that the optimal model consists of self-efficacy and marital status, with the exclusion of the final education variable. The magnitude of the linear regression coefficient in this study, as indicated by the derived equation model. This study examined the evaluation of the quality of life in breast cancer patients who are undergoing chemotherapy. The variables considered in this assessment included a range of 108.546 to 18.781, marital status, and self-efficacy, with an additional factor of 1.013. The examination of the multiple linear regression equation revealed that within the population of breast cancer patients undergoing chemotherapy, those who were not married and possessed elevated levels of self-efficacy are anticipated to observe a favourable influence on their quality of life. A presence of a constant term i.e. 108,546 had substantiated this assertion. The obtained regression coefficient of -18,781, indicated a statistically significant negative association between the marital status of unmarried patients and the quality of life experienced by breast cancer patients undergoing chemotherapy.

According to the analysis, there was a negative association between marital status and quality. On the other hand, the regression coefficient of 1.013 derived from the analysis indicates that there was a positive relationship between self-efficacy and the quality of life experienced by patients after undergoing chemotherapy treatment. The constant value had a probability of *P*< .001 (*P*< .005), indicating statistical significance. Similarly, the probability for the marital status variable was .001 (*P*< .005), again demonstrating statistical significance. Additionally, the self-efficacy variable had a probability of .001 (*P*< .005), further indicating statistical significance. The research indicated a statistically significant association between marital status and self-efficacy with the quality of life among breast cancer patients undergoing chemotherapy. The probability values obtained from the t-tests suggest that the constant value (*P*< .001), marital status (*P*= .001), and self-efficacy (*P*< .001) demonstrated statistical significance at a significance level of less than 0.05. As a result, indicating a noteworthy correlation between marital status and self-efficacy in relation to the quality of life among breast cancer patients undergoing chemotherapy. The results of this study suggested that self-efficacy (B = 1.013) was the primary factor influencing the quality of life of breast cancer patients who are receiving chemotherapy treatment.

DISCUSSION

The findings of this study revealed a robust positive correlation between self-efficacy and the quality of life experienced by breast cancer patients who are undergoing chemotherapy treatment. The results of this study were consistent with the findings of Moradi et al.20, suggesting a significant correlation between self-efficacy and the general well-being of breast cancer patients receiving chemotherapy treatment. This involved multiple characteristics, including bodily health, mental health, social ties, and satisfaction with the surrounding environment. The treatment and management of breast cancer had the potential to influence the overall well-being

Table 4. Multivariate Modeling of Marital Status and Self-Efficacy on the Quality of Life of Breast Cancer Patients with Chemotherapy (n=100)

Model 2	*Unstandardized Coefficients*		*Standardized Coefficients*			*Collinearity Statistics*	
	B	*Std Error*	*Beta*	t	*P*	*Tolerance*	*VIF*
(Constant)	108.546	8.639		12.564	**<.001**		
Self-Efficacy	1.013	0.033	0.938	30.270	**<.001**	0.992	1.008
Marital Status	-18.781	5.677	-0.103	-3.308	**.001**	0.992	1.008

Dependent Variable: Quality of Life; B - Standardized coefficients beta (Beta coefficient value of each existing independent variable); t – how far is the influence of marital status and self-efficacy variables in explaining quality of life variables; P - significance level (P < 0.05); VIF – Variance Inflation Factor

of individuals, although there were strategies that may be employed to mitigate the adverse effects and complications associated with these interventions. Previous studies had indicated that the physical and psychological health of breast cancer patients plays a crucial role in minimizing the detrimental consequences and undesirable outcomes that may arise from such treatments.[21,22] Based on the research conducted by Peters et al.[23] it had been shown that individuals who suffered from many chronic disorders and demonstrated to reduced levels of self-efficacy, together with increased disease complications, were more likely to encounter a decline in their overall quality of life. There existed a notable beneficial correlation between self-efficacy in managing symptoms related to breast cancer and the overall quality of life, as demonstrated by previous studies.[10,24] The existence of elevated levels of self-efficacy held the capacity to augment the comprehensive state of well-being and quality of life for those who had been diagnosed with breast cancer and are currently enduring chemotherapy treatment. The degree of self-efficacy demonstrated by individuals with breast cancer had a notable impact on their adherence to and tolerance of standard chemotherapy. However, the negative outcomes of ongoing chemotherapy treatment could potentially reduce an individual's self-efficacy, so affecting their overall quality of life.

This study's results state a negative relationship between marital status and the quality of life. The status of married cancer patients can improve the quality of life during chemotherapy. The results of this study followed research from Peuckmann et al.[26] who stated that married women with breast cancer have a higher quality of life than other groups of women. The research results of Tran et al.[26] also stated that breast cancer patients who lived with their husbands had a better quality of life in general health. However, it differs from the research results obtained by Thomas et al.[27]revealed that women who were unmarried when diagnosed with breast cancer were associated with better survival. Research from Lee & Yoon[28] confirms that the effects of changes in physical and sexual stress are related to marital intimacy, not sexual function, in breast cancer women with chemotherapy. Decreased sexual intimacy in married women with breast cancer causes psychological disorders and decreases the quality of life. Breast cancer can also increase partner stress due to changes in psychosocial behaviour due to changes in the husband's role in managing finances, decision-making, providing emotional support while the patient faces the disease, and physiological barriers that affect sexual function research results from Banaee et al. [29] stated that partner training positively influenced chemotherapy treatment compliance in breast cancer patients. The need for physical and psychological support from a husband can help breast cancer patients deal with the symptoms they experience so that their quality of life improves while undergoing chemotherapy. Moreover, nurses provided nursing care for patients with cancer comprehensively for six sessions during chemotherapy preparation in Banda Aceh hospital. For example, patients with chemotherapy obtained vomiting. The first step that nurses implement is to give non-pharmacological interventions such as warm water intake, distraction, massage, and aromatherapy. When nurses had conducted several non-pharmacological interventions for the patients however general practitioner prescription was potentially needed.

Limitation of study

The limitations of this study are that it did not investigate the stage of breast cancer and did not follow a series of chemotherapy cycles in the study sample. The further research should be carried out among breast cancer patients with self-efficacy to increase the highest quality of life.

This study aims to examine the relationship between self-efficacy and marital status, and their impact on the quality of life experienced by breast cancer patients undergoing chemotherapy. The findings of this study demonstrate a significant positive association between self-efficacy and quality of life, alongside a moderate negative association between marital status and quality of life. Individuals with a heightened sense of self-efficacy demonstrate greater proficiency in efficiently mitigating the negative consequences associated with chemotherapy treatment. In contrast, a favourable association can be shown between married status and cohabitation with husbands among those diagnosed with breast cancer, resulting in an improved overall quality of life. The results of this study indicate that including a support network comprising persons impacted by breast cancer and their families, yields positive outcomes in augmenting the self-efficacy and motivation levels of breast cancer patients throughout their chemotherapy treatment. The role of nurses is vital to implement psychological intervention programs by providing assistance that supports breast cancer women undergoing the chemotherapy process, such as coping strategies, social support, religious support, and enthusiasm to fight the effects of chemotherapy.

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The Effect of Video-Assisted Education on Knee Function and Quality of Life after Total Knee Replacement: A Randomized Controlled Trial

Total Diz Protezi Uygulanan Hastalarda Video-Destekli Eğitimin Diz Fonksiyonu ve Yaşam Kalitesine Etkisi: Randomize Kontrollü Çalışma

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ABSTRACT

Objective: This study aims to investigate the effect of video-assisted patient education (VPE) on knee functions, quality of life (QoL) and decrease complications in total knee replacement (TKR) patients.

Methods: This study is designed as a prospective, parallel, two-arm, randomized clinical trial. It included 44 patients who underwent elective TKR at an orthopedics and traumatology clinic. The VPE group received VPE including early postoperative care for TKR, activities of daily living, and gradual exercise program in addition to the existing routine care at the clinic. The control group received only routine care. The results were collected with Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and Short Form-36 (SF-36) scores measured at baseline, 1st and 3rd months after TKR.

Results: The mean scores of the VPE group on the pain, stiffness, and physical function of the WOMAC were significantly lower in 3rd month after TKR than the control group. The VPE group had significantly higher scores than the control group on SF-36 of all subcategories except pain, emotional role, and mental health in 3rd month after TKR.

Conclusion: The VPE can improve knee function and QoL in TKR patients. Nurses can use the VPE method in patients to improve knee functions and QoL after TKR.

Keywords: Knee replacement, patient education, knee function, quality of life.

ÖZ

Amaç: Bu araştırmanın amacı, total diz protezi (TDP) uygulanan hastalarda video-destekli hasta eğitiminin (VHE) diz fonksiyonları, yaşam kalitesi (YK) ve komplikasyonların azaltılmasına etkisini belirlemektir.

Yöntemler: Bu araştırma prospektif, paralel, iki kollu, randomize kontrollü çalışmadır. Bu araştırma ortopedi ve travmatoloji kliniğinde elektif TDP uygulanan 44 hasta ile gerçekleştirildi. VHE grubuna kliniğin rutin bakımına ek olarak TDP için erken postoperatif bakım, günlük yaşam aktiviteleri ve kademeli egzersiz programını kapsayan VHE uygulandı. Kontrol grubuna rutin bakım uygulandı. Araştırma verileri başlangıçta, TDP sonrası 1. ve 3. ayda Western Ontario ve McMaster Üniversiteleri Osteoartrit İndeksi (WOMAC) ve Kısa Form-36 (SF-36) ile toplandı.

Bulgular: VHE grubunun WOMAC ağrı, tutukluk ve fiziksel fonksiyon puan ortalamaları TDP sonrası 3. ayda kontrol grubuna göre anlamlı olarak düşüktü. TDP sonrası 3. ayda VHE grubunun SF-36'nın ağrı, emosyonel rol ve mental sağlık hariç tüm alt boyut puanları kontrol grubundan anlamlı olarak daha yüksekti.

Sonuç: VHE, TDP hastalarında diz fonksiyonlarını ve YK'yi arttırabilir. Hemşireler VHE yöntemini TDP sonrası diz fonksiyonlarının ve YK'nin geliştirilmesinde kullanabilir.

Anahtar Kelimeler: Diz protezi, hasta eğitimi, diz fonksiyonu, yaşam kalitesi

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INTRODUCTION

Total knee replacement (TKR) is the most effective treatment modality for correcting knee deformities, increasing knee function (KF), relieving pain, and improving the quality of life (QoL) of patients.[1] According to the health statistics of the Organization for Economic Co-operation and Development (OECD) in 2021, TKR is most commonly used in Switzerland (273/100,000), Finland (260/100,000), and Austria (252/100,000), while this rate is estimated as 90/100,000 in Türkiye.[2] Although it has been increasingly applied in Türkiye and worldwide, it is associated with postoperative pain, restricted range of motion (ROM), and reduced muscle strength, leading to a prolonged recovery process and return to activities of daily living (ADLs) with impaired QoL.[3-6] In addition, inadequate patient education on knee care and ADLs following TKR may result in repetitive and uncontrollable movements and complications such as severe pain and dislocation. Postoperative complications are observed to be associated with rehospitalization and resurgery.[3]

Patients need a long rehabilitation period after TKR and it is also expensive.[1] Comprehensive nursing care and patient education are essential to gain independence and return ADLs for patients undergoing TKR.[7] Patient education after TKR increases the success of the operation, improves the treatment process[3,8,9], and prevents or minimizes postoperative complications after discharge.[3] All these improve the KF and QoL of the patients.[3,8] Patients are usually discharged on the first postoperative day if no complication occurs. Thus, patient education can be instructed within a very limited period, mostly without repetition. Furthermore, patients and/or their relatives may be anxious after TKR and before discharge, leading to difficulties in fully understanding or remembering the education given at the hospital. As a result, the use of new technological education tools (such as telephone, video or virtual reality) is inevitable to utilize nurses' time effectively.[10-12] In recent years, disease-specific video-assisted patient education (VPE) has been increasingly used for patient education.[10,12] Video-supported patient education is more advantageous than written material-supported or only verbal ~~on~~.[11] VPE has a higher recall rate than verbal education, can be watched repeatedly by patients whenever and wherever they desire[10-12], increases patient satisfaction while decreasing their anxiety levels, and allows patients to actively participate in their care.[13] Patient education supported by multimedia is also more useful for those with limited literacy.[11] Considering all these, the use of VPE prepared by nurses to reduce knee problems and increase function in patient education after TKR can be considered a cost-effective approach that can also improve the quality of care.

Especially during the COVID-19 pandemic, the number of elective orthopedic surgeries decreased by 50-75%, and teleconsultation and telerehabilitation were preferred by 30% of the surgeons.[14] Orthopedic postoperative telerehabilitation programs (postoperative management, including dressing and suture removal, and evaluation of the surgical wound, etc.) for the TKR have been proved to be a useful[15] and cost-effective option in improving patient outcomes.[16,17] VPE can be an effective educational method in terms of ensuring that patients after TKR receive uninterrupted rehabilitation in the postoperative period without coming to the hospital during the COVID-19 pandemic and subsequent pandemics.

In the literature, a limited number of studies in which VPE was given by nurses or other health professionals after orthopedic surgical interventions for joints such as total hip replacement [9,18-20], total knee replacement[11], and rotator cuff repair have been found.[12]

AIM

In the present study, we hypothesized that VPE could improve the KF, QoL and decrease complications following TKR. Using a holistic approach, we, therefore, aimed to investigate the effect of VPE on KF, QoL and complications in patients undergoing TKR.

METHODS

Study Design and Setting

This two-arm [1:1], parallel-group, prospective, randomized-controlled clinical study was designed to investigate the effect of VPE on KF, QoL and complications in patients undergoing TKR. 44 patients in total who underwent elective TKR at an orthopedics and traumatology clinic of a university hospital in Türkiye between July 2018 and March 2019 were included in this study.

Sample Size and Sampling

The sample size was calculated according to the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and Short Form-36 (SF-36) scores with a type I error rate of 0.05% and 90% power described in a previous study by Chen et al.[8] Each group should have at least 22 individuals and there should be a total of 44 patients (VPE group=22; control group=22). Inclusion criteria were as follows: age ≥18 years; being conscious, orientated, and cooperative; undergoing unilateral and elective TKR for the first time; having a Standardized Mini-Mental Test (SMMT) score of ≥23. The study flow chart is depicted in Figure 1.

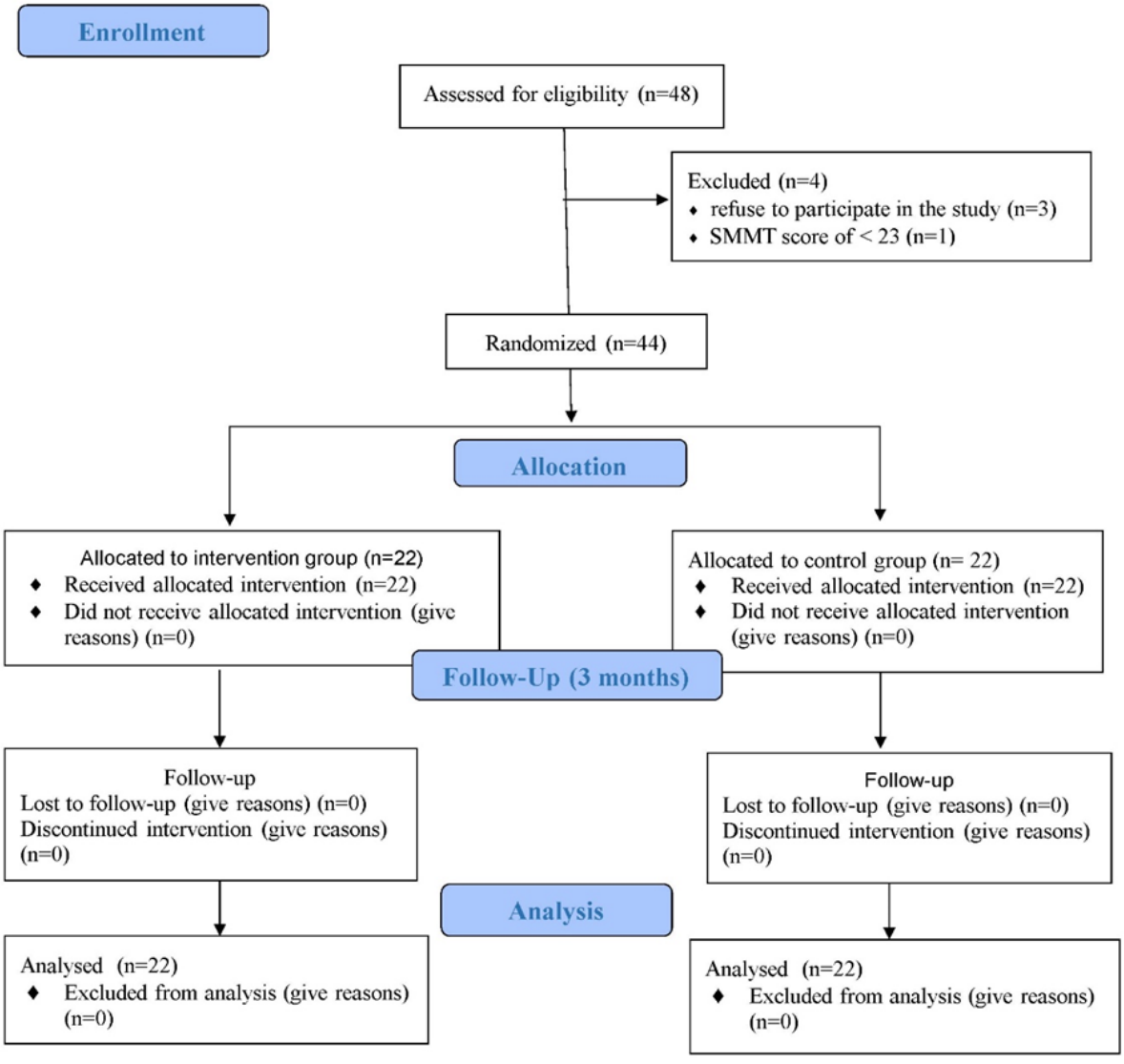

Figure 1. The CONSORT Flow Diagram of the Groups Enrollment, Allocation, Intervention, Follow-Up, and Analysis

The eligible patients were randomly assigned to either VPE or control group, according to the arrival sequence in blocks of two with a 1:1 ratio using the stratified randomization method (sex). Age is the strongest predictor of the development and progression of osteoarthritis. It is more common in women, increasing after the age of 50, especially in the hand and knee. The main indication for hip and knee replacement (joint replacement surgery) is osteoarthritis.[2] Therefore, sex-based block randomization was performed in this study. The randomization sequence was developed using a computer-generated table of random numbers, assigned by a biostatistician who was not associated with the study. Group allocation was concealed using individual sealed opaque envelopes that were numbered in sequential order. As individuals were enrolled in the study, the next envelope in the sequence was extracted and the participant was assigned to the groups accordingly. When the patient was admitted to the orthopedic clinic, the researcher notified the clinic nurse about each patient, who agreed to participate in the study and signed the informed consent form. The clinic nurse who was not involved in the study assigned the patient to one of the groups according to the list in the envelope and informed the researcher. The nurse then opened the opaque envelope to assign the patient to a group. All the researchers except for the clinical nurse, positioned the patients according to the randomization list, and patients were not aware of the group assignment. The researchers involved in the data and statistical analyses were also unaware of the group allocation.

Outcome Measures and Measurement

The primary outcome measure was the effect of VPE on

improved KF and QoL, while the secondary outcome measure was the effect of VPE on reduced complications. Data were collected using the Patient Information Form, WOMAC, and SF-36.

The Patient Information Form: This form consisted of descriptive and clinical information about the patient's age, sex, marital status, education status, and physiotherapy status after TKR.

Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC): The KF was evaluated using the WOMAC. The Turkish validity and reliability studies were performed previously.[21] It consists of a total of 24 items, including pain (5 items), stiffness (2 items), and physical function (17 items). Items are rated on a five-point Likert scale as follows: 0=none, 1=mild, 2=moderate, 3=severe, 4=extreme. The highest possible scores that can be obtained are 20 for pain, 8 for stiffness, and 68 for physical function (difficulties experienced when engaging in ADLs). The total score ranges from 0 (the best) to 96 (the worst). Higher scores indicate worse KF, while lower scores indicate better KF.[22] The Cronbach alpha of the WOMAC was calculated as 0.85 in this study.

Short Form-36 (SF-36): The QoL was evaluated using the Turkish version of SF-36.[23] This scale measures eight subscales using 36 self-rating questions including physical functioning, role limitations due to physical problems, bodily pain, general health perceptions, vitality, social functioning, role limitations due to emotional problems, and mental health. The higher scores indicate better QoL, while lower scores mean worse QoL.[24,25] The Cronbach-alpha of the SF-36 was calculated as 0.80 in this study.

Intervention and Data Collection

Prior to the study, the Patient Information Form, WOMAC, and SF-36 were filled out by the researchers.

The control group received routine treatment and care by the physicians and nurses of the clinic. It consists of verbal information about surgery by the physician and nurse of the clinic before TKR, cold pack application and the use of analgesics after TKR for pain management, knee positioning with a pillow to prevent flexion and ensure smooth motion of the knee, verbal patient education at the time of discharge including the use of medications, home-based exercises, and follow-up visits, and discharge on the first postoperative day if no complication occurs. In addition, the patient is scheduled for follow-up on a weekly basis and informed about how to do exercises at home. At the physician's discretion, the patient may be referred to physiotherapy.

The VPE group also received routine treatment and care per protocol. Additionally, this patient group watched patient education through video via tablet in the patient room before TKR. Patient rooms in the clinic were for two people. In cases where the patients in the VPE and control groups were hospitalized in the same room, it was planned to show the educational video to the patient in the clinic seminar room in order not to affect the results of the study, but this was not the case during the study. The contents of the VPE that consist of three sections were developed by the researchers and included (1) early postoperative care for TKR (knee positioning, early mobilization, pain control, and cold application), (2) ADLs at home (bathing and toileting, eating, sleeping, vehicle driving, housekeeping, sexual life, praying, and maintaining home safety), and (3) gradual exercise at home (for the first 90 days after discharge) (Figure 2). The VPE was approximately 20 minutes long. At the end of the education, VPE was given to the patients in the way they preferred (CD-ROM, flash disc, uploading the video to the computer or mobile phone). The VPE was prepared by the researchers in line with the literature.[26-31]

Before starting the study, a team of an orthopedic physician, two orthopedic nurses, and a physiotherapist, working in the clinic where the research was conducted, but not involved in this study, evaluated the content and clarity of the VPE, and necessary revisions were made in accordance with their suggestions. The final version of VPE was administered to four patients (10% of the sample) as a pilot study to assess its intelligibility and applicability, and these patients were not included in this study. The nurse researcher contacted the patients once a week by telephone to check the status of the patients, specifically whether they watched the training video, how often they watched it, and whether they practiced the exercises. All patients underwent the same VPE, but no patient reported being unable to perform the exercise or having problems during the study.

The WOMAC and SF-36 were filled out by the researchers and postoperative complications at 1st and 3rd month after TKR were evaluated during follow-up visits in the outpatient setting.

Statistical Analyses

Statistical analysis was performed using the STATA/MP (version 11.0). Descriptive data were presented in mean±standard deviation (SD), median (min-max), or number and percentage, where applicable. The independent Student's t-test was used to compare continuous variables, while the Pearson chi-square or

Fisher's exact test was used to compare categorical variables between the groups. Repeated-measures analysis of variance (ANOVA) was performed to assess pre- and postoperative WOMAC and SF-36 scores at one and three months. The contrast test was used for multiple intra-group comparisons (post-hoc). P value of <.05 was considered statistically significant.

Ethical Considerations

The study protocol was approved by the Clinical Research Ethics Committee of Mersin University (Date: 21.09.2017, No: 266) and by the hospital management (Date: 09.10.2017; No:74419321-903.99). The study was conducted in accordance with the principles of the Declaration of Helsinki.[32]

RESULTS

The baseline demographic and clinical characteristics of the patients are presented in Table 1. There was no statistically significant difference in the demographic and clinical characteristics between the patient groups (P>.05) (Table 1).

Figure 2. Images of Video-Assisted Education Content

Table 1. Descriptive and Clinical Characteristics of the Patients (n=44)

Characteristics	Control Group	VPE Group	t-test or X^2 or Fisher's exact test (*P*)
Age, mean (SD) (min=33 max=81)	66.4 (7.8)	66.1 (10.5)	0.114 (.910)
Gender			
Female	19 (86.4%)	19 (86.4%)	0.000 (1.000)
Male	3 (13.6%)	3 (13.6%)	
Marital Status			
Married	21 (95.5%)	22 (100 %)	1.410 (.235)
Single	1 (4.5%)	0 (0%)	
Level of Education			
Elementary Education	20 (90.9%)	17 (77.3%)	1.572 (.210)
Higher Education	2 (9.1%)	5 (22.7%)	
Receiving Physiotherapy Status			
Yes	1 (4.5%)	2 (9.1%)	0.364 (.546)
No	21 (95.5%)	20 (90.9%)	

Abbreviation VPE, Video-assisted Patient Education; SD, Standard deviation

The pre- and postoperative WOMAC scores of the patients are summarized in Table 2. Compared to baseline, the postoperative WOMAC pain, physical function, and total scores were significantly lower in the VPE group, while the postoperative WOMAC physical function and total scores were significantly lower in the control group (*P*<.001). In addition, the WOMAC stiffness scores were significantly lower in the VPE group at 1st and 3rd month following TKR, whereas the WOMAC pain and stiffness scores were significantly lower in the control group at 1st and 3rd month after TKR, compared to baseline (*P*<.001). The WOMAC pain and total scores were higher in the control group than the VPE group before TKR (respectively, *P*=.015; *P*=.043) and these scores were significantly found to be higher at 1st (respectively, *P*=.021; *P*=.026) and 3rd month after TKR, as well (respectively, *P*=.002; *P*=.007). Compared to the control group, the WOMAC stiffness scores of the VPE group were significantly lower at 1st (*P*=.005) and 3rd month after TKR (*P*=.020), while the WOMAC physical function scores were significantly lower at 3rd month after TKR (*P*=.010) (Table 2).

Table 2. Comparison of the Patients WOMAC Score (n=44)

Evaluation time		Control Group Mean (SD)	VPE Group Mean (SD)	t-test (*P*)
Pain	Before TKR[a]	16.6 (2.8)	13.9 (2.2)	2.525 (.015)
	1st month after TKR[b]	6.2 (2.5)	4.5 (1.9)	2.413 (.021)
	3rd month after TKR[c]	4.5 (4.6)	1.0 (1.8)	3.350 (.002)
	F test (*P*)	97.843 (<.001)	299.659 (<.001)	
	Contrast post test	a>b,c	a>b>c	
Stiffness	Before TKR[a]	5.4 (1.9)	4.6 (1.8)	1.483 (.146)
	1st month after TKR[b]	2.5 (1.5)	1.3 (0.8)	3.014 (.005)
	3rd month after TKR[c]	1.7 (2.0)	0.6 (0.8)	2.471 (.020)
	F test (*P*)	46.339 (<.001)	78.576 (<.001)	
	Contrast post test	a>b,c	a>b,c	
Physical function	Before TKR[a]	51.8 (4.6)	48.5 (6.4)	1.444 (.156)
	1st month after TKR[b]	26.9 (8.8)	19.7 (7.1)	1.997 (.052)
	3rd month after TKR[c]	16.6 (16.4)	6.0 (7.3)	2.765 (.010)
	F test (*P*)	83.821 (<.001)	296.792 (<.001)	
	Contrast post test	a>b>c	a>b>c	
Total score	Before TKR[a]	73.8 (6.6)	67.0 (8.9)	2.088 (.043)
	1st month after TKR[b]	35.6 (12.2)	25.5 (9.1)	2.322 (.026)
	3rd month after TKR[c]	22.9 (22.6)	7.6 (9.7)	2.902 (.007)
	F test (*P*)	96.479 (<.001)	328.490 (<.001)	
	Contrast post test	a>b>c	a>b>c	

Abbreviation VPE, Video-assisted Patient Education; SD, Standard deviation; TKR,Total knee replacement; WOMAC, Western Ontario and McMaster Universities Osteoarthritis Index

The pre- and postoperative SF-36 scores of the patients are presented in Table 3. Compared to baseline, the SF-36 physical functioning, physical role, pain, and vitality scores were significantly higher in the VPE group and the SF-36 physical functioning scores were significantly higher in the control group after TKR (*P*<.001).

Table 3. Comparison of the Patients SF-36 Score (n=44)

	Evaluation time	Control Group Mean (SD)	VPE Group Mean (SD)	t-test (*P*)
Physical functioning	Before TKR[a]	7.0 (5.9)	9.8 (7.0)	-1.399 (.169)
	1st month after TKR[b]	35.5 (19.3)	44.5 (1.1)	-1.831 (.074)
	3rd month after TKR[c]	50.9 (27.3)	65.7 (2.3)	-2.181 (.036)
	F test (*P*)	45.362 (<.001)	143.897 (<.001)	
	Contrast post test	c>b>a	c>b>a	
Physical role	Before TKR[a]	2.3 (10.7)	0.0 (0.0)	1.000 (.329)
	1st month after TKR[b]	40.9 (44.7)	56.8 (43.1)	1.202 (.236)
	3rd month after TKR[c]	64.8 (48.0)	95.5 (21.3)	-2.741 (.010)
	F test (*P*)	14.883 (<.001)	65.850 (<.001)	
	Contrast post test	b,c>a	c>b>a	
Pain	Before TKR[a]	3.0 (1.4)	3.0 (1.2)	-0.151 (.880)
	1st month after TKR[b]	9.8 (14.4)	10.5 (11.9)	-0.161 (.873)
	3rd month after TKR[c]	45.2 (8.7)	49.7 (10.0)	-1.592 (.119)
	F test (*P*)	119.432 (<.001)	169.994 (<.001)	
	Contrast post test	c>a,b	c>b>a	
General health	Before TKR[a]	44.0 (17.9)	48.2 (17.2)	-0.799 (.429)
	1st month after TKR[b]	47.1 (14.5)	61.3 (11.2)	-3.619 (.001)
	3rd month after TKR[c]	51.6 (20.8)	70.9 (13.9)	-3.621 (.001)
	F test (*P*)	2.581 (.110)	20.360 (<.001)	
	Contrast post test	-	b,c>a	
Vitality	Before TKR[a]	21.8 (11.7)	26.4 (13.3)	-1.204 (.235)
	1st month after TKR[b]	34.8 (13.9)	47.3 (9.4)	-3.495 (.001)
	3rd month after TKR[c]	38.9 (17.4)	58.4 (10.5)	-4.513 (<.010)
	F test (*P*)	18.219 (<.001)	110.977 (<.001)	
	Contrast post test	b,c>a	c>b>a	
Social functioning	Before TKR[a]	30.1 (29.0)	27.8 (21.1)	0.297 (.768)
	1st month after TKR[b]	60.2 (24.9)	72.6 (11.5)	-2.040 (.050)
	3rd month after TKR[c]	64.4 (14.6)	68.1 (10.3)	-0.986 (.330)
	F test (*P*)	21.174 (<.001)	69.537 (<.001)	
	Contrast post test	b,c>a	b,c>a	
Emotional role	Before TKR[a]	21.2 (36.4)	3.0 (9.8)	-2.260 (.033)
	1st month after TKR[b]	68.2 (44.2)	93.9 (22.1)	-2.443 (.020)
	3rd month after TKR[c]	71.2 (44.0)	98.5 (7.1)	-2.870 (.009)
	F test (*P*)	9.941 (<.001)	300.546 (<.001)	
	Contrast post test	b,c>a	b,c>a	
Mental health	Before TKR[a]	41.8 (19.5)	45.3 (16.0)	-0.643 (.524)
	1st month after TKR[b]	52.4 (17.1)	65.6 (11.7)	-3.000 (.005)
	3rd month after TKR[c]	65.5 (60.1)	74.9 (10.8)	-0.726 (.475)
	F test (*P*)	2.161 (0.124)	29.790 (<.001)	
	Contrast post test		b,c>a	

Abbreviation SD, Standard deviation; VPE, Video-assisted Patient Education; TKR, Total knee replacement; SF-36, Short Form-36 Scale

In addition, the SF-36 general health, social functioning, emotional role, and mental health scores of the VPE group and the SF-36 physical role, vitality, social functioning, and emotional role scores of the control group significantly increased at 1st and 3rd month after TKR (*P*<.001). The SF-36 pain scores of the control group were significantly higher at 3rd month after surgery than baseline and 1st month scores (*P*<.001). At baseline, the SF-36 emotional role scores of the VPE group was significantly lower than the control group (*P*=.033); however, the SF-36 general health (*P*<.001), vitality (*P*<.001), social functioning (*P*=.050), emotional role (*P*=.020) and mental health scores (*P*=.005) were significantly higher at 1st month and the SF-36 physical functioning (*P*=.036), physical role (*P*=.010),

general health (*P*<.001), and vitality scores (*P*=.010) were significantly higher at 3rd month after surgery than the control group (Table 3).

Following TKR, edema was seen in only one patient (4.5%) and four patients (18.2%) in the control group at 1st and 3rd month, respectively. There was only one patient in whom complication developed in the VPE group. There was no statistically significant difference in the complication rates between the groups (*P* >.05) (Table 4).

Table 4. Comparison of Complication Development in Patients (n=44)

Complications	Control Group	VPE Group	Fisher's exact test (*P*)
Complication development in the first one month after TKR			
Yes (Edema)	1 (4.5%)	0 (0.0%)	1.410 (.235)
No	21 (95.5%)	22 (100.0%)	
Complication development in the first three months after TKR			
Yes	4 (18.2%)	1 (4.5%)	2.031 (.154)
*Edema**	1 (4.5%)	1 (4.5%)	
*Fracture***	1 (4.5%)	0 (0.0%)	
Infection	2 (9.1%)	0 (0.0%)	
No	18 (81.8%)	21 (95.5%)	

Abbreviation SD, Standard deviation; VPE, Video-assisted Patient Education; TKR, Total knee replacement
*+3 edema developed with cellulitis around the wound.
**Periprosthetic fracture after a fall

DISCUSSION

Although TKR has been applied to increase the mobility of the patient, it is associated with knee pain and KF impairment, leading to impaired QoL.[1,3] The previous studies have shown that preoperative patient education[11,33,34] and postoperative exercise programs[6,8,35,36] improve the KF and QoL. However, there is a limited number of studies investigating the effectiveness of VPE.[8,11,37] Unlike the previous studies, in the present study, we developed a VPE consisting of early postoperative care, ADLs, and a progressive exercise program and examined its effect on KF and QoL in the patients undergoing TKR. Our study showed that the VPE improved KF and QoL in this patient population as early as three months after TKR.

Effect of VPE on KF

In this study, the KF after TKR was measured using the WOMAC. The WOMAC scores were significantly lower after surgery than the baseline scores, indicating improved KF with time. This finding is an expected consequence of TKR, consistent with the previous studies.[4,8,11,37-40] However, the WOMAC total and subscale scores tended to decrease from the 1st month of TKR up to the 3rd month in the VPE group than the control group, suggesting that VPE is an effective method in improving the KF in patients undergoing TKR. On the other hand, the preoperative WOMAC pain and total scores were significantly higher in the control group than in the VPE group, suggesting that the control group experienced more pain with worse KF.

Furthermore, the WOMAC stiffness scores of the VPE group significantly decreased in 1st month and the physical functioning scores significantly increased in 3rd month than the control group. The patients in the VPE group were able to move their knees and gained their physical functioning earlier than the control group. Similar to our study, Chen et al. provided a standard rehabilitation protocol manual and video to discharged patients undergoing TKR and reported that the stiffness scores significantly decreased from the third postoperative month.[8] In another study, a six-week physical therapy protocol was applied to the patients undergoing TKR, and a significant improvement in the stiffness scores was achieved.[4] Several studies have also confirmed the effectiveness of exercise education following TKR in improving physical functions.[8,11,34-36] The exercise program is recommended to be maintained for 14 to 26 weeks to regain the KF of the patients and to prevent postoperative complications.[31] In a meta-analysis, low- or moderate-quality evidence showed no clinically important difference between clinic and home-based programs for mobility, patient-reported pain, and function at 10 weeks after TKR.[41] Therefore, more cost-effective methods have been used for rehabilitation after TKR. In a recent feasibility study investigating the effects of two different home-based programs on patient outcomes after TKR, conventional face-to-face sessions and a digital intervention performed through an artificial intelligence-powered biofeedback

system under remote clinical monitoring were compared.[39] At the end of the eight-week program, the clinical outcomes were found to be superior in the digital intervention group with reduced symptoms and pain and improved ADLs and QoL at three months. Although we did not use a digital biofeedback system in this study, we found similar improvements in the KF scores in the VPE group from the postoperative month. The implementation of a progressive home-based exercise program through video for 3rd month after TKR and phone calls on a weekly basis to evaluate patient compliance were helpful in regaining the physical function and ability of the patients within a short period of time following TKR.

Effect of VPE on QoL

In the present study, we evaluated QoL after TKR using the SF-36. In all patients, the QoL improved after TKR compared to baseline. This finding is an expected consequence of TKR, consistent with previous studies.[4,8,11,36,38,39,42] In addition, the SF-36 physical health scores, except for pain, were significantly higher in the VPE group than in the control group at 3rd month after surgery, indicating improved QoL in the VPE group. In the previous studies using different tools to evaluate KF and QoL, the physical functioning significantly improved at 1st month[36] and at three months postoperatively.[39,42] There are also several reports that exercise education after TKR increased physical functions[8,11] and physiotherapy programs significantly improved the physical limitation at 3rd month.[4] All these findings are consistent with our results. Unlike a previous study[11], we found that general health perception scores significantly improved in the VPE group from the 1st postoperative month. Lower WOMAC physical functioning scores at three months in the VPE group suggest that the VPE group regained their physical functions earlier and ensured smooth knee motion, leading to an improved general health perception. This can be also attributed to the fact that no complication was seen in any of the patients at 1st month and in only one patient at 3rd month in the VPE group.

Furthermore, higher SF-36 subscale scores, except for mental role, at 1st month after TKR in the VPE group than in the control group indicate that VPE can improve the QoL of these patients. In a study using a similar patient education tool, the SF-36 vitality, social functioning, and mental health scores were found to be significantly higher at six weeks in the intervention group, compared to the controls.[11] In another study using VPE, the SF-36 mental health scores were significantly higher in 3rd month after TKR.[8] Based on these findings, we can speculate that the VPE group felt full of life and energetic and returned to social life earlier with better mental health and without having physical or emotional difficulties.

Effect of VPE on Complications

In our study, the number of patients developing postoperative complications was higher in the control group than the VPE group. Although this result is important, there was no statistically significant difference between the groups. Therefore, further studies are needed to gain a better understanding of the effect of VPE in preventing postoperative complications in patients undergoing TKR.

Study Limitations

Nonetheless, there are some limitations to this study. Although post-TKR rehabilitation is recommended for about one year, KF and QoL were evaluated as early as 3rd month after surgery. Although favorable clinically relevant results in the KF and QoL were seen in the VPE group than the control group, early assessment of QoL may have precluded the statistical significance of these results. Additionally, we couldn't utilize a feedback method such as a mobile application or web page to check the patient compliance with VPE and to check the home-based exercises.

In conclusion, these study results suggest that VPE increases KF and QoL in patients undergoing TKR. In addition, postoperative complications were observed in only five patients in this study; therefore, one cannot speculate whether VPE can prevent postoperative complications. Early discharge of the patients after TKR leads nurses to provide patient education within a limited period of time. Also, the VPE method of education will be beneficial during times like the COVID-19 pandemic when resources are limited. We recommend that further studies be conducted to investigate the effect of VPE on QoL in the long term, considering the rehabilitation period takes about one year in patients undergoing TKR. In addition, variables such as blood transfusion requirement during TKR, ambulation time, use of narcotic analgesics after TKR, and duration of hospitalization may affect the QoL and KF of the patients, so it may be suggested to take these variables into consideration in future studies.

Video-assisted patient education prepared specifically for TKR, improves KF and QoL in TKR patients. Nurses can easily integrate cost-effective VPE methods in patient education into clinical practice after TKR. Therefore, a TKR-specific VPE allows nurses to use their time more effectively, ensures patients maintain self-care after discharge, and continues patient education at home, resulting in favorable patient outcomes.

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Hemşirelik Öğrencilerinin Bakım Davranışları ile Klinik Öğrenim Çevresi Arasındaki İlişkinin Değerlendirilmesi

Evaluation of The Relationship Between Nursing Students' Care Behaviour and The Clinical Learning Environment

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ÖZ

Amaç: Bu çalışma hemşirelik öğrencilerinin bakım davranışları ile klinik öğrenim çevresi arasındaki ilişkiyi değerlendirmeyi amaçlamaktadır.

Yöntemler: Araştırma tanımlayıcı-ilişki arayıcı desende yürütülmüştür. Araştırmanın örneklemini bir devlet üniversitesindeki 241 hemşirelik öğrencisi oluşturmuştur. Veri toplama aracı olarak; Kişisel Bilgi Formu, Bakım Davranışları Ölçeği-24 ve Klinik Öğrenim Çevresi Ölçeği kullanılmıştır.

Bulgular: Öğrencilerin yaş ortalamasının 21,25 olduğu, %74,3'ünün kadın, %34,9'unun 3. sınıfta öğrenim gördüğü saptanmıştır. Hemşirelik mesleğini sevenlerin Personel Öğrenci İlişkileri, Öğrenci Memnuniyeti, Hiyerarşi ve Rutinler alt boyutları ve Klinik Öğrenim Çevresi Ölçeği toplam puan ortalamasının anlamlı düzeyde daha yüksek olduğu tespit edilmiştir. Hemşirelik yapan bir yakını olan öğrencilerin Hasta İlişkileri ve Güvence alt boyut puan ortalamasının anlamlı düzeyde daha yüksek olduğu belirlenmiştir. Klinik uygulama öncesi uygulama hakkında bilgilendirilen öğrencilerin Bakım Davranışları Ölçeği-24 alt boyut ve toplam puan; Personel Öğrenci İlişkileri, Öğrenci Memnuniyeti, Klinik Öğrenim Çevresi Ölçeği toplam puan ortalamaları anlamlı düzeyde yüksek bulunmuştur. Kliniklerde teorik bilgiyi uygulama alanına oldukça yeterli ve yeterli yansıtan öğrencilerin, Bakım Davranışları Ölçeği-24 alt boyut ve toplam, Klinik Öğrenim Çevresi toplam puan ortalamasının istatistiksel olarak anlamlı düzeyde yüksek olduğu saptanmıştır. Çalışmada hemşirelik öğrencilerinin bakım davranışları ile klinik öğrenme çevresi arasında pozitif yönde anlamlı ilişki bulunmuştur.

Sonuç: Öğrencilerin bakım davranışlarına yönelik algılarının yüksek olduğu ve klinik öğrenim çevresine ilişkin değerlendirmelerinin olumlu olduğu belirlenmiştir.

Anahtar Kelimeler: Hemşirelik öğrencisi; hemşirelik bakımı; klinik öğrenme ortamı; klinik uygulama

ABSTRACT

Objective: This study aims to evaluate the relationship between nursing students' caring behaviours and the clinical learning environment.

Methods: The research was conducted in a descriptive-relationship design. The sample of the study consisted of 241 nursing students at a state university. As a data collection tools; Personal Information Form, Care Behaviour Scale-24 and Clinical Learning Environment Scale were used.

Results: It was determined that the average age of the students was 21.25, 74.3% were female and 34.9% were in the 3rd grade. It was determined that the mean total score of the Personnel-Student Relations, Student Satisfaction, Hierarchy and Routines sub-dimensions and Clinical Learning Environment Scale was significantly higher for those who liked the nursing profession. It was determined that the mean score of the Patient Relations and Assurance subscale was significantly higher for students who had a relative who was a nurse. Care Behaviour Scale-24 sub-dimensions and total score of the students who were informed about the application before clinical practice; Staff-Student Relations, Student Satisfaction, Clinical Learning Environment Scale total score averages were found to be significantly high. It was determined that the mean scores of the Care Behaviour Scale-24 sub-dimensions and total, and the Clinical Learning Environment total score of the students who reflected the theoretical knowledge in the field of practice quite adequately and adequately in the clinics were statistically significantly higher. In the study, a positive significant relationship was found between nursing students' caring behaviours and the clinical learning environment.

Conclusion: It was determined that students' perceptions of care behaviors were high and their evaluations of the clinical learning environment were positive.

Keywords: Nursing student; nursing care; clinical learning environment; clinical practice

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GİRİŞ

Hemşirelik mesleğinin birincil işlevi bakım sağlamaktır.[1] Ulusal Hemşireler Konseyi'ne (ICN) göre "Hemşirelik, her yaştan, aileden, gruptan ve topluluktan, hasta veya sağlıklı ve her ortamda bireylerin özerk ve işbirlikçi bakımını kapsar". Bu nedenle bakım, hemşirelik uygulamalarının özünü ve hemşirelik mesleğinin temel değerini oluşturur.[2]

Hemşirelik öğrencileri hemşirelik eğitimi ile insanlara yardım etmek ve hastaların acılarını hafifletmek için bakımın özünü kavrarlar.[3] Teorik ve uygulamadan oluşan eğitim sayesinde öğrenciler sınıf, laboratuvar ve klinik uyulama ortamında hemşirelik bakımına ait bilgi, beceri, tutum ve değerleri kazanır. Öğrenciler hemşirelik becerileri kazanmak için laboratuvarlarda direktifleri uygular ve vaka çalışmaları ile analiz yeteneği kazanır. Tamamlayıcı olarak klinik uygulama ise öğrencilerin teori ile pratiği entegre etmeleri, gerçek hasta bakımı ve hemşirelik rolleri hakkında fikir sahibi olmaları, klinik bilgi ve becerilerini geliştirmeleri için altın bir fırsat sunar. Hemşirelik öğrencileri klinik uygulamalar sırasında edindikleri öğrenme çıktıları ve deneyimler sayesinde bakım davranışlarını şekillendirir.[4] Bu nedenle klinik uygulamaların gerçekleştirildiği öğrenme ortamları hemşirelik eğitimi için hayati bir öneme sahiptir.[5]

Klinik öğrenme ortamı, öğrencilerin yetkin birer hemşire olarak yetişmeleri için hasta bakımında teorik bilgiyi geliştirerek pratikte uyguladıkları bir ortam olarak tanımlanır. Klinik öğrenme ortamı öğrencilerin teorik derslerde edindikleri bilgileri beceriye aktarabilecekleri, hasta ve sağlık profesyonelleri ile etkileşime geçebilecekleri, hemşirelik bakımını ve becerilerini nasıl uygulayacaklarını öğrenecekleri bir öğrenme ortamı sunar.[5] Klinik öğrenme sırasında öğrenciler, klinik becerileri, klinik akıl yürütmeyi, eleştirel düşünmeyi, etik karar vermeyi, profesyonel iletişimi, uygulama ve teoriyi pratik çalışmaya uygulama fırsatına sahip olur.[6] Öğrenciler teorik ders ortamından farklı olarak klinik ortamlarda kritik hasta yönetimi konusunda stres ve kaygı yaşamaktadır. Bu nedenle klinik öğrenme ortamı öğrencilerin bağımsız hemşirelik becerileri kazanmaları, yeterliklerini geliştirebilmeleri ve güvenlerini arttırabilmeleri için çok değerlidir.[7] İyi bir klinik öğrenme ortamı öğrenciye gerçek çalışma ortamında uygulama fırsatı sunarak öğrencinin kendisini değerlendirme fırsatı verir ve öğrenci merkezli bir öğrenme kültürü sağlar.[8] Ayrıca klinik öğrenme ortamı öğrenmede güven ve motivasyonu geliştirir, mesleğe ait olma duygusu katar ve bakım davranışlarını geliştirilmesi için kanıta dayalı uygulama ortamı sunar. Ancak klinik öğrenme ortamındaki olumsuz deneyimler öğrencilerin kariyer kararları, hemşirelik mesleği ve bakım hakkındaki algılarını olumsuz etkiler.[6] Bu nedenle klinik öğrenme ortamında öğrencilerin yaşadıkları kişisel deneyimler motivasyon ve özgüvenleri üzerinde derin bir etkiye sahiptir. Ancak kişisel tatmin duygusu zedelenen öğrencilerin hemşirelik mesleğine ilişkin algıları, beklentileri ve bakım uygulamaları olumsuz etkilenir.[8] Ayrıca küresel olarak hemşirelik eğitiminde kaliteli bakım ve klinik öğrenme uzun süredir devam eden bir sorundur. Özellikle son yıllarda yaşanan pandemi, küresel iklim değişiklikleri, doğal afetler yeterli klinik eğitimin sağlanmasını engellemiş ve klinik uygulamaların iptal edilmesine sebep olmuştur. Ulenaers ve ark.[9] COVID-19 salgını sırasında hemşirelik öğrencilerinin klinik yerleşme deneyimlerini araştırdıkları çalışmada öğrencilerin teknik hemşirelik becerilerini uygulama fırsatlarının çok az olduğu, daha az öğrenme fırsatına sahip oldukları ve klinik öğrenme çevresinde öğrenme hedeflerine yönelik beklentileri konusunda hayal kırıklığına uğradığı bildirilmiştir.[9] Oysa ki, klinik öğrenme ortamı bakım davranışlarının geliştirilmesinde mihenk taşıdır.[10] Hemşirelik öğrencilerinin klinik ortama ilişkin algılarının anlaşılmasına, klinik uygulamadaki bakım deneyimlerinin geliştirilmesine ve öğrenme ihtiyaçlarını karşılamaya yönelik girişimlerin planlanmasına ihtiyaç vardır. Bu nedenle bakım ve klinik öğrenme çevresinin nasıl iyileştirileceğine dair daha fazla araştırmaya ihtiyaç duyulmaktadır.[11,12]

Etkili ve destekleyici bir klinik öğrenme ortamı, hasta bakımının kalitesi ve güvenliği, hemşirelik öğrencilerinin mesleğe yönelik öğrenimi ve sosyalleşmesi açısından önemlidir. Hemşirelik öğrencileri için eğitimin klinik aşaması, öğrenme ve mesleki gelişim açısından kritik öneme sahiptir.[13] Klinik öğrenme ortamlarında öğrencilerin bilgi ve becerileri gelişir, iletişim becerileri güçlenir, güven ve bağlılık duyguları artar ve kanıta dayalı uygulamaları gelişir.[11] Klinik öğrenme ortamının etkisiyle öğrencilerin bakım davranışları şekillenir ve profesyonel hemşirelik kimliği oluşur. Bu kapsamda öğrencilerin bakım davranışları ile klinik öğrenme ortamı arasındaki ilişkinin belirlenmesi önemlidir. Literatürde hemşirelik öğrencilerinin bakım davranışlarını ve klinik öğrenme çevrelerini inceleyen birçok çalışma olmasına rağmen iki kavram arasındaki ilişkiyi ortaya koyan çalışmaya rastlanmamıştır. Bu bağlamda bu çalışma bundan sonra yapılacak çalışmalara yol gösterici olacaktır. Çalışma bulgularının hemşirelik öğrencilerinin klinik öğrenme ortamına ve bakım davranışına ait deneyimlerini ve algılarını ortaya koyması bakımından önemli olacağı düşünülmüştür.

AMAÇ

Bu çalışma hemşirelik öğrencilerinin bakım davranışları ve klinik öğrenme çevresi arasındaki ilişkiyi belirlemek

amacıyla gerçekleştirilmiştir.

Bu araştırmada aşağıdaki sorulara cevap aranmıştır;

- Hemşirelik öğrencilerinin bakım davranışları nasıldır?
- Hemşirelik öğrencileri klinik öğrenme çevrelerini nasıl değerlendirir?
- Hemşirelik öğrencilerinin tanıtıcı özellikleri bakım davranışlarını etkiler mi?
- Hemşirelik öğrencilerinin klinik uygulamalara ilişkin görüşleri bakım davranışlarını etkiler mi?
- Hemşirelik öğrencilerinin tanıtıcı özellikleri klinik öğrenme çevrelerini etkiler mi?
- Hemşirelik öğrencilerinin klinik uygulamalara ilişkin görüşleri klinik öğrenme çevrelerini etkiler mi?
- Hemşirelik öğrencilerinin bakım davranışları ile klinik öğrenim çevresi arasındaki ilişki nasıldır?

YÖNTEMLER

Araştırmanın Tipi

Bu araştırma tanımlayıcı-ilişki arayıcı tasarımda gerçekleştirilmiştir.

Araştırmanın Evren ve Örneklemi

Araştırmanın evrenini Türkiye'de bulunan bir devlet üniversitesinde öğrenim gören ikinci sınıf 101, üçüncü sınıf 99, dördüncü sınıf 99 olmak üzere toplamda 299 hemşirelik öğrencisi oluşturmuştur. Araştırmanın yapıldığı üniversitede öğrenciler birinci sınıf bahar döneminde Hemşirelik Esasları dersi ile birlikte klinik uygulama alanlarına çıkmaktadır. Daha sonra öğrenciler sırası ile İç Hastalıkları Hemşireliği, Cerrahi Hastalıklar Hemşireliği, Çocuk Sağlığı ve Hastalıkları Hemşireliği, Halk Sağlığı ve Psikiyatri Hemşireliği dersleri için dönem başlangıcı ile her ders için haftada 8 saat klinik uygulamaya çıkmaktadır. İlgili üniversitenin sekizinci döneminde ise Klinik Sahada Entegre Uygulamaları dersi kapsamında haftada 28 saat klinik uygulama alanlarına çıkılmaktadır. Birinci sınıf hemşirelik öğrencilerinin araştırma verilerinin toplandığı süreç içerisinde klinik deneyimleri olmadığı için çalışma dışı bırakılmıştır. Araştırmada örneklem hesaplamasına gidilmeyip evrenin tamamına ulaşılmaya çalışılmıştır. Bu kapsamda öğrencilerden 241'i çalışmaya gönüllü olarak katılmış olup hedef kitlenin %80,6'sına ulaşılmıştır. Araştırmaya dahil edilme kriterleri aşağıda belirtilmiştir.

Dahil Edilme Kriterleri

- Araştırmanın yapıldığı üniversitenin hemşirelik bölümünde okuyor olmak,
- Veri toplama süresi içerisinde eğitim-öğretime devam ediyor olmak,
- Veri toplama süresi içerisinde klinik uygulamaya çıkıyor olmak,
- Araştırmaya katılmayı gönüllü olarak kabul etmek.

Dışlanma Kriterleri

- Anket sorularını cevaplamaya engel olacak herhangi bir engele sahip olmak,
- Araştırmanın yapıldığı üniversitenin hemşirelik öğrencisi olup klinik uygulamaya çıkmamak,
- Önce araştırmaya katılmaya gönüllü olup daha sonra araştırmadan çekilmek,
- Araştırmanın veri toplama formlarını eksik doldurmak.

Verilerin Toplaması

Araştırma verileri 01.09.2023-22.12.2023 tarihleri arasında, Kişisel Bilgi Formu, Bakım Davranışları Ölçeği-24 ve Klinik Öğrenim Çevresi Ölçeği kullanılarak yüz yüze toplanmıştır.

Kişisel Bilgi Formu: Literatüre dayalı olarak araştırmacılar tarafından hazırlanan bu form öğrencilerin kişisel bilgilerini, hemşirelik mesleğine ilişkin görüşlerini, bakım davranışlarını ve klinik uygulama alanlarını değerlendiren 16 sorudan oluşmaktadır.

Bakım Davranışları Ölçeği-24 (BDÖ-24): Wu ve ark.[14] tarafından geliştirilen ölçek hemşirelerin kendi kendilerini değerlendirmelerini ve hasta algılamalarını karşılaştırmak amacıyla kullanılmaktadır.[14] Ölçeğin Türkçe geçerlik ve güvenirlik çalışması Kurşun ve Kanan[15] tarafından yapılmıştır. Bakım Davranışları Ölçeği, Saygı (6 madde; 1,3,5,6,13,19), Bilgi-Beceri (5 madde; 9,10,11,12,15), Bağlılık (5 madde; 2,4,7,8,14) ve Güvence (8 madde; 16,17,18,20,21,22,23,24), olmak üzere 4 alt gruptan ve 24 maddeden oluşmaktadır. Ölçekte, 6-Her zaman ile 1-Asla arasında değişen altılı likert tipi bir dereceleme kullanılmaktadır. Ölçek puanlarının hesaplanmasında; tüm maddelerin puanları toplandıktan sonra 24'e bölünmesi ile 1-6 arasında toplam ölçek puanı; alt boyutlarda yer alan maddelerin puanları toplanarak elde edilen puanın madde sayısına bölünmesi ile 1-6 arasında alt boyut ölçek puanları elde edilmektedir. Ölçeğin her bir alt boyutundan alınan yüksek puan bireyin ilgili alt boyutun değerlendirdiği özelliğe sahip olduğunu göstermektedir. Alt boyut ve toplam ölçek puanı artıkça hemşirelerin bakım davranışları algı düzeyleri artmaktadır. Sonuçta ölçekten alınan puanın yüksek olması hemşirelik bakım kalitesine ilişkin algının daha olumlu olduğunu göstermektedir. Türkçe geçerlilik ve güvenilirlik çalışmasında ölçeğin Cronbach's Alpha katsayısı 0,95 bulunmuştur.[15] Bu çalışma için ölçeğin Cronbach's Alpha katsayısı 0,973 olarak hesaplanmıştır.

Klinik Öğrenim Çevresi Ölçeği (KÖÇÖ): Ölçek hemşirelik öğrencilerinin uygulama ortamlarını değerlendirmek üzere Dunn ve Burnett[16] tarafından geliştirilmiştir.[16] Ölçeğin

Türkçe geçerlik ve güvenirliği hemşirelik öğrencileri üzerinde Sarı[17] tarafından yapılmıştır. Klinik Öğrenim Çevresi Ölçeği, Personel Öğrenci İlişkileri (6 madde; 7, 8, 15, 19, 20, 21), Öğretim Elemanının Sorumlulukları (4 madde; 3, 5, 11, 12), Hasta İlişkileri (4 madde; 2, 10, 14, 22), Öğrenci Memnuniyeti (4 madde; 9, 16, 17, 18), Hiyerarşi ve Rutinler (4 madde; 1, 4, 6, 13) olmak üzere 5 alt boyutlu bir yapı sergilemekte ve 22 maddeden oluşmaktadır. Ölçekte yer alan maddelerin 5'i olumsuz, 17'si olumlu ifadelerden oluşmaktadır. Ölçekteki 1, 4, 6, 12 ve 21. maddeler ters kodlanmaktadır. Ölçekte, 5-Tamamen katılıyorum ile 1-Tamamen katılmıyorum arasında değişen beşli likert tipi bir dereceleme kullanılmaktadır. Ölçekten alınacak puan aralığı 22-110'dur. Ölçekten alınan puanın artması öğrencinin klinik öğrenim çevresine ilişkin değerlendirmesinin olumlu olduğuna işaret etmektedir. Ölçeğin Türkçeye uyarlanmış hali için Cronbach alfa değeri 0,82 olup, alt boyutlarının Cronbach alpha değeri 0,65 ile 0,80 arasında değişmektedir.[17] Bu çalışma için Cronbach's Alpha katsayısı 0,79 olarak hesaplanmıştır.

Verilerin Değerlendirilmesi

Verilerin değerlendirilmesinde Statistical Package for Social Sciences (SPSS) 27.0 istatistik paket programı kullanılmıştır. Öğrencilerin tanıtıcı özellikleri için; sayı, yüzde, frekans, ortalama ve standart sapma değerlerine bakılmıştır. Literatürde Skewness ve Kurtosis değerlerinin -1,0 ile +1,0 arasında olması verilerin normal dağılıma sahip olduğu anlamını gelmektedir.[18] Bu çalışmada BDÖ-24 toplam için Skewness: -0,225 ve Kurtosis:-0,113; KÖÇÖ toplam için Skewness: 0,844 ve Kurtosis: 0,385 olarak hesaplanmış olup ölçeğin normal dağılım gösterdiği tespit edilmiştir. Ayrıca Box Plot ve histogram grafikleri de incelenerek verilerin normal dağılıma sahip olduğu belirlenmiştir. Elde edilen sonuçlar doğrultusunda çoklu grupların karşılaştırılmasında tek yönlü varyans analizi (One way ANOVA) ve ikili grupların karşılaştırılmasında bağımsız örneklem t testi (Indpendent Samples T Test) yapılmıştır. ANOVA sonucunda anlamlı farklılıkların hangi gruplar arasında olduğunu tespit edebilmek için Post Hoc testi olan Tukey kullanılmıştır. Ölçekler arasındaki ilişkiyi belirlemek için ise Pearson Korelasyon Analizi yapılmıştır. Sonuçlar yorumlanırken istatistiksel testlerin anlamlılık düzeyi için *P*<,05 kabul edilmiştir.

Araştırmanın Etik Yönü

Araştırmanın yapılabilmesi için Gaziantep İslam Bilim ve Teknoloji Üniversitesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu tarafından 21.03.2023 tarihli, Karar No: 202.23.06 sayılı etik kurul onayı alınmıştır. Araştırma öncesinde veri toplama aracı olarak kullanılan ölçeklerin yazarlarından elektronik posta yoluyla izin alınmıştır. Araştırmanın yapıldığı üniversitenin dekanlığından araştırmanın yapılabilmesi için kurum izni alınarak çalışmaya başlanmıştır. Bu çalışma "Helsinki Deklarasyonu" prensiplerine uygun olarak yapılmış olup, araştırmanın amacı anlatılarak gönüllü olduklarını belirten katılımcılardan bilgilendirilmiş gönüllü onamları alınmıştır.

BULGULAR

Araştırmada yer alan öğrencilerin tanıtıcı özellikleri incelendiğinde; yaş ortalamasının 21,25±1,22, %74,3'ünün kadın, %34,9'unun 3. sınıf olduğu, %57,3'ünün hemşirelik mesleğini isteyerek ve %63,9'unun kolay iş imkanı sağladığı için seçtiği, %51'inin hemşirelik mesleğini seçerken meslek hakkında kısmen bilgi sahibi olduğu, %45,6'sının hemşirelik mesleğini kısmen sevdiği ve %71,8'nin hemşire yakını olduğu belirlenmiştir. Klinik uygulama hakkındaki görüşler incelendiğinde öğrencilerin %32,8'i en son dahili servislerde klinik uygulamaya çıktığını, %51,5'i klinik uygulama öncesi uygulama hakkında bilgilendirildiğini, %83'ü ilk klinik uygulamaya 1.sınıfta başlanması gerektiğini bildirmiştir. Öğrenciler bir mesaide bakıma ayrılan sürenin ortalama 45,57±82,84 dakika olduğunu ve klinik uygulamalarda öğrenci başına düşen hasta sayısının ortalama 5,42±4,15 olduğunu ifade etmiştir. Öğrencilerin %52,3'ü kendilerine verilen beceri eğitimini ve %53,9'u klinik uygulamalarda öğrendiği bakım becerilerini kısmen yeterli bulduğunu, %51'i uygulama yaptığı kliniklerde teorik bilgiyi uygulama alanına kısmen yansıtabildiğini belirtmiştir (Tablo 1).

Öğrencilerin BDÖ-24 puanları değerlendirildiğinde; Saygı 4,30±0,66, Bağlılık 4,20±0,70, Bilgi-Beceri 4,55±0,64, Güvence 4,53±0,64 iken BDÖ-24 toplam puan ortalamasının 4,38±0,61 olduğu belirlenmiştir. KÖÇÖ puanları değerlendirildiğinde ise; Personel Öğrenci İlişkileri 21,05±1,90, Öğretim Elemanı Sorumlulukları 13,50±1,20, Hasta İlişkileri 15,51±1,49, Öğrenci Memnuniyeti 15,34±1,72, Hiyerarşi ve Rutinler 10,18±1,36 ve KÖÇÖ toplam puan ortalamasının 75,60±3,87 olduğu tespit edilmiştir (Tablo 2). Araştırma sonucunda erkek öğrencilerin Saygı (27,48±5,70), Bağlılık (22,33±5,16), Güvence (37,90±7,33) ve BDÖ-24 toplam puan ortalamasının (111,25±21,80) kadın öğrencilere göre (sırası ile: 25,36±5,79; 20,31±4,76; 35,58±7,49; 103,82±20,63) anlamlı düzeyde yüksek olduğu bulunmuştur (*P*< ,05). Araştırmaya katılan 3. sınıf hemşirelik öğrencilerinin (21,65±2,00) 2. sınıf (20,68±2,09) ve 4. sınıflara (20,79±1,41) göre Personel Öğrenci İlişkileri alt boyut puan ortalamasının anlamlı düzeyde daha yüksek olduğu

Tablo 1: Öğrencilerin Tanıtıcı Özellikleri ve Klinik Uygulama Hakkındaki Görüşlerinin Dağılımı (n=241)

Tanıtıcı Özellik		n	%	Tanıtıcı Özellik		n	%
Cinsiyet	Kadın	179	74,3	**En son uygulamaya çıkılan klinik**	Dahili servisler	79	32,8
	Erkek	62	25,7		Cerrahi servisler	42	17,4
Sınıf	2	76	31,5		Acil Servis	50	20,7
	3	84	34,9		Yoğun Bakım	24	10,0
	4	81	33,6		Poliklinikler	39	16,2
Hemşirelik mesleğini isteyerek seçme durumu	Evet	138	57,3		Ameliyathane	7	2,9
	Hayır	103	42,7	**Klinik uygulama öncesi bilgilendirilme durumu**	Evet	124	51,5
					Hayır	35	14,5
					Kısmen	82	34,0
Hemşirelik mesleğini tercih etme sebebi	Kolay iş imkanı	154	63,9	**İlk klinik uygulamaya hangi sınıfta başlanmalı?**	1.sınıf	200	83,0
	Aile isteği	32	13,3		2.sınıf	35	14,5
	Rastlantısal	13	5,4		3.sınıf	6	2,5
	Yapmak istediğim meslek	42	17,4				
Hemşirelik mesleğini seçerken meslek bilgi sahibi olma durumu	Evet	96	39,8	**Beceri eğitimini yeterli bulma durumu**	Evet	34	14,1
	Hayır	22	9,1		Hayır	81	33,6
	Kısmen	123	51,0		Kısmen	126	52,3
Hemşirelik mesleğini sevme durumu	Evet	106	44,0	**Klinik uygulamalarda öğrendiği bakım becerilerini yeterli bulma durumu**	Evet	36	14,9
	Hayır	25	10,4		Hayır	75	31,1
	Kısmen	110	45,6		Kısmen	130	53,9
Hemşire yakının varlığı	Evet	173	71,8	**Uygulama yapılan kliniklerde teorik bilgiyi uygulama alanına yansıtma durumu**	Oldukça yeterli	17	7,1
	Hayır	68	28,2		Yeterli	46	19,1
					Kısmen yeterli	123	51,0
			Ort±SS		Yetersiz	44	18,3
Yaş			21,25±1,22		Oldukça yetersiz	11	4,6
Bir mesaide hasta bakımına ayrılan süre (dakika)			45,57±82,84				
Klinik uygulamalarda öğrenci başına düşen ortalama hasta sayısı			5,42±4,15				

n, Sayı,; %, Yüzde; Ort, Ortalama; SS, Standart Sapma

belirlenmiştir. Hemşirelik mesleğini seçerken meslek hakkında bilgi sahibi olan öğrencilerin Bilgi-Beceri alt boyut puan ortalaması (23,64±4,21), bilgi sahibi olmayan (21,72±6,06) ve kısmen (22,34±4,10) bilgi sahibi olanlara göre daha yüksek olduğu saptanmıştır (*P*< ,05). Hemşirelik mesleğini seven öğrencilerin Personel Öğrenci İlişkileri (22,28±1,62), Öğrenci Memnuniyeti (16,24±1,78), Hiyerarşi ve Rutinler (10,34±1,43) alt boyutlarının ve KÖÇÖ toplam puan ortalamasının (77,68±3,79) sevmeyenlere (sırası ile: 20,79±1,75; 14,90±1,64; 9,52±1,58; 74,74±3,61) ve kısmen sevenlere (sırası ile: 21,04±2,01; 15,57±1,66; 10,16±1,17; 76,00±3,92) göre daha yüksek olduğu tespit edilmiştir. Hemşire yakını olan öğrencilerin Güvence (36,82±7,28) ve Hasta İlişkileri (15,67±1,51) alt boyut puan ortalamalarının olmayanlara göre (sırası ile: 34,52±7,86; 15,13±1,39) daha yüksek olduğu belirlenmiştir (*P*< ,05) (Tablo 3).

En son dahili servislerde ve polikliniklerde klinik uygulamaya çıkan öğrencilerin cerrahi servislerde çıkanlara göre Saygı, Bağlılık, Güvence ve BDÖ-24 toplam puan ortalamalarının anlamlı düzeyde yüksek olduğu saptanmıştır (*P*< ,05) (Tablo 4). Bunun yanı sıra en son cerrahi servislerde (10,83±1,24) klinik uygulamaya çıkan öğrencilerin dahili (10,05±1,44) ve acil servislerde

Tablo 2. Bakım Davranışları Ölçeği-24 ve Klinik Öğrenim Çevresi Ölçeği Puanlarının Dağılımı *

	Ölçekler	Madde Sayısı	Ort±SS	Ölçekten Alınabilecek Min-Maks Puan	Ölçekten Alınan Min-Maks Puan
Bakım Davranışları Ölçeği-24	**Saygı**	6	4,30±0,66	6-36	9-36
	Bağlılık	5	4,20±0,70	5-30	7-30
	Bilgi-Beceri	5	4,55±0,64	5-30	6-30
	Güvence	8	4,53±0,64	8-48	8-48
	BDÖ-24 Toplam	24	4,38±0,61	24-144	37-144
Klinik Öğrenim Çevresi Ölçeği	**Personel Öğrenci İlişkileri**	6	21,05±1,90	6-30	15-27
	Öğretim Elemanı Sorumlulukları	4	13,50±1,20	4-20	11-18
	Hasta İlişkileri	4	15,51±1,49	4-20	10-20
	Öğrenci Memnuniyeti	4	15,34±1,72	4-20	10-20
	Hiyerarşi ve Rutinler	4	10,18±1,36	4-20	6-15
	KÖÇÖ Toplam	22	75,60±3,87	22-110	66-87

Ort, Ortalama; SS, Standart Sapma; Min, Minimum Değer; Maks, Maksimum Değer; BDÖ, Bakım Davranışları Ölçeği; KÖÇÖ, Klinik Öğrenim Çevresi Ölçeği
*Bakım Davranışları Ölçeği-24 ortalama puan üzerinden; Klinik Öğrenim Çevresi Ölçeği toplam puan üzerinden değerlendirilmiştir.

(9,78±1,26) çıkanlara göre Hiyerarşi ve Rutinler alt boyut puan ortalaması daha yüksek bulunmuştur (P< ,05) (Tablo 4). Klinik uygulama öncesi uygulama hakkında bilgilendirilen öğrencilerin Saygı (27,15±5,80), Bağlılık (22,13±4,86), Bilgi-Beceri (23,83±4,34), Güvence (37,80±6,90), BDÖ-24 toplam puanlarının (110,92±20,60) ve Personel Öğrenci İlişkileri (21,57±1,68), Öğrenci Memnuniyeti (15,85±1,91), KÖÇÖ toplam puan ortalamalarının (76,40±3,76) bildirilmeyenlere göre anlamlı düzeyde yüksek olduğu belirlenmiştir (*P*< ,05) (Tablo 4). İlk klinik uygulamanın 1. sınıfta başlaması gerektiğini düşünen öğrencilerin 2. ve 3. sınıfta başlaması gerektiğini düşünenlere göre BDÖ-24 toplam ve alt boyut puan ortalamaları anlamlı düzeyde yüksek bulunmuştur (*P*< ,05) (Tablo 4). Hemşirelik eğitiminde beceri eğitimini yeterli bulan öğrencilerin Bağlılık (22,94±6,13), Bilgi-Beceri (24,41±5,48), Personel Öğrenci İlişkileri (21,94±2,56), Hasta İlişkileri (16,20±1,61), Öğrenci Memnuniyeti (16,14±1,82) alt boyut ve KÖÇÖ toplam puan ortalamalarının (77,70±4,78) yeterli bulmayan ve kısmen yeterli bulanlara göre anlamlı düzeyde yüksek olduğu saptanmıştır (*P*< ,05) (Tablo 4). Klinik uygulamalarda öğrendiği bakım becerilerini yeterli bulan öğrencilerin yeterli bulmayan ve kısmen yeterli bulanlara göre Saygı (28,00±6,99), Bağlılık (23,11±6,23), Bilgi-Beceri (24,69±5,74), Personel Öğrenci İlişkileri (22,00±2,36), Hasta İlişkileri (16,16±1,66), Öğrenci Memnuniyeti (16,05±1,77) alt boyutları, BDÖ-24 (114,47±25,48) ve KÖÇÖ (77,66±4,63) toplam puan ortalamalarının anlamlı düzeyde yüksek olduğu belirlenmiştir (*P*< ,05) (Tablo 4). Kliniklerde teorik bilgiyi uygulama alanına oldukça yeterli ve yeterli yansıtan öğrencilerin, BDÖ-24 alt boyut ve toplam, KÖÇÖ toplam puan ortalamalarının diğerlerine göre anlamlı düzeyde daha yüksek olduğu saptanmıştır (*P*< ,05) (Tablo 4). Öğrencilerin ölçek puanları arasındaki ilişkiye bakıldığında Personel Öğrenci İlişkileri ile Saygı (r=0,127; *P*= ,05), Bağlılık (r=0,130; *P*= ,44), BDÖ-24 toplam (r=0,161; *P*= ,012) puanı arasında zayıf düzeyde; Bilgi-Beceri (r=0,168; *P*= ,009), Güvence (r=0,172; *P*= ,007) arasında pozitif yönde orta düzeyde bir ilişki olduğu belirlenmiştir (*P*<0,05) (Tablo 5). Öğretim Elemanı Sorumlulukları ile Bağlılık (r=0,133; *P*= ,40) ve Bilgi-Beceri (r=0,148; *P*= ,022) alt boyutları arasında pozitif yönde ve zayıf düzeyde; Hasta İlişkileri ile Bilgi-Beceri (r=0,167; *P*= ,009) arasında orta düzeyde ve Hasta İlişkileri ile Güvence (r=0,135; *P*= ,036) arasında pozitif yönde zayıf düzeyde bir ilişki olduğu saptanmıştır (*P*< ,05) (Tablo 5). Öğrenci Memnuniyeti ile Bağlılık (r=0,132; *P*= ,040), BDÖ-24 toplam puanı (r=0,151; *P*= ,019) arasında pozitif yönde zayıf düzeyde; Öğrenci Memnuniyeti ile Güvence (r=0,167; *P*= ,010) arasında pozitif yönde orta düzeyde bir ilişki olduğu belirlenmiştir. Ayrıca Hiyerarşi ve Rutinler alt boyutu ile Saygı (r=-0,152; *P*= ,018), Bağlılık (r=-0,133; *P*= ,039) arasında negatif yönde zayıf düzeyde; Bilgi-Beceri (r=-0,201; *P*= ,002), Güvence (r=-0,167; *P*= ,009), ve BDÖ-24 toplam puanı (r=-0,174; *P*= ,007) arasında negatif yönde orta düzeyde bir ilişki olduğu belirlenmiştir (*P*< ,05) (Tablo 5). KÖÇÖ toplam puanı ile Bağlılık (r=0,127; *P*= ,048) ve BDÖ-24 toplam puanı (r=0,162; *P*= ,012) arasında pozitif yönde zayıf; Bilgi-Beceri (r=0,182*; P*= ,005) ve Güvence (r=0,183; *P*= ,004) alt boyutları arasında pozitif yönde ve orta düzeyde bir ilişki olduğu saptanmıştır (*P*< ,05) (Tablo 5).

Tablo 3. Öğrencilerin Tanıtıcı Özelliklerine Göre Bakım Davranışları Ölçeği-24 ve Klinik Öğrenim Çevresi Ölçeği Puanlarının Karşılaştırılması

Tanıtıcı Özellikler		Bakım Davranışları Ölçeği-24					Klinik Öğrenim Çevresi Ölçeği					
		Saygı	Bağlılık	Bilgi-Beceri	Güvence	Toplam	Personel Öğrenci İlişkileri	Öğretim Elemanı Sorumlulukları	Hasta İlişkileri	Öğrenci Memnuniyeti	Hiyerarşi ve Rutinler	Toplam
Cinsiyet	Kadın	25,36±5,79	20,31±4,76	22,55±4,25	35,58±7,49	103,82±20,63	20,98±1,83	13,51±1,13	15,45±1,38	15,30±1,66	10,18±1,35	75,44±3,75
	Erkek	27,48±5,70	22,33±5,16	23,53±4,73	37,90±7,33	111,25±21,80	21,27±,08	13,48±1,39	15,70±1,77	15,43±1,87	10,17±1,39	76,08±4,18
Test ve *P*		t: 2,487	t: 2,816	t: 1,508	t: 2,114	t: 2,408	t: 1,038	t: -0,169	t: 1,036	t: 0,505	t: -0,035	t: 1,121
		,014	**,005**	,133	**,036**	**,017**	,300	,866	,303	,614	,972	,263
Sınıf	2.	26,27±6,32	21,05±5,22	22,67±4,63	36,42±7,93	106,42±22,57	20,68±2,09	13,63±1,31	15,34±1,53	15,19±1,98	10,25±1,59	75,10±4,05
	3.	25,96±6,12	21,09±5,32	22,97±4,74	36,38±8,02	106,41±22,70	21,65±2,00	13,52±1,24	15,53±1,50	15,65±1,89	10,00±1,35	76,36±4,39
	4.	25,51±5,03	20,37±4,21	22,76±3,78	35,74±6,55	104,39±18,06	20,79±1,41	13,37±1,05	15,66±1,44	15,14±1,13	10,30±1,10	75,28±2,92
Test ve *P*		F: 0,334	F: 0,547	F:0,102	F: 0,207	F: 0,245	F: 6,703	F: 0,930	F: 0,932	F: 2,193	F: 1,200	F: 2,582
		,716	,579	,903	,814	,783	**,001 (2>1) (2>3)⁺**	,396	,395	,114	,303	,078
Hemşirelik mesleğini isteyerek seçme durumu	Evet	26,31±5,84	21,06±4,90	22,97±4,57	36,68±7,66	107,03±21,50	21,02±1,75	13,43±1,15	15,57±1,53	15,39±1,72	10,21±1,25	75,64±3,58
	Hayır	25,36±5,79	20,53±4,99	22,59±4,14	35,50±7,26	104,00±20,63	21,09±2,09	13,60±1,27	15,44±1,43	15,27±1,71	10,13±1,49	75,55±4,24
Test ve *P*		t: 1,252	t: 0,826	t: 0,661	t: 1,205	t: 1,103	t: -0,274	t: -1,063	t: 0,646	t: 0,533	t: 0,459	t: 0,181
		,212	,410	,509	,230	,271	,784	,289	,519	,595	,646	,856
Hemşirelik mesleğini tercih etme sebebi	Kolay iş imkanı	26,02±5,63	21,00±4,77	22,68±4,49	36,25±7,43	105,96±20,96	21,12±1,78	13,44±1,20	15,51±1,45	15,36±1,72	10,19±1,32	75,63±3,79
	Aile isteği	25,21±5,72	19,78±4,95	22,96±3,43	35,25±7,26	103,21±19,53	21,43±2,39	13,68±1,35	15,71±1,65	15,43±1,88	9,87±1,43	76,15±4,69
	Rastlantısal	24,53±5,47	20,15±4,03	22,61±2,81	33,53±7,01	100,84±16,26	20,69±1,75	13,69±1,31	15,38±1,32	14,84±1,40	10,53±1,71	75,15±2,64
	Yapmak istediğim meslek	26,45±6,76	21,26±5,75	23,21±5,11	37,40±8,05	108,33±24,34	20,64±1,92	13,54±1,06	15,42±1,61	15,33±1,70	10,26±1,30	75,21±,3,84
Test ve *P*		F:0,527	F: 0,728	F: 0,183	F: 1,080	F: 0,597	F: 1,316	F: 0,503	F: 0,275	F: 0,398	F: 0,893	F: 0,418
		,664	,536	,908	,358	,617	,270	,680	,843	,754	,446	,740
Hemşirelik mesleğini seçerken meslek hakkında bilgi sahibi olma durumu	Evet	26,64±6,03	21,56±5,04	23,64±4,21	36,77±7,56	108,62±21,23	21,02±2,11	13,65±1,27	15,52±1,64	15,39±1,68	10,10±1,43	75,69±4,11
	Hayır	24,81±7,06	20,00±5,72	21,72±6,06	34,90±9,95	101,45±27,84	21,77±1,60	13,68±1,12	15,54±1,43	15,68±2,19	10,31±1,42	77,00±4,18
	Kısmen	25,53±5,40	20,42±4,67	22,34±4,10	35,94±6,97	104,25±19,57	20,95±1,75	13,35±1,16	15,51±1,38	15,23±1,65	10,21±1,29	75,28±3,57
Test ve *P*		F: 1,406	F: 1,797	F:3,316	F: 0,672	F: 1,658	F: 1,746	F: 1,917	F: 0,005	F: 0,709	F: 0,312	F: 1,892
		,247	,168	**,045**	,512	,193	,177	,149	,995	,493	,732	,153
Hemşirelik mesleğini sevme durumu	Evet	26,17±5,92	21,08±4,95	23,15±4,60	36,91±7,31	107,33±21,16	22,28±1,62	13,96±1,24	15,72±1,54	16,24±1,78	10,34±1,43	77,68±3,79
	Hayır	24,80±7,30	19,92±6,23	22,12±4,88	34,00±9,75	100,84±26,84	20,79±1,75	13,41±1,17	15,28±1,49	14,90±1,64	9,52±1,58	74,74±3,61
	Kısmen	25,90±5,38	20,80±4,60	22,63±4,06	35,96±7,06	105,31±19,66	21,04±2,01	13,49±1,22	15,68±1,14	15,57±1,66	10,16±1,17	76,00±3,92
Test ve *P*		F: 0,563	F: 0,564	F:0,712	F: 1,616	F: 0,993	F: 6,527	F: 2,083	F: 2,584	F: 8,349	F: 3,849	F: 7,241
		,570	,570	,492	,201	,372	**,002 (1>2) (3>2)⁺**	,127	,078	**<0,001 (1>2) (3>2)⁺**	**,023 (3>2)⁺**	**<0,001 (1>2) (3>2)⁺**
Hemşire yakının varlığı	Evet	26,25±5,81	21,10±4,95	23,11±4,31	36,82±7,28	107,30±20,92	21,09±1,90	13,54±1,25	15,67±1,51	15,35±1,66	10,08±1,27	75,74±3,86
	Hayır	25,04±5,83	20,14±4,86	22,02±4,53	34,52±7,86	101,75±21,35	20,95±1,91	13,41±1,09	15,13±1,39	15,30±1,85	10,44±1,52	75,25±3,90
Test ve *P*		t: 1,453	t: 1,365	t: 1,735	t: 2,154	t: 1,845	t: 0,522	t: 0,760	t: 2,544	t: 0,177	t: -1,720	t: 0,894
		,148	,174	,084	**,032**	,066	,602	,448	**,012**	,859	,088	,372

T, Independent Sample T Testi Değeri; F, One Way Anova Test Değeri; *P*, Anlamlılık düzeyi; ⁺Post Hoc Tukey testi (Yapılan post hoc analiz sonucunda aralarında anlamlı fark çıkan gruplar)

Tablo 4. Öğrencilerin Klinik Uygulamalara İlişkin Görüşlerine Göre Bakım Davranışları Ölçeği-24 ve Klinik Öğrenim Çevresi Ölçeği Puanlarının Karşılaştırılması

Öğrencilerin Klinik Uygulamaya İlişkin Görüşleri		Bakım Davranışları Ölçeği-24					Klinik Öğrenim Çevresi Ölçeği					
		Saygı	Bağlılık	Bilgi-Beceri	Güvence	Toplam	Personel Öğrenci İlişkileri	Öğretim Elemanı Sorumlulukları	Hasta İlişkileri	Öğrenci Memnuniyeti	Hiyerarşi ve Rutinler	Toplam
En son uygulamaya çıkılan klinik	Dahili servisler	27,22±5,83	21,73±4,95	23,58±4,19	37,86±7,21	110,40±20,92	20,72±1,79	13,63±1,18	15,72±1,64	15,26±1,56	10,05±1,44	75,39±3,32
	Cerrahi servisler	23,00±5,71	18,21±4,50	21,40±4,35	32,42±7,73	95,04±19,75	21,14±2,25	13,42±1,10	15,54±1,48	15,47±1,82	10,83±1,24	76,42±4,57
	Acil Servis	25,84±5,82	20,88±5,30	22,68±4,38	35,90±7,96	105,30±21,99	21,48±1,83	13,70±1,29	15,52±1,56	15,44±1,87	9,78±1,26	75,92±3,93
	Yoğun Bakım	26,00±5,69	21,29±5,06	23,04±4,82	35,75±7,46	106,08±22,07	20,83±2,01	13,04±1,26	15,45±1,28	15,50±1,66	10,20±1,53	75,04±3,81
	Poliklinikler	27,05±4,66	21,82±3,71	23,17±4,10	37,82±5,78	109,87±16,61	21,12±1,37	13,28±1,09	15,17±1,09	15,07±1,62	10,30±1,05	74,97±3,11
	Ameliyathane	22,42±7,20	19,14±5,69	20,57±5,62	34,00±8,04	96,14±25,59	21,71±3,03	14,00±1,41	15,14±1,95	15,57±2,57	9,85±1,46	76,28±7,65
Test ve *P*		F: 3,921	F: 3,590	F: 1,819	F:3,594	F: 3,705	F: 1,253	F: 1,703	F: 0,789	F: 0,360	F: 3,240	F: 0,843
		,002	**,004**	110	**,004**	**,003**	,285	,135	,559	,875	**,008**	,520
		(1>2) (5>2)⁺	**(1>2) (5>2)⁺**		**(1>2) (5>2)⁺**	**(1>2) (5>2)⁺**					**(2>1) (2>3)⁺**	
Klinik uygulama öncesi bilgilendirilme durumu	Evet	27,15±5,80	22,13±4,86	23,83±4,34	37,80±6,90	110,92±20,60	21,57±1,68	13,63±1,25	15,85±1,55	15,85±1,91	10,20±1,37	76,40±3,76
	Hayır	23,65±6,68	19,14±5,48	21,34±4,22	33,05±8,76	97,20±22,74	20,64±1,68	13,34±1,08	15,46±1,52	14,98±1,55	9,77±1,43	74,78±3,62
	Kısmen	25,00±5,05	19,59±4,28	21,89±4,19	35,04±7,25	101,53±19,30	21,18±2,04	13,37±1,18	15,45±1,42	15,42±1,73	10,31±1,28	75,92±3,99
Test ve *P*		F: 6,730	F: 9,579	F:7,480	F: 7,226	F: 8,732	F: 3,544	F: 1,516	F: 1,053	F: 3,534	F: 2,042	F: 3,081
		,001	**<,001**	**<,001**	**<,001**	**<,001**	**,030**	,222	,350	**0,031**	,132	**,048**
		(1>2) (1>3)⁺	**(1>2) (1>3)⁺**	**(1>2) (1>3)⁺**	**(1>2) (1>3)⁺**	**(1>2) (1>3)⁺**	**(1>2)⁺**			**(1>2)⁺**		
İlk klinik uygulamaya çıkma zamanına ilişkin düşünceler	1.sınıf	26,51±6,00	21,32±5,00	23,21±4,47	36,88±7,60	107,92±21,55	21,09±1,96	13,50±1,17	15,51±1,50	15,43±1,80	10,15±1,38	75,69±3,93
	2.sınıf	23,45±3,82	19,11±3,57	21,14±3,44	33,77±5,75	97,48±14,93	20,82±1,48	13,28±1,27	15,40±1,45	14,91±1,22	10,48±1,12	74,91±3,64
	3.sınıf	20,33±2,58	14,66±3,55	19,16±2,78	26,83±3,76	81,00±7,45	21,16±2,13	14,83±1,16	16,50±1,04	14,83±0,98	9,33±1,63	76,66±2,87
Test ve *P*		F: 7,253	F: 8,261	F:5,622	F: 7,732	F: 8,317	F: 0,300	F: 4,320	F: 1,412	F: 1,614	F: 2,099	F: 0,836
		<,001	**<,001**	**,004**	**<,001**	**<,001**	,741	**,014**	,246	,201	,125	,435
		(1>2) (1>3)⁺	**(1>2) (1>3)⁺**	**(1>2)⁺**	**(1>3)⁺**	**(1>2) (1>3)⁺**		**(3>1) (3>2)⁺**				
Beceri eğitimini yeterli bulma durumu	Evet	27,32±7,04	22,94±6,13	24,41±5,48	38,20±8,40	112,88±25,26	21,94±2,56	13,64±1,34	16,20±1,61	16,14±1,82	9,76±1,39	77,70±4,78
	Hayır	25,16±6,02	20,33±4,95	22,22±4,36	35,60±8,02	103,32±21,58	21,19±1,69	13,64±1,23	15,76±1,39	15,54±1,93	10,16±1,45	76,30±3,63
	Kısmen	26,01±5,29	20,59±4,44	22,75±3,99	36,00±6,85	105,36±19,34	20,73±1,74	13,38±1,14	15,17±1,43	14,99±1,44	10,30±1,27	74,58±3,42
Test ve *P*		F:1,697	F: 3,742	F: 3,047	F: 1,518	F: 2,520	F: 5,988	F: 1,425	F: 8,541	F: 7,244	F: 2,186	F: 11,652
		,185	**,025**	**,049**	,221	,083	**,003**	,243	**<,001**	**<,001**	,115	**<,001**
			(1>3) (2>3)⁺	**(1>2)⁺**			**(1>3)⁺**		**(1>3)(2>3)⁺**	**(1>3)⁺**		**(1>3) (2>3)⁺**
Klinik uygulamada öğrendiği bakım becerilerini yeterli bulma durumu	Evet	28,00±6,99	23,11±6,23	24,69±5,74	38,66±7,64	114,47±25,48	22,00±2,36	13,66±1,26	16,16±1,66	16,05±1,77	9,77±1,28	77,66±4,63
	Hayır	25,00±5,93	20,09±4,90	22,06±4,28	35,24±7,93	102,40±21,14	21,29±1,65	13,61±1,18	15,70±1,36	15,65±1,83	10,02±1,47	76,29±3,39
	Kısmen	25,86±5,30	20,63±4,38	22,71±3,88	36,03±7,11	105,24±19,27	20,66±1,79	13,40±1,20	15,23±1,45	14,96±1,54	10,38±1,27	74,63±3,61
Test ve *P*		F: 3,289	F:4,929	F: 4,547	F: 2,624	F: 4,145	F: 8,278	F: 1,116	F: 6,691	F: 7,940	F: 3,598	F: 11,228
		,039	**,008**	**,012**	,075	**,017**	**<,001**	,329	**,001**	**<,001**	**,029**	**<,001**
		(1>2)⁺	**(1>2) (1>3)⁺**	**(1>2) (1>3)⁺**		**(1>2)⁺**	**(1>3)⁺**		**(1>3)⁺**	**(1>3) (2>3)⁺**	**(3>1)⁺**	**(1>3) (2>3)⁺**
Teorik bilgiyi uygulama alanına yansıtma durumu	Oldukça yeterli	28,47±7,29	23,76±5,99	23,94±6,34	39,58±7,63	115,76±26,54	22,05±2,90	14,17±1,13	16,05±1,74	16,29±1,96	9,28±1,74	78,41±5,67
	Yeterli	27,97±5,91	22,26±5,47	24,45±4,16	38,32±7,07	113,02±21,84	21,21±1,48	13,43±1,10	15,50±1,32	15,39±1,59	10,15±1,17	75,69±3,31
	Kısmen yeterli	25,41±5,43	20,41±4,50	22,69±3,98	35,58±7,13	104,11±19,23	20,81±1,85	13,39±1,12	15,41±1,51	15,17±1,64	10,26±1,34	75,05±3,61
	Yetersiz	23,79±4,72	19,22±3,79	20,63±4,00	33,77±7,47	97,43±18,04	21,15±1,79	13,52±1,35	15,34±1,39	15,34±1,82	10,20±1,42	75,56±3,86
	Oldukça yetersiz	27,36±7,83	21,54±6,74	24,09±4,50	38,18±9,89	111,18±27,63	21,18±2,27	14,00±1,67	16,63±1,43	15,45±1,96	9,90±1,44	77,18±3,84
Test ve *P*		F: 4,330	F:4,102	F: 5,182	F: 3,473	F: 4,646	F: 1,834	F: 2,133	F: 2,457	F: 1,616	F: 0,512	F: 3,451
		,002	**,003**	**<,001**	**,009**	**,001**	,123	,077	**,046**	,171	,727	**,009**
		(1>4) (2>4)⁺	**(1>4) (2>4)⁺**	**(2>4) (3>4)⁺**	**(1>4) (2>4)⁺**	**(1>4) (2>4)⁺**						**(1>3)⁺**

t: Independent Sample T Testi Değeri, F: One Way Anova Test Değeri, p: Anlamlılık Düzeyi, ⁺Post Hoc Tukey testi (Yapılan post hoc analiz sonucunda aralarında anlamlı fark çıkan gruplar)

Tablo 5. Bakım Davranışları Ölçeği-24 ile Klinik Öğrenim Çevresi Ölçeği Puanları Arasındaki İlişkinin Korelasyonu

			Bakım Davranışları Ölçeği-24					Klinik Öğrenim Çevresi Ölçeği					
			Saygı	Bağlılık	Bilgi-Beceri	Güvence	Toplam	Personel Öğrenci İlişkileri	Öğretim Elemanı Sorumlulukları	Hasta İlişkileri	Öğrenci Memnuniyeti	Hiyerarşi ve Rutinler	Toplam
BDÖ-24	**Saygı**	r	1	,934**	,783**	,853**	,959**	,127*	,104	,035	,122	-,152*	,109
		P		**<,001**	**<,001**	**<,001**	**<,001**	**,050**	,108	,591	,058	**,018**	,091
	Bağlılık	r	,934**	1	,769**	,809**	,938**	,130*	,133*	,027	,132*	-,133*	,127*
		P	**<,001**		**<,001**	**<,001**	**<,001**	**,044**	**,040**	,674	**,040**	**,039**	**,048**
	Bilgi-Beceri	r	,783**	,769**	1	,776**	,879**	,168**	,148*	,167**	,133*	-,201**	,182**
		P	**<,001**	**<,001**		**<,001**	**<,001**	**,009**	**,022**	**,009**	**,040**	**,002**	**,005**
	Güvence	r	,853**	,809**	,776**	1	,940**	,172**	,098	,135*	,167**	-,167**	,183**
		P	**<,001**	**<,001**	**<,001**		**<,001**	**,007**	,129	**,036**	**,010**	**,009**	**,004**
	Toplam	r	,959**	,938**	,879**	,940**	1	,161*	,125	,099	,151*	-,174**	,162*
		P	**<,001**	**<,001**	**<,001**	**<,001**		**,012**	,052	,127	**,019**	**,007**	**,012**
KÖÇÖ	**Personel Öğrenci İlişkileri**	r	,127**	,130**	,168**	,172**	,161*	1	,100	,367**	,501**	-,352**	,763**
		P	**,050**	**,044**	**,009**	**,007**	**,012**		,123	**<,001**	**<,001**	**<,001**	**<,001**
	Öğretim Elemanı Sorumlulukları	r	,104	,133*	,148*	,098	,125	,100	1	,138*	-,063	-,135*	,339**
		P	,108	**,040**	**,022**	,129	,052	,123		**,032**	,329	**,036**	**<,001**
	Hasta İlişkileri	r	,035	,027	,167**	,135*	,099	,367**	,138*	1	,335**	-,364**	,630**
		P	,591	,674	**,009**	**,036**	,127	**<,001**	**,032**		**<,001**	**<,001**	**<,001**
	Öğrenci Memnuniyeti	r	,122	,132*	,133*	,167*	,151*	,501**	-,063	,335**	1	-,251**	,712**
		P	,058	**,040**	**,040**	**,010**	**,019**	**<,001**	,329	**<,001**		**<,001**	**<,001**
	Hiyerarşi ve Rutinler	r	-,152*	-,133*	-,201**	-,167**	-,174**	-,352**	-,135**	-,364**	-,251**	1	-,116
		P	**,018**	**,039**	**,002**	**,009**	**,007**	**<,001**	**,036**	**<,001**	**<,001**		,072
	Toplam	r	,109	,127*	,182**	,183**	,162*	,763**	,339**	,630**	,712**	-,116	1
		P	,091	**,048**	**,005**	**,004**	**,012**	**<,001**	**<,001**	**<,001**	**<,001**	,072	

r, Pearson Korelasyon Analizi Katsayısı; *P*, Anlamlılık Değeri;
*Zayıf Düzeyde İlişki; **Orta Düzeyde İlişki; ***Yüksek Düzeyde İlişki

TARTIŞMA

Watson bakımı hemşireliğin özü olarak tanımlar.[19] Bu nedenle bakım kavramı hemşirelik eğitiminin yapı taşıdır. Klinik öğrenme ortamının etkisiyle öğrencilerin bakım davranışları şekillenir ve profesyonel hemşirelik kimliği oluşur.[20] Çalışmada öğrencilerin bakım davranışlarına yönelik algılarının ortalama üzerinde bir değere sahip olduğu tespit edilmiştir. Benzer şekilde literatürde bazı çalışmalar da hemşirelik öğrencilerinin bakım davranışlarına yönelik algılarının yüksek olduğunu belirlemiştir.[21-25] Hemşirelik eğitim sürecinde yer alan aday hemşirelerin bakım davranışlarına yönelik algılarının yüksek olması hemşirelikte bakım kavramının yerleşmesi ile ilgili önemli bir göstergedir. Bakım davranışlarına yönelik algının yüksek olması öğrencilerin bakım davranışları kazandıklarını ve bakımın önemini fark ettiklerini ortaya koymaktadır. Ayrıca Öğretim Elemanı Sorumlulukları puanının ortalamanın üstünde olması, eğiticilerin bakım davranışlarının gelişmesine yönelik gayretlerinin öğrencilerde bakıma yönelik algının yüksek olmasında etkili olduğunu düşündürmektedir.

Klinik öğrenme çevresi hemşirelik öğrencilerinin bilişsel, duyuşsal ve psikomotor becerileri bir arada kullanılmasına yardımcı olarak hemşirelik eğitiminin önemli bir bileşenini oluşturur.[26] Çalışmada öğrencilerin klinik öğrenme çevrelerine ilişkin değerlendirmelerinin olumlu olduğu görülmektedir. Olumlu bir klinik öğrenme çevresi öğrencilerin yüksek özgüven kazanımını sağlayabilir; memnuniyeti, motivasyonu, bakım becerilerine katılımı, iş doyumunu arttırabilir ve kariyer gelişimini destekleyebilir. Bu bağlamda elde ettiğimiz bulgu öğrencilerin mesleki kimlik kazanımına olumlu katkı sağlayacağını düşündürmüş ve olumlu bir bulgu olarak değerlendirilmiştir. Ulusal ve uluslararası literatürde hemşirelik öğrencileriyle yapılan çalışmaların sonuçları çalışmamız ile paraleldir. Türkiye'de hemşirelik son sınıf öğrencilerinin klinik uygulamaya ilişkin görüşlerinin incelendiği çalışmada klinik öğrenim çevresinin olumlu olduğu sonucuna ulaşılmıştır.[27] Yurt dışında yapılan çalışmalarda da hemşirelik öğrencilerinin klinik öğrenme ortamına ilişkin algılarının olumlu olduğu belirlenmiştir.[6,28-29]

Araştırma sonucunda erkek öğrencilerin saygı, bağlılık, güvence ve bakım davranışları puan ortalamalarının anlamlı düzeyde yüksek olduğu saptanmıştır. Elde edilen bu bulguya dayanarak erkek öğrencilerin duygu, düşünce ve davranışlarını daha net ortaya koyduğunu ve bununda bakım davranışlarının gelişimini olumlu yönde etkilediğini söyleyebiliriz. Aydın çalışmasında erkek öğrencilerin bakım davranışlarının kız öğrencilere göre daha yüksek olduğunu, Kılıç ise benzer düzeyde olduğunu tespit etmişlerdir.[30,31] Elde edilen bulguların aksine literatürde kız öğrencilerin bakım davranışlarının erkek öğrencilerden yüksek olduğunu bildiren çalışmalar da yer almaktadır.[21,32] Araştırmaya katılan öğrencilerin özellikleri ve mesleğe ilişkin görüşleri bulguların farklılık göstermesinde etkili olmuş olabilir. Ayrıca bu durum hemşirelik mesleğinde bakım davranışlarının cinsiyet kavramını aştığı şeklinde yorumlanabilir.

Hemşirelik 3. sınıf öğrencilerin personel öğrenci ilişkilerinin diğer sınıflara göre daha iyi olduğu görülmektedir. Bu durum hemşirelik 2. sınıf öğrencilerin teorik bilgi birikimi ve klinik uygulama deneyimlerinin 3. sınıflara göre daha az olmasından; 4. sınıf öğrencilerin ise iş bulma ve sınav kaygısı taşımasından kaynaklanıyor olabilir. Üşenmez ve Kaya[33] hemşirelik 3. sınıf öğrencilerin personel öğrenci ilişkileri puanlarının, 4. sınıflardan düşük olduğunu belirlemiştir.[33] Cabar ve ark.[34] 2. sınıf hemşirelik öğrencilerin personel öğrenci ilişkileri puanlarının 3. ve 4. sınıf öğrencilerden yüksek olduğunu bildirmiştir.[34] Araştırma bulguları arasındaki farklılık klinik uygulama alanlarının farklı olmasından kaynaklanmış olabilir.

Çalışmada hemşirelik mesleğini seçerken meslek hakkında bilgi sahibi olan ve kısmen bilgisi olan öğrencilerin bilgi-beceri puanlarının bilgisi olmayanlardan daha yüksek olduğu görülmektedir. Bu durum hemşirelik mesleğini isteyerek seçen, meslek hakkında bilgi sahibi olan ve hemşirelik yapan bir yakını olan öğrenci sayısının fazla olması ile ilişkilendirilebilir. Bu durum öğrencilerin mesleği seçerken bilgi sahibi olması bakımından olumlu olarak değerlendirilmiştir. Ayrıca meslek hakkında bilgi sahibi olunarak mesleğin tercih edilmesi bakıma yönelimi etkileyebileceği anlamına da gelebilir.

Hemşirelik mesleğinin bilinçli olarak, severek ve isteyerek tercih edilmesi kaliteli hemşirelik bakımının sunulması, mesleki doyumun ve sağlıklı çalışma ortamlarının oluşturulması için oldukça önemlidir.[32] Çalışmada hemşirelik mesleğini seven öğrencilerin personel öğrenci ilişkileri, öğrenci memnuniyeti, hiyerarşi ve rutinler alt boyutları ve klinik öğrenim çevresi toplam puan ortalamaları daha yüksektir. Hevesli ve motivasyonu yüksek olan öğrencilerin bu durumlarını bakım davranışlarına yansıttığı görülmektedir. Buradan yola çıkarak öğrencilerin mesleği sevme, seçme ve sürdürme isteğinin bakım davranışları ve klinik öğrenme çevrelerine yönelik algılarının artmasına katkı sağladığını söyleyebiliriz.

Hemşire yakını olan öğrencilerin hasta ilişkileri ve güvence puanları diğerlerinden daha yüksektir. Bunun durum hemşire yakını olan öğrencilerin klinik öğrenme çevresi ve bakım davranışlarına yabancı olmadığını düşündürmüştür. Literatürde bu duruma ilişkin bir bulguya rastlanmamıştır.

Çalışmada klinik uygulama öncesi uygulama hakkında bilgilendirilen öğrencilerin bakım davranışları alt boyut ve

toplam puanlarının; personel öğrenci ilişkileri, öğrenci memnuniyeti ve klinik öğrenim çevresi toplam puanlarının yüksek olduğu görülmektedir. Klinik uygulama öncesi yapılan bilgilendirilmenin öğrencilerin bakım davranışlarının gelişmesine ve klinik öğrenme çevresinin şekillendirmesine olumlu katkısının olduğunu söyleyebiliriz. Benzer şekilde Akman ve ark.[35] çalışmasında uygulama öncesinde klinik uygulama hakkında bilgilendirilen öğrencilerin klinik öğrenim çevresini olumlu değerlendirdiği bildirilmiştir.[35]

Klinik uygulamalarda öğrendiği bakım becerilerini yeterli bulan öğrencilerin kısmen yeterli bulan ve yeterli bulmayanlara göre saygı, bağlılık, bilgi-beceri alt boyutları, bakım davranışları, personel öğrenci ilişkileri, hasta ilişkileri, öğrenci memnuniyeti ve klinik öğrenme çevresi puan ortalamaları daha yüksektir. Klinik uygulamalarda öğrencilerin klinik öğrenim çevresi ve bakım davranışlarına yönelik olumlu izlenimleri; bilgi, beceri, iletişim, memnuniyet, saygı ve mesleğe bağlılığın kazanılmasında ve mezuniyet sonrası profesyonel hemşirelik kimliğine taşınmasında önemlidir. Bu anlamda elde ettiğimiz bulgu olumlu olarak değerlendirilmiştir.

Öğrendiği teorik bilgiyi uygulama alanına yansıtan öğrencilerin diğerlerine göre, bakım davranışları ve klinik öğrenme çevresi puan ortalamaları yüksektir. Bu durum öğrencilerin çoğunun bilişsel, duyuşsal ve psikomotor becerilerinin geliştiği ve eyleme dönüştüğünü düşündürmüştür. Bu bulgu ışığında bakım davranışları ve klinik öğrenme çevresine ilişkin olumlu algıların teori ve uygulama arasında köprü kurulmasında etkili olduğunu söyleyebiliriz.

Destekleyici bir klinik öğrenme çevresi; gerekli becerilerin, bilginin ve davranışların geliştirilmesinde rol oynar ve öğrencilerin kaliteli bir hemşirelik bakımı sunmasını sağlar.[3] Çalışmada hemşirelik öğrencilerinin bakım davranışları ile klinik öğrenme çevresi arasında pozitif yönde zayıf bir ilişki bulunmuştur. Literatürde bu ilişkiyi inceleyen herhangi bir çalışma bulunmamaktadır. Öğrencilerin bakım davranışlarına ilişkin saygı, bağlılık, bilgi-beceri ve güvence özellikleri ile klinik öğrenme çevresinde personel öğrenci ilişkileri, öğrenci memnuniyeti, hiyerarşi ve rutinler alt boyutları arasında olumlu ilişkiler olduğu görülmüştür. Bu kapsamda klinik öğrenme çevresindeki olumlu deneyimlerin öğrencilerin bakım yeterliliklerinin gelişimini olumlu yönde etkilediğini söyleyebiliriz.

Araştırmanın Sınırlılıkları

Araştırma bir kurumda okuyan hemşirelik öğrencileri ile yapıldığından elde edilen bulguların sadece araştırmanın yapıldığı kurumda okuyan hemşirelik öğrencilerine genellenebilir olması araştırmanın sınırlılığıdır.

Klinik öğrenme ortamları hemşirelik öğrencilerinin bakım davranışlarına yön veren birçok değişkeni içinde barındırmaktadır. Bu nedenle hemşirelik eğitiminin önemli bir parçasını oluşturan klinik öğrenme ortamları bakım davranışlarını şekillendirmektedir. Hemşirelik öğrencilerinin bakım davranışları ile klinik öğrenim çevresi arasındaki ilişkiyi belirlemek amacıyla yapılan bu çalışmada; öğrencilerin klinik öğrenme çevreleri ve bakım davranışlarına yönelik algılarının ortalamanın üzerinde bir değere sahip olduğu tespit edilmiştir. Ayrıca hemşirelik öğrencilerinin bakım davranışları ile klinik öğrenme çevresi arasında pozitif yönde anlamlı ilişki bulunmuştur. Araştırma bulgularımızdan yola çıkarak; lise son sınıflara hemşirelik mesleğine ilişkin eğitim programlarının yapılması; klinik uygulamaya çıkmadan önce öğrencilere mutlaka klinik uygulama yerleri ve uygulamada öğrenciden beklenen hasta bakım davranışlarına ilişkin eğitim yapılması; öğrencilerin öğrendiği bilgiyi uygulamaya aktarmasını sağlayacak klinik öğrenme çevresinin ayarlanması önerilir. Bununla birlikte konuya ilişkin birden fazla kurumun birlikte ele alındığı araştırmaların; karma desenli araştırmaların yapılması önerilir.

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Yazar Katkısı: Fikir: ND, AE; Tasarım: ND, AE; Denetleme: ND, AE; Danışmanlık: ND; Veri toplama ve/veya Veri İşleme: AE; Analiz ve/veya Yorum: ND, AE; Literatür tarama; ND, AE; Makalenin Yazımı: ND, AE; Kaynaklar; ND, AE; Eleştirel inceleme: ND, AE.
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Evaluation of The Relationship Between Communication Skills and Psychosocial Care Skills of Nurses

Hemşirelerin İletişim Becerileri ile Psikososyal Bakım Becerileri Arasındaki İlişkinin Değerlendirilmesi

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ABSTRACT

Objective: The aim of this study is to evaluate the correlation between nurses' communication skills and psychosocial care skills.

Methods: The study was a descriptive and cross-sectional quantitative research that was conducted with nurses working in a training and research hospital between January and May 2022. Population of the study consisted of 255 nurses working in the related hospital. The study was completed with a total of 180 nurses who were voluntary to participate in the study and met the inclusion criteria, without using sample selection. A Participant Information Form, the Psychosocial Care Competence Self-Assessment Scale (PCCSAS), and the Communication Skills Inventory (CSI) were used to collect data.

Results: It was found that the nurses' communication skills inventory total mean score was 169.65±13.72. There was no significant correlation between the total score of communication skills inventory and the socio-demographic and professional characteristics of the nurses (*P*>.05). The nurses' PCCSAS total mean score was 64.28±13.13. The PCCSAS total score differed significantly only according to the unit worked and the number of patients per nurse (*P*=.008; *P*=.040). There was a statistically significant and positive correlation between CSI total score and PCCSAS total score (r=0.242; *P*<.01).

Conclusion: It is thought that training should be organised at regular intervals for nurses to improve their knowledge and skills about communication and psychosocial care, and the efficiency of the training should be evaluated periodically for patient and nurse groups.

Keywords: Nursing, communication skills, psychosocial care

ÖZ

Amaç: Bu çalışmanın amacı hemşirelerin iletişim becerileri ile psikososyal bakım becerileri arasındaki ilişkinin değerlendirilmesidir.

Yöntemler: Tanımlayıcı ve kesitsel niceliksel nitelikteki araştırma bir eğitim ve araştırma hastanesinde çalışan hemşirelerle Ocak-Mayıs 2022 tarihleri arasında yürütülmüştür. Araştırmanın evrenini ilgili hastanede çalışan 255 hemşire oluşturmuştur. Örneklem seçimi yapılmadan araştırmaya katılmaya gönüllü olan ve dahil edilme kriterlerini karşılayan toplam 180 hemşire ile çalışma tamamlanmıştır. Verilerin toplanmasında Katılımcı Bilgi Formu, Psikososyal Bakım Yeterliliği Öz Değerlendirme Ölçeği (PBYÖDÖ) ve İletişim Becerileri Envanteri (İBE) kullanılmıştır.

Bulgular: Hemşirelerin iletişim becerileri envanteri toplam puanının 169,65±13,72 olduğu belirlenmiştir. İletişim becerileri envanteri toplam puanı ile hemşirelerin sosyo-demografik ve mesleki özellikleri arasında anlamlı bir ilişki saptanmamıştır (*P*>,05). Hemşirelerin PBYÖDÖ toplam puan ortalaması 64,28±13,13 idi. PBYÖDÖ toplam puanı yalnızca çalışılan birime ve hemşire başına düşen hasta sayısına göre anlamlı farklılık gösterdi (*P*=,008; *P*=,040). İBE toplam puanı ile PBYÖDÖ toplam puanı arasında istatistiksel olarak anlamlı ve pozitif korelasyon vardı (r=0,242; *P*<,01).

Sonuç: Hemşirelerin iletişim ve psikososyal bakım konusunda bilgi ve becerilerini geliştirmeye yönelik düzenli aralıklarla eğitimler düzenlenmesi, eğitimin etkinliğinin hasta ve hemşire gruplarına yönelik periyodik olarak değerlendirilmesi gerektiği düşünülmektedir.

Anahtar Kelimeler: Hemşirelik, iletişim becerileri, psikososyal bakım

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INTRODUCTION

Importance of communication skills of nurses along with their professional knowledge and skills is also known in the care services they provide to patients. Communication processes based on information transfer and interaction between the patient and the nurse constitute the basis of the nursing process. Effective communication skills of nurses have a positive effect on patients' satisfaction, compliance with treatment and recovery processes.[1] Having a key role in health care through its positive effects, communication, which has a key role in health care through its positive effects, is a fundamental nursing skill that is also included in the first stage of psychosocial care.[2]

Being a part of holistic patient care approach, psychosocial care enables patients to seek both informative and emotional support from healthcare professionals to help them manage their disease process.[3] Psychosocial care is the process of identifying and meeting the emotional, cognitive, cultural and spiritual needs associated with the disease and the treatment. This process aims to determine the psychosocial reactions of patients and to enhance the quality of life by developing the disease-related behaviors.[4] Psychosocial interventions create positive effects in alleviating depressive symptoms and anxiety and enhancing quality of life in patients and their relatives.[5]

Nurses should not consider psychosocial care independently from routine treatment and care. They are responsible for supporting patients' adaptation to disease processes and ensuring that they can effectively cope with the stressors.[4] In the literature the related studies have highlighted that nurses' knowledge about psychosocial care and their psychosocial care skills should be improved. A qualitative study examining psychosocial care from the perspective of nurses reported that nurses had difficulty in defining and determining the convenience of the framework of psychosocial care and their approaches. The same study emphasised that nurses needed help to acquire the necessary knowledge and skills to provide psychosocial care.[6] Another study examining the psychosocial care skills of nurses revealed that nurses working in the clinics considered themselves incompetent in providing psychosocial care to patients and that they needed to be improved and supported.[7] It is thought that the care relationship established with the patient is based on the level of communication and psychosocial care skills of nurses. In the clinical setting, patients need an environment where they feel comfortable and safe to communicate. The therapeutic relationship with patients plays a vital role for patients and their families, allowing them to place trust in nurses for their emotional journey. A trust-based care relationship facilitates the patient's emotional journey and enables the identification of psychosocial care needs and common health goals.[3]

To the best of our knowledge, there are a limited number of studies in the literature that emphasise the importance of nurses' communication skills and psychosocial care skills; however, no study examining the correlation between the two concepts has been found.

AIM

In line with this information, the aim of the study is to evaluate the correlation between nurses' communication skills and psychosocial care skills.

For this purpose, answers were sought to the following questions;

- What is the communication skill level of nurses?
- Is there any significant correlation between nurses' communication skill level and their socio-demographic and professional characteristics?
- What is the psychosocial care skill level of nurses?
- Is there any significant correlation between nurses' psychosocial care skill level and their socio-demographic and professional characteristics?
- Is there any correlation between nurses' communication skills and psychosocial care skills?

METHODS

Design

This study is a descriptive and cross-sectional quantitative research that was conducted with nurses working in a training and research hospital between January and May 2022.

Participants

Population of the study consisted of 255 nurses working in the related hospital. The study was completed with a total of 180 nurses who were voluntary to participate in the study and met the inclusion criteria, without using sample selection. The inclusion criteria were determined as follows; working in an inpatient ward (internal medicine and surgical units, intensive care units, emergency department and burn unit, etc.) and being voluntary to participate in the study. The exclusion criteria were determined as follows; working units other than the inpatient service (outpatient clinic, operating room, etc.) and declining to participate in the study.

Data Collection

A Participant Information Form, the Psychosocial Care Competence Self-Assessment Scale (PCCSAS), and the Communication Skills Inventory (CSI) were used to collect

data. The Participant Information Form was prepared by the researchers upon review of the relevant literature and includes 13 questions about socio-demographic (age, gender, educational background, marital status, and income) and professional (unit they work in, professional experience, shift, weekly working hours, number of patients per nurse, liking the profession, status of receiving communication training, and status of receiving psychosocial care training) characteristics of the participants.

Psychosocial Care Competence Self-Assessment Scale (PCCSAS): It is a 5-point Likert-type self-report scale developed by Karataş and Kelleci[8] to evaluate the psychosocial care proficiency of nurses and consists of 4 subscales and 18 items. The lowest and highest scores of the scale are 18 and 90 points, respectively. A high score indicates that the nurse working in the clinic has a good psychosocial care proficiency self-assessment. It was found that the Cronbach's alpha values of the scale were 0.93 for the overall scale and ranged between 0.80 and 0.93 for its subscales.[8] The Cronbach's alpha values of the scale were found to be 0.95 for the overall scale and range between 0.84 and 0.89 for its subscales in this study.

Communication Skills Inventory (CSI): It is a 5-point Likert type scale that was developed by Ersanlı and Balcı[9] and has 3 subscales and 45 items. The highest and lowest scores of the scale is 225 and 45, respectively. While each subscale can be evaluated separately, the individual's general communication skill level can be determined by looking at the overall scale. High scores signify that the respondent has a high level of communication skills. The Cronbach's alpha coefficient of the scale is 0.72.[9] The Cronbach's alpha coefficient for the overall scale was 0.84 in the study.

Statistical Analysis

Data was analyzed using IBM SPSS 27. Kolmogorov Smirnov test was used to test whether or not the data were normally distributed. Total score distributions of both scales were statistically significantly different from the standard normal distribution (P<.05). For this reason, nonparametric tests (Mann Whitney U, Kruskal Wallis) were used in the analysis of total scores of the scales. The Mann Whitney U test was used to compare the means of two independent groups, and the Kruskal-Wallis test was used to compare the intergroup means between at least three independent groups. Spearman's rho correlation analysis was used to determine the correlation between the two scales. Significance was assessed as P<.05.

Ethical Approval

Before starting the study, approval was obtained from the Karabük University Non-Interventional Clinical Trials Ethics Committee (Date: 17.11.2021 Number: E-77192459-050.99-81047 Decision No: 2021/681). The necessary institutional permission was obtained from Karabük University Training and Research Hospital (Date: 29.11.2021 Number: E-34771223-774.99). The nurses participating in the study signed an informed consent form. Permission was obtained from the authors who conducted validity and reliability studies of the scales via e-mail in order to use them in the study.

RESULTS

It was found that the majority of the nurses participating in the study were female (82.2%), aged between 21-30 years (47.2%), had a bachelor's degree (71.7%), were married (63.9%), and had an income equal to expenses (47.6%). The majority of the participants had professional experience of 1-10 years (55.0%) and they loved their profession (47.8%). Most of them were worked in internal medicine clinics (33.9%), at both day and night (82.8%) shifts, and for more than 40 hours a week (59.4%), and had 10 or less patients per nurse (81.1%). While 87.8% of the participants stated that they received training on communication, 12.2% stated that they did not. While 51.7% of the participants stated that they received training on psychosocial care, 48.2% stated that they did not.

Findings on Nurses' Communication Skills

The nurses' CSI total mean score was 169.65±13.72. The CSI total score did not show a statistically significant difference in terms of age, gender, educational background, marital status, income level, professional experience, unit, status of liking the profession, working type, weekly working hours, number of patients per nurse, status of receiving training on communication and status of receiving training on psychosocial care training (P>.05) (Table 1).

Findings on Nurses' Psychosocial Care Skills

The nurses' PCCSAS total mean score was found to be 64.28±13.13. PCPSAS total score did not show a statistically significant difference in terms of gender, age, educational background, marital status, income level, professional experience, status of liking the profession, weekly working hours, status of receiving training on communication, and status of receiving training on psychosocial care (P>.05). PCCSAS total score showed a significant difference only according to the unit they worked in and the number of patients per nurse (P=.008; P=.040). PCPSAS total score was significantly higher in nurses working in internal medicine clinics, surgical clinics and intensive care units compared to those working in the emergency department. Furthermore, PCCSAS total score was significantly higher in those with 1-10 patients per nurse than those with 11 or more patients (Table 1).

Table 1. Comparison of PCCSAS and CSI Scores of Nurses According to Sociodemographic and Professional Characteristics

	CSI TOTAL		PCCSAS TOTAL	
	Med (Min-Max)	**Mean±SD**	**Med (Min-Max)**	**Mean±SD**
Professional experience				
1-10 year	171.0(140.0-205.0)	171.01±13.02	69.0(25.0-90.0)	65.23±13.48
11-20 year	169.0(110.0-201.0)	168.68±15.87	65.0(32.0-90.0)	62.57±12.80
21-30 year	166.0(136.0-182.0)	166.33±11.40	70.0(34.0-89.0)	65.17±12.55
31 year and over	170.0(154.0-181.0)	168.75±11.59	60.0(43.0-70.0)	58.25±12.97
Test value-*P*	2.915 (X^2)-.405		4.551(X^2)-.208	
Clinical unit				
Internal clinics	171.0(149.0-205.0)	171.70±12.61	69.0(25.0-90.0)[1]	66.08±13.72
Surgical clinics	174.0(136.0-200.0)	169.35±15.86	68.0(34.0-90.0)[2]	61.84±13.87
Emergency service	167.5(110.0-198.0)	167.40±17.54	59.0(34.0-70.0)[3]	56.15±12.65
Intensive care units	168.0(132.0-202.0)	168.28±12.52	69.0(32.0-90.0)[4]	66.48±11.59
Burn unit	174.0(173.0-180.0)	175.67±3.79	63.0(52.0-64.0)	59.67±6.66
Test value-*P*	2.794 (X^2)-.593		13.895(X^2)-**.008** (Post hoc:1,2,4>3)	
Like of profession				
Yes	171.0(141.0-205.0)	171.58±12.45	67.5(25.0-90.0)	63.06±14.27
No	168.0(136.0-188.0)	166.35±14.33	69.5(40.0-90.0)	68.60±11.01
Partially	170.0(110.0-200.0)	168.30±14.73	68.0(34.0-87.0)	64.54±12.13
Test value-*P*	1.767 (X^2)- .413		2.458(X^2)-.293	
Shift				
Daily	167.0(152.0-186.0)	168.31±9.51	68.0(25.0-90.0)	63.83±14.69
Night	154.5(138.0-171.0)	154.50±23.33	57.5(57.0-58.0)	57.50±0.71
Both	172.0(110.0-205.0)	170.11±14.23	68.0(30.0-90.0)	64.46±12.93
Test value-*P*	2.417 (X^2)-.299		1.523(X^2)-.467	
Weekly working time				
40 hours or less	174.0(138.0-205.0)	172.03±11.81	67.0(25.0-90.0)	65.26±12.91
Over 40 hours	169.0(110.0-201.0)	168.03±14.68	68.0(30.0-87.0)	63.62±13.30
Test value-p	3249.0(U)-.056		3805.5(U)-.771	
Patients per nurse				
1-10 patients	170.0(132.0-205.0)	170.12±12.52	68.0(25.0-90.0)	65.22±12.74
11 or more patients	171.0(110.0-201.0)	167.65±18.02	65.5(34.0-87.0)	60.26±14.20
Test value-*P*	2365.5(U)-.670		1922.0(U)-**.040**	
Communication training				
Yes	171.0(110.0-205.0)	170.25±13.57	68.0(25.0-90.0)	64.53±13.03
No	163.0(136.0-202.0)	165.36±14.19	63.5(40.0-90.0)	62.50±14.05
Test value-*P*	1299.5(U)-.055		1391.0(U)-.129	
Psychosocial care training				
Yes	171.0(132.0-200.0)	170.72±12.54	68.0(34.0-89.0)	64.63±13.59
No	170.0(110.0-205.0)	168.51±14.83	67.0(25.0-90.0)	63.91±12.70
Test value-*P*	3689.0(U)-.307		3702.0(U)-.325	

SD, Standard Deviation; U, Mann Whitney U Test; X^2, Kruskal Wallis Test; CSI, Communication Skills Inventory; PCCSAS, Psychosocial Care Competence Self-Assessment Scale; Med, median; Min, minimum values; Max, maximum values

Table 2. The Relationship Between Nurses' Communication Skills and Psychosocial Care Skills

	CSI Total
PCCSAS Total	r=0.242 *P*<.01

r, correlation coefficient; CSI, Communication Skills Inventory; PCCSAS, Psychosocial Care Competence Self-Assessment Scale

Findings on the Correlation Between Nurses' Communication Skills and Psychosocial Care Skills

A statistically significant weak positive correlation was found between CSI and PCCSAS total scores. (r=0.242; *P*<.01) (Table 2).

DISCUSSION

Health services are a discipline that requires intense information sharing and teamwork; therefore, the communication skills of nurses are of critical importance. In the study, the CSI total mean score of the nurses was found to be 169.65±13.70. Given that the highest score of the CSI is 225, it can be asserted that nurses' communication skills are high. In the literature, findings of some studies have indicated that nurses have low communication skills[10-11]; whereas some others have reported that nurses' communication skills are high.[12] A study conducted with patients highlighted that nurses' communication skills should be improved in order to strengthen the nurse-patient relationship.[13] In a study evaluating nurse-patient communication and patients' satisfaction with nursing care, it was determined that nurse-patient communication was correlated with patients' satisfaction with nursing care. The same study reported that nurse-patient communication was inadequate, patients were not satisfied with such communication, and patients had a low level of satisfaction.[10] The high communication skills of nurses in the study can be regarded as an important and valuable finding.

The positive effects of psychosocial care on patients and their caregivers are known. In a systematic review and meta-analysis study on chronic kidney disease patients, psychosocial interventions were found to alleviate depressive symptoms, enhance quality of life, and have beneficial effects on anxiety in these patients and their caregivers.[5] Another study emphasised the importance of psychosocial care in intensive care unit in order to optimise their prognosis. [14] In the study, the PCCSAS total mean score of the nurses was found to be 64.28±13.13. Given that total score of from the scale ranges from 18 to 90, it can be asserted that the nurses had a moderate level of psychosocial care skills. Studies in the literature have reported similar results. In a study on intensive care nurses, the PCPSAS mean score of the nurses was found to be 60.66±17.46.[15] Another study conducted with nurses reported that the PCCSAS mean score of nurses was 68.22±12.7.[16] In the validity and reliability study of the scale, the PCCSAS mean score of nurses was found to be 72.06 ± 9.36.[8]

In a study evaluating patients' perceptions of their experiences with nurse-patient communication in oncology units, it was determined that the focus in cancer care is generally to provide physical care to patients by nurses and address the psychosocial aspect as a separate dimension. A remarkable result in the same study was that according to the participants, providing psychosocial care, such as understanding the emotional distress experienced by patients and providing counselling services was not one of the roles of nurses.[17] A study conducted with oncology nurses reported that nurses could not sufficiently determine patients' psychological symptoms and their psychosocial support needs for these symptoms.[7] A qualitative study evaluating the perceptions of nurses working in the oncology unit about psychosocial care revealed that nurses perceived psychosocial care as an abstract concept and had difficulty in providing psychosocial care in a setting where patients' conditions are constantly changing.[6] When positive effects of psychosocial care for the patient and their family are taken into consideration, it is seen that nurses' psychosocial care proficiencies should be improved. In this regard, it is thought that training should be organised at regular intervals to improve nurses' knowledge and skills about psychosocial care, and the efficiency of the training should be evaluated in terms of patient and nurse groups.

In the study, it was found that PCCSAS total score was significantly higher in nurses working in internal medicine clinics, surgical clinics and intensive care units than their counterparts working in the emergency department. When similar studies in the literature are examined, there are studies reporting that there is a significant difference between the unit where nurses work and the subscales of the scale. In a previous study, the symptom diagnosis subscale of the scale was higher in nurses working in intensive care unit than those working in outpatient clinics; The subscale of using information was higher in nurses working in surgical units than in emergency rooms.[18] However, there are also some other studies showing that the unit nurses work in has no effect on their psychosocial care skills.[8,16] It can be asserted that the opportunity for nurses to follow patients in inpatient units for longer periods allows them to make psychosocial evaluation. Furthermore, it is thought that nurses do not have the opportunity to develop their skills in identifying and

diagnosing psychosocial symptoms and providing psychosocial intervention for patients receiving short-term treatment in emergency units. Psychosocial care skills, which include holistic evaluation of the patients, determination of their psychosocial needs and intervention, may be related to the clinical working conditions of nurses and the time they spend with the patient.

In the study, it was determined that PCCSAS total score of psychosocial care skills was statistically significantly higher in those with 1-10 patients per nurse than in those with 11 and more patients. In Saygın's[16] study of intensive care nurses, it was determined that although the total mean score of psychosocial care skills was not statistically significant, it was higher in those with a small number of patients.[16] In the present study, it was observed that the nurse-patient ratio is an important variable in psychosocial care skills. Low number of patients per nurse can facilitate accurate diagnosis by using the information necessary for psychosocial care in a timely manner by considering the workload and time of nurses. It is thought that the number of patients under the nurse's responsibility is important so that the nurse can allocate sufficient time for psychosocial evaluation and determining and meeting the needs of the patients. It can be asserted that the working conditions of nurses should be regulated in order to enhance the quality of psychosocial care.

The therapeutic communication skills that nurses establish with the patient have an important place at every stage of psychosocial care.[2] In the study, a significant and positive correlation was found between CSI total score and the PCCSAS total score of the nurses (r=0.242; *P*<.01). A qualitative study examining nurses' perceptions of the barriers to providing psychosocial care reported that most of nurses perceived communication as an important part of psychosocial care.[19] A study stated that patients' limited communication of their psychosocial problems to nurses is not limited to their relationships with nurses, but is also related to nurses' perceptions of their roles and proficiency in providing psychosocial care. One of the important points emphasised in the study is that providing a good physical care through effective communication is the key to improving the psychosocial well-being of patients.[17] A review study examining communication in cancer care reported that healthcare professionals need to strengthen their knowledge about factors affecting communication to improve their skills in providing the most appropriate information and support to patients and family members. It is emphasised that improving communication can also improve psychosocial care.[20] Nurses' high communication skills are an important variable that increases their diagnosis and evaluation skills, which are essential for primary level psychosocial care.

Limitations

The research was conducted on nurses working in the specified hospital. Generalizability can be considered a limitation. It may be recommended to conduct more studies investigating the relationship between nurses' communication skills and psychosocial care skills in larger sample groups.

The finding of the study emphasises the importance of the correlation between nurses' communication skills and psychosocial care skills. In this regard, it is thought that as nurses' communication skill levels increased, their psychosocial care skills may increase. It is thought that training should be organised at regular intervals for nurses to improve their knowledge and skills about communication and psychosocial care, and the efficiency of the training should be evaluated periodically for patient and nurse groups.

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Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir – HD, SD; Tasarım – HD, SD; Denetleme – SD; Veri Toplanması ve/veya İşlemesi – HD; Analiz ve/veya Yorum – HD, SD; Literatür Taraması – HD; Yazıyı Yazan – HD, SD; Eleştirel İnceleme – SD.
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Nursing Student's Perceptions of the Clinical Learning Environment, Supervision and Nurse Teacher: A Cross-Sectional Study

Hemşirelik Öğrencilerinin Klinik Öğrenme Ortamı, Denetim ve Hemşire Öğretim Elemanına İlişkin Algıları: Kesitsel Bir Çalışma

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ABSTRACT

Objective: This study aimed to determine nursing students' perceptions of the clinical learning environment, supervision and nurse teacher, and its affecting factors.

Methods: This cross-sectional and descriptive study was conducted with 205 students using the Student Information Form and the Clinical Learning Environment, Supervision and Nurse Teacher Evaluation Scale. The study included 1st, 2nd, 3rd and 4th year nursing students studying in the spring semester of 2020-2021. Data were collected by online method. Descriptive statistics (means, frequencies and percentages), Mann-Whitney U and Kruskal-Wallis analyses were used to analyze the data.

Results: The students of 59.5% stated their opinions were not taken during clinical practice placement, whereas 71.2% of them were placed in the compatible clinical environment. The students did not experience any problems during their clinical practice (77.6%) and they evaluated their satisfaction as "good" (37.6%). The lowest and highest sub-dimension scores from the scale were the "Pedagogical Atmosphere on the Ward (3.71±1.15)" and the "Premises of Nursing on the Ward (3.93±1.13)", respectively. The sub-dimension mean scores of the scale were significantly different from satisfaction with clinical practice, problems encountered during clinical practice, and placement in the compatible clinical environment (P<.001).

Conclusion: Nursing students had a good perception of the supervision, learning environment, and nurse teacher. A positive clinical environment for nursing students that allows them to take an active role in patient care and nursing practice should be developed and maintained.

Keywords: Clinical Supervision, Nursing Education, Nursing Students

ÖZ

Amaç: Bu araştırma, hemşirelik öğrencilerinin klinik öğrenme ortamı, denetim ve hemşire öğretim elemanına ilişkin algılarını ve etkileyen faktörleri belirlemek amacıyla gerçekleştirilmiştir.

Yöntemler: Kesitsel ve tanımlayıcı tipteki bu çalışma 205 öğrenci ile Öğrenci Bilgi Formu ve Klinik Öğrenme Ortamı, Denetim ve Hemşire Öğretim Elemanı Değerlendirme Ölçeği kullanılarak yürütüldü. Çalışmaya 2020-2021 bahar döneminde öğrenim gören 1., 2., 3. ve 4. sınıf hemşirelik öğrencileri dahil edildi. Veriler online yöntem ile toplandı. Verilerin analizinde tanımlayıcı istatistikler (ortalamalar, frekanslar ve yüzdeler), Mann-Whitney U ve Kruskal Wallis analizleri kullanıldı.

Bulgular: Öğrencilerin %59,5'i klinik uygulama yerleştirmesi sırasında görüşlerinin alınmadığını, %71,2'si ise uygun klinik ortama yerleştirildiğini belirtmiştir. Öğrenciler klinik uygulamaları sırasında herhangi bir sorun yaşamamış (%77,6) ve memnuniyetlerini "iyi" olarak değerlendirmişlerdir (%37,6). Ölçeğin en düşük ve en yüksek alt boyut puan ortalamaları sırasıyla "Klinikteki Öğrenme Ortamı (3,71±1,15)" ve "Klinikteki Hemşirelik Bakımı (3,93±1,13)"dır. Ölçeğin alt boyut puanları ile klinik uygulamadan memnuniyet, klinik uygulama sırasında karşılaşılan sorunlar ve uygun klinik ortama yerleştirilme arasında istatistiksel olarak anlamlı fark bulunmuştur (P<,001).

Sonuç: Hemşirelik öğrencileri denetim, öğrenme ortamı ve hemşire öğretim elemanı konusunda iyi bir algıya sahiptir. Hemşirelik öğrencileri için, hasta bakımı ve hemşirelik uygulamalarında aktif rol almalarına olanak tanıyan olumlu bir klinik ortam geliştirilmeli ve sürdürülmelidir.

Anahtar Kelimeler: Klinik Denetim, Hemşirelik Eğitimi, Hemşirelik Öğrencileri

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INTRODUCTION

Clinical learning environments (CLE) are defined as areas where nursing students perform real or simulated patient care and apply theoretical knowledge into practice to become competent, entry-level nurses and acquire the skills, attitudes, and decision-making abilities.[1-3] Clinical teaching enables students to integrate the psychomotor, cognitive, and affective abilities required for nursing practice.[4,5] It also helps students develop skills such as research, critical thinking, problem-solving, independent decision-making, effective interpersonal communication, and a sense of self-confidence and responsibility in performing the nursing profession.[6,7] The clinical environment is an important setting of learning for nursing students and plays a key role in the education of the future nursing workforce.[8] Some studies highlighted nursing students tend to start work in clinical placement units where they had satisfactory experiences, so it was important to provide good learning environments in all clinical settings used in nursing education.[9-11] Therefore, understanding nursing students' clinical learning environment, supervision experiences, and relationships with other variables is necessary to create safe and supportive environments.[2,12]

Clinical teaching is carried out in environments chosen in line with learning objectives, and it is not performed only between the instructor and the student. Clinical nurses, healthcare team members, school and hospital managers also have important roles in providing good learning environments.[3] Clinical practice environments provide students with the opportunity to observe role models, practice by taking responsibility, act according to the patient's clinical picture, make decisions, and work as team members. It also helps to observe how members of different professions work together in harmony and embrace being a part of it.[7] Nonetheless, tension and anxiety are common side effects of studying in a clinical setting for students. Nursing students frequently experience anxiety or vulnerability, particularly during the beginning of their clinical rotation. This might be associated with reality shock, anxiety about making mistakes, feelings of inadequacy and neglect, or embarrassment when speaking with other experts.[13] Excessive anxiety compromises students' clinical performance and endangers their chances of success. Therefore, it is critical to create a supportive learning atmosphere for nursing students so they may succeed in their studies.[14] A negative CLE might make it more difficult to meet learning objectives and worsen the international nurse shortage. Nurse graduates who are unprepared to work as nurses often leave the field within a year of practice due to stress and burnout, worsening the global nursing shortage.[2]

The basis of the clinical learning process is the clinical learning environment, supervision, and nurse teacher. Clinical learning environment refers to the healthcare working environment in which students' clinical placements take place and form part of the education provided under nurse supervision. Supervision and/or mentorship is part of the teaching roles performed by nursing professionals that include teaching students practical skills, assessing students, supporting students during their clinical placements, and facilitating students' learning.[15] Nurse teachers are often used by higher education institutions to facilitate theoretical and clinical learning, coordinate student assessment and learning, and provide support and lead mentors.[12] Clinical supervision and instructors play a key role in improving student learning in nursing education, helping students gain competency during placement experiences and their professional development.[6]

A 'good' or 'positive' clinical environment consists of many practical components (e.g. familiarization, meaningful learning, feedback, etc.) and provides an opportunity for professional development. Professional development is a broad socio-cultural process through which the individual acquires values, attitudes, moral understanding, knowledge, and skills. Good clinical learning environment can be defined as being characterized by a non-hierarchical structure and with staff demonstrating teamwork and good communication.[16] In addition, a positive clinical learning environment is defined as practice areas where students are seen as adults, students are encouraged to ask questions by providing information during practices, timely and constructive feedback is given, and they enable them to reveal their abilities.[4]

Improvements can be made in the clinical environment by evaluating the feedback students provide about their experiences in the CLE.[17] However, nursing program and healthcare facility administrators are responsible for evaluating both the CLE and the supervisory relationship to ensure that students can achieve their learning goals.[15] Good CLE and supervision depend on having a clear understanding of the expectations that students have for their clinical experience. Improve the CLE, also gives supervisors and nursing instructors information on excellent clinical practices.[1,18]

AIM

The aim of this study was to determine how nursing students felt about the clinical learning environment, supervision, and nurse teacher, as well as the factors that

influenced them. The study's findings could help improve clinical nursing education standards and make plans to lessen the variables that have a negative impact on them.

Research Questions

- How do perceptions of nursing students about clinical learning environment, supervision, and nurse teachers?
- Do the clinical learning environment, supervision, and nurse teacher scale scores differ according to the nursing students' characteristics and opinions about clinical practice education?

METHODS

Study Design

This study was conducted in a cross-sectional and descriptive design.

Setting and Sample

The study was carried out among students studying at the Nursing Department of the Faculty of Health Sciences of a foundation university in Istanbul between June and July 2021. The research population consists of 475 students enrolled in the 2020-2021 spring semester from the nursing department of the university. Participants in the study were 1st, 2nd, 3rd, and 4th graders. The sample selection was based on the sampling method with known population. The minimum number of the sample was calculated as 173, with a sampling error of ± 5% and a 90% confidence interval (α=0.05) accepting *P*=.50. The study was completed with 205 students who volunteered to participate and answered all questions completely.

Clinical Practice Process of Nursing Students

The nursing education curriculum in Turkey follows the European Union Nursing Standards and consists of a total of 4600 hours. The nursing education program lasts four academic years, including theory and clinical practice. Students in the undergraduate nursing program complete 2300 clinical and 2300 theoretical hours during their education.[19] Clinical placements continue throughout undergraduate education, starting from the first year, with more in the third and fourth academic years. Students are supervised primarily by nurse teachers at the nursing school where the students are studying and by clinical nurses at hospital practice settings. The instructors of the course are primarily responsible for clinical education. In the clinic, they supervise students when planning nursing care, teach them how to communicate with patients, and accompany students throughout clinical practice in line with course objectives. Although clinical nurses are not directly responsible for clinical learning, students learn by observing nurses' communication with patients and their clinical skills.[17,19]

At the university where the study was conducted, students perform their clinical practice one day a week (8 hours) during the semester (14 weeks) within the program of the relevant courses. Before the students begin their clinical practice, quota information is requested from the relevant hospitals on the dates determined according to the number of students who will be practicing. Correspondence is made with the Provincial Health Directorate Education Unit for public hospitals and with the Education Unit for private hospitals. After the quota information, student details are directed to the institution to determine in which clinic the students will practice. The students continue their clinical education in the clinic where they are placed during the semester after the required documents are completed and insurance entries are made in accordance with the institutional procedures. In case the instructor of the course decides that it is appropriate, students are rotated to different clinics. Students are placed in inpatient floors, intensive care units, emergency unit, operating room and outpatient units. In each clinic, students are planned with a maximum of three or four student nurses. 4th grade students have practice four days a week as interns in the last spring semester. These students are placed in clinics in which they want to work when they graduate.

There is a charge nurse and two or three service nurses who supervise the students in the clinics. Students perform nursing interventions such as patient admission, nursing care interventions, drug administration, monitoring of vital signs, etc. with the nurses in the clinic or by the guidance of them. In every hospital, there is a nurse teacher who controls and directs the students, intervenes in their problems, checks their case assignments, acts as a bridge between the hospital and the educational institution, and receives feedback from the charge nurse or service nurses about the students. The number of students in the clinical setting per nurse teacher is between 10-30 students. The course instructor is responsible for both theoretical and clinical practice. At the end of the semester, the charge nurse and nurse teacher scores the clinical evaluation of each student in accordance with the criteria determined by the instructor of the course (care plan, case study, seminar presentation, etc.).

Data Collection

Data were collected with the online method. Students were asked to complete the surveys by sending the survey link to their school emails. A description of the purpose and duration of the study was included in the survey questionnaire. After carefully reading the explanation, each participant was asked to check the "yes" box to

indicate their willingness to participate in the study.

Student Information Form: This form created by the researchers using literature information[4,13,20], which consists of ten questions. Information about the students' personal characteristics (age, sex, working status, class) and clinical practice (hospital and unit where the practice takes place, placement in the compatible clinical practice, having problems during clinical practice, satisfaction with clinical practice, etc.) were included.

Clinical Learning Environment, Supervision and Nurse Teacher Evaluation Scale (CLES+T): The scale was created by Saarikoski et al.[16] and is a valid and reliable tool for assessing student perceptions of the quality of nursing clinical education. The scale assesses the student nurses' opinions about the clinical placement's supervision and learning environment as part of an overall assessment of health education. The Turkish validity and reliability of the scale was conducted by Iyigun et al.[21] CLES+T consists of 34 items and 5 subscales. Item 18 is not included in the scale evaluation. The sub-dimensions are the Pedagogical Atmosphere on the Ward (9 items), the Leadership Style of the Ward Manager (4 items), the Premises of Nursing on the Ward (4 items), the Supervisory Relationship (8 items), and the Role of the Nurse Teacher (9 items). Each scale item is rated on a five-point Likert type (ranging from 1=strongly disagree to 5=strongly agree). Participants tick up the option that best expresses them. There is no total score and sub-dimension total scores from the scale. The minimum and maximum values that can be obtained from each item changes between 1-5 points. Higher scores indicate agreement with the statements. The sub-dimensions of Cronbach's alpha internal consistency ratings in the Turkish version ranged from 0.76 to 0.93.[21] Internal consistency coefficients for the sub-dimensions in this study were found to be 0.93-0.98.

Data Analysis

Descriptive statistics were used in the study to calculate means, frequencies, and percentages based on the data analysis. The Shapiro-Wilk test was utilized to investigate the normality of the scale scores. Since the sample's measurements were not normally distributed, non-parametric tests such as the Mann-Whitney U and Kruskal Wallis analyses were used.

Ethical Consideration

Biruni University Non-Interventional Clinical Research Ethics Committee (Date: 21.05.2021, Decision No: 2021/51-23) granted ethical permission for this study. If they agree to participate in the study, students may start filling out the survey questionnaires. All respondents were assured of their privacy, confidentiality, and the freedom to withdraw from the research at any moment. The students were not asked for any identification information and it is not known to whom the results belong. Data were collected online during non-class hours and participation in the study was voluntary. There is no conflict of interest between the student and the instructor.

RESULTS

The personal characteristics of nursing students and their opinions about clinical practice are given in Table 1. Of student nurses, 59.5% stated their opinions were not taken during clinical practice placement and 71.2% of them were placed in the compatible clinical environment of the course. Additionally, 77.6% of students had no problems during clinical practice, while 37.6% evaluated their satisfaction with the clinical practice as "good".

Table 2 includes the mean scores obtained from the scales. The results from the sub-dimensions are as follows: The mean score of the Pedagogical Atmosphere on the Ward was 3.71±1.15, the Leadership Style of the Ward Manager mean score was 3.90±1.16, the Premises of Nursing on the Ward mean score was 3.93±1.13, the Supervisory Relationship mean score was 3.77±1.25, and the Role of the Nurse Teacher mean score was 3.83±1.23.

The charge nurses (51.2%) most frequently supervised the students and were supervised once or twice without an instructor during the clinical training period (41%). Student nurses answered most frequently with “The same supervisor had several students, she/he was more of a group supervisor than an individual supervisor” (31.7%).
The comparison of the CLES+T subscale scores by variable is displayed in Table 3. There was no significant difference between the CLES+T subscales in terms of gender or working status (P>.05).

A significant difference was found between students' CLES+T subscale mean scores according to the class (P<.05). After the further analysis to determine from which groups the difference originated, it was found that the scores of first-year students in the Pedagogical Atmosphere on the Ward, the Leadership Style of the Ward Manager, and the Premises of Nursing on the Ward sub-dimensions were significantly higher than those of third-year students, with a highly significant difference (P=.019; P=.002; P=.012, respectively). The subscale scores according to grade level were highest in the 1st grade students, whereas they decreased to the lowest level in the 3rd grade and then increased again in the 4th grade.

Table 1. Personal Characteristics of the Participants and their Opinions about Clinical Practice (n=205)

Variables	Groups	n	%
Age average (year)	20.41±1.46		
Gender	Female	165	80.5
	Male	40	19.5
Working status	Working	43	21.0
	Not working	162	79.0
Class	1st class	76	37.1
	2nd class	66	32.2
	3rd class	44	21.4
	4th class	19	9.3
The hospital where the clinical practice was performed*	Public Hospital	154	75.1
	Private hospital	7	3.4
	Both public and private hospitals	44	21.5
The unit where clinical practice was performed*	Inpatient floors	155	75.6
	Intensive care unit	47	22.9
	Operating room	15	7.3
	Emergency room	40	19.5
	Policlinic	47	22.9
	Others	18	8.8
Obtaining student opinions during clinical practice placement	Yes	83	40.5
	No	122	59.5
Placement in the compatible clinical environment	Yes	146	71.2
	No	59	28.8
Problems encountered during clinical practice	Yes	46	22.4
	No	159	77.6
Satisfaction with clinical practice	Bad	16	7.8
	Middle	67	32.7
	Good	77	37.6
	Perfect	45	21.9

*Participants marked more than one option (line percentages were calculated because more than one response was given)

Table 2. Findings Regarding the Participants' Mean Scores from the Scale and Subscales and the Distribution of Subscale Scores in the Sample

Scale and subscales	Minimum	Maksimum	Mean	Standard deviation
Pedagogical Atmosphere on the Ward	1.00	5.00	3.71	1.15
Leadership Style of the Ward Manager	1.00	5.00	3.90	1.16
Premises of Nursing on the Ward	1.00	5.00	3.93	1.13
Supervisory Relationship	1.00	5.00	3.77	1.25
Role of the Nurse Teacher	1.00	5.00	3.83	1.23

Distribution of subscale scores	Shapiro-Wilk	Varyans	Skewness	Kurtosis	Coefficient of variance
Pedagogical Atmosphere on the Ward	.884	1.325	-.9673	.006	30.99
Leadership Style of the Ward Manager	.847	1.336	-1.118	.391	29.7
Premises of Nursing on the Ward	.829	1.272	-1.277	.881	28.8
Supervisory Relationship	.865	1.555	-819	-.426	33.2
Role of the Nurse Teacher	.854	1.519	-872	-.326	32.1

Table 3. Comparison of the Mean Scores of the Participants from the Subscales of the CLES+T Scale according to Variables

Variables	Groups	Pedagogical Atmosphere on the Ward		Leadership Style of the Ward Manager		Premises of Nursing on the Ward		Supervisory Relationship		Role of the Nurse Teacher	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender	Female (n:165)	3.74	1.14	3.93	1.13	3.97	1.09	3.81	1.19	3.84	1.20
	Male (n:40)	3.60	1.22	3.75	1.27	3.78	1.29	3.59	1.48	3.78	1.36
	Test	z=3.061		z=3.028		z=3.102		z=3.114		z=3.293	
	P	.477		.413		.552		.577		.983	
Class	1st class (n:76) [a]	3.94	1.11	4.19	1.06	4.18	1.06	3.91	1.21	4.11	1.01
	2nd class (n:66) [b]	3.79	.94	3.94	.99	3.95	.98	3.64	1.10	3.47	1.23
	3rd class (n:44) [c]	3.26	1.36	3.42	1.35	3.56	1.34	3.74	1.42	3.84	1.42
	4th class (n:19) [d]	3.57	1.22	3.66	1.23	3.75	1.15	3.69	1.46	3.93	1.37
	Test	KW=9.961		KW =14.443		KW=10.955		KW =3.564		KW =9.786	
	P	**.019***		**.002****		**.012***		.313		**.020***	
		a>c		a>c		a>c				a>b	
Working status	Working (n:43)	3.56	1.34	3.76	1.32	3.80	1.32	3.51	1.49	3.62	1.45
	Not working (n:162)	3.75	1.10	3.93	1.11	3.97	1.07	3.84	1.17	3.89	1.17
	Test	z=3.604		z =3.596		z=3.583		z=3.814		z=3.699	
	P	.726		.741		.768		.333		.524	
Obtaining student opinions during clinical practice placement	Yes (n:83)	3.82	1.22	3.89	1.21	3.93	1.21	4.06	1.21	4.07	1.14
	No (n:122)	3.63	1.10	3.90	1.12	3.94	1.07	3.57	1.24	3.67	1.27
	Test	z=1.928		z=0.308		z=0.563		z=3.253		z=2.381	
	P	.054		.758		.574		**<.001*****		**.017***	
Placement in the compatible clinical environment	Yes (n:146)	4.00	1.05	4.11	1.08	4.11	1.08	3.99	1.18	4.05	1.12
	No (n:59)	2.99	1.09	3.37	1.17	3.48	1.13	3.21	1.23	3.29	1.34
	Test	z=6.280		z=4.257		z=4.550		z=4.440		z=3.877	
	P	**<.001*****		**<.001*****		**<.001*****		**<.001*****		**<.001*****	
Problems encountered during clinical practice	Yes (n:46)	2.72	1.20	3.01	1.29	3.21	1.30	2.95	1.33	3.12	1.42
	No (n:159)	4.00	.96	4.15	.98	4.14	.98	4.00	1.12	4.04	1.10
	Test	z=6.321		z=5.653		z=4.927		z=4.798		z=4.061	
	P	**<.001*****		**<.001*****		**<.001*****		**<.001*****		**<.001*****	
Satisfaction with clinical practice	Bad (n:16) [a]	1.83	.86	2.14	1.02	2.44	1.37	2.13	1.06	2.44	1.41
	Middle (n:67) [b]	3.29	.95	3.59	1.05	3.70	.98	3.32	1.20	3.35	1.17
	Good (n:77) [c]	4.08	.83	4.18	.89	4.15	.94	4.10	1.01	4.13	1.03
	Perfect (n:45) [d]	4.39	1.03	4.48	1.03	4.44	1.01	4.45	.96	4.52	.89
	Test	KW=79.677		KW=60.733		KW=47.449		KW=56.132		KW=50.793	
	P	**<.001*****		**<.001*****		**<.001****		**<.001****		**<.001*****	
		a<b<c<d		a<b<c<d		a,b<c,d		a<b<c,d		a,b<c,d	

*SD: Standart Deviation, Z: Mann Whitney U test, KW: Kruskal Wallis test, *p<0.05, **p<0.01, ***p<0.001*

In the study, the comparison of the mean scores obtained by nursing students from the CLES+T subscales was examined about their answers to the question, "Before clinical practice, are you asked for your opinion about which hospital you would like to choose?". The results showed that the scores of the sub-dimensions of the Supervisory Relationship and the Role of the Nurse Teacher were significantly higher in the students having their opinions about the hospital where they would be practicing compared to the students who did not have their opinions asked (*P*<.001; *P*=.017, respectively).

Regarding the question "Do you think you are placed in a clinical environment that is compatible with your courses?" the scores obtained in all sub-dimensions by those who answered "yes" were significantly higher than those who answered "no" (*P*<.001). For the question "Do you experience problems during clinical practice?", the scores of those who answered "no" in all sub-dimensions were significantly higher than those who answered "yes" (*P*<.001).

Comparing the scores obtained from the sub-dimensions regarding the student's satisfaction with clinical practice, showed a significant difference between the groups (*P*<.001). Further analyses to determine the groups from which the difference originated showed that in the sub-dimensions of Pedagogical Atmosphere on the Ward and Leadership Style of the Ward Manager, those who rated poor had significantly lower scores than those who rated moderate, those who rated moderate had significantly lower scores than those who rated good, and those who rated good had significantly lower scores than those who rated very good (*P*<.001).

DISCUSSION

The students' perceptions of clinical placement have a great impact on their learning process. Providing an effective CLE for nursing students is very important in the development of quality-based nursing practices.[1,22] Assessing how students see their experiences in the clinical context might help CLE be improved. To guarantee that learning objectives are fulfilled and to better prepare students for clinical practice, administrators of nursing schools and healthcare facilities may assess CLE. The CLE needs to facilitate learning, enable the application of theoretical knowledge, and assist students in developing into qualified healthcare professionals.[2,5]

The scores obtained by nursing students from the CLES+T subscales were between 3.71 and 3.93 (ranging from 1 to 5), and all subscale scores were above the average value. While the majority of students were placed in compatible clinical environments and had no issues, over half did not have their opinions solicited during their clinical practice placement. A very small number of students evaluated their satisfaction with the practical training as poor. In addition, it was determined that as the level of satisfaction with the sub-dimensions of the scale increased, the satisfaction of the students with clinical practice was also found to increase. According to the findings, students gave their nurse teacher, supervisors, and clinical learning environment a good or favorable rating. Comparably, other research revealed that nursing students had a good learning experience and were happy with their clinical assignments.[6,10,23,24] In a study evaluating nursing students' perceptions of clinical practice in Nepal, nursing students' overall satisfaction with their learning environment was high, but students in private hospitals rated their CLE significantly more negatively than students in public hospitals.[18] The result of another study revealed students' clinical practices positively affected their learning, but they were dissatisfied with most of the clinical environments.[18] CLE outcomes include the development of practice-related skills, knowledge, and behaviors, the student's gaining in self-confidence, and their satisfaction with the nursing profession by affecting the success of clinical learning outcomes. Therefore, healthcare organization leaders must encourage a culture that values future nurses and remember nurses' professional obligations. Students are more likely to encounter negative challenges and unprofessional behavior if the organization's culture does not value nursing education. These encounters may make it difficult to learn, undermine one's confidence, or even prompt one to look into alternative job paths.[2]

The study's findings demonstrated that the Pedagogical Atmosphere on the Ward sub-dimension had the lowest score, while the Premises of Nursing on the Ward sub-dimension had the greatest score. Regarding clinical nursing care, the study found that students had good attitudes toward exchanging information about patient care, recording nursing implementations, and giving personalized nursing care to patients. However, there were fewer positive perceptions related to the pedagogical atmosphere, such as the interest of the staff in supervising the students, the student's feeling of comfort in the clinical environment, and the adequacy of learning. Therefore, an environment can be developed that enables students to express the issues in which they feel deficient, to communicate with patients, and to take an active role in patient care and nursing practices.

The results of the meta-analysis of nursing students'

evaluation of their clinical practice placements using the Clinical Learning Environment, Supervision and Nurse Teacher scale revealed that nursing students' evaluations were positive in terms of their placement experiences and satisfaction levels. The highest rated sub-dimension was the Supervisory Relationship, with the Role of the Nurse Teacher rated lower.[25] The other studies also reported results different from or similar to this study. Unlike the study, the sub-dimension of the Pedagogical Atmosphere on the Ward received the highest score[15,16], while the Leadership Style of the Ward Manager[16] and the Role of the Nurse Teacher sub-dimensions had the lowest score.[15,26] Ward managers should create a positive attitude toward students and their learning needs and create suitable conditions for a positive ward culture.[16] Similar to our study, Zhang et al.[11] and Nepal et al.[18] studies, the Pedagogical Atmosphere in the Ward sub-dimension had the lowest score, and the students were the most satisfied with the Leadership Style of the Ward Manager that was the second-highest-scoring sub-dimension in this study. A good learning environment is characterized by the ward manager's management style which is aware of students' physical and emotional needs, has a democratic leadership style, and encourages students' interest in clinical practice.[16] In addition, ward managers should create a good clinical pedagogic atmosphere and encourage environments that enable the interconnection of theoretical knowledge and practical applications with effective feedback mechanisms.[11] These differences between studies may be due to changes in the CLE between countries, changes in the nursing education curriculum, or differences in structural and technological resources in the clinical practice.

Nurse teacher have an essential role in creating good clinical environments and establishing the connection between clinical practice and nursing schools. Integrating theory and practice, following, observing, and evaluating the student's development are among the other important roles of the nurse educator.[21,23] In our study, the role of the nurse teacher was perceived positively and the score obtained was higher than the supervisory relationship. This result showed that students' perceptions of nurse teachers were better. The relationships between instructors and students were highly effective in students' learning experiences. Positive relationships between teachers and students enhance clinical performance and problem-solving abilities, boost the drive to learn and contentment with the clinical setting, and lessen anxiety. In addition to these, student learning is influenced by the feedback, support, and guidance they receive from instructors.[17] In a study, the majority of the students stated the feedback was generally negative, it was not given individually, the feedback and final grades did not match, the instructors reflected their personal feelings with the feedback and they shared their thoughts about the students with each other but this caused prejudice, the feedback was not given on time, and not enough time was allocated.[27] Therefore, instructors who do not have clinical teaching experience need to receive training, work with experienced instructors to gain experience, and improve their feedback skills.[19] Considering the student-nurse-teacher relationship, half of the students met the nurse-teacher only once or twice during placement, which was concerning. Higher satisfaction levels, however, were directly correlated with the quantity of interactions between the student and the nursing instructor. This finding demonstrated that, in fostering successful learning in clinical practice, a nurse teacher's interpersonal and communication skills were just as crucial as their clinical knowledge and expertise.[28] Differently from the study, the students indicated that the lecturers mainly questioned theoretical knowledge, the constant visits caused stress, they could not focus on patient care and they felt intense pressure.[29]

The current study there was found nursing students perceived a positive CLE and supervision relationship. However, more than half of the students stated the charge nurse supervised them, and the majority of them were supervised one-on-one by the supervisor, without the instructor, once or twice during their clinical training. They also indicated the supervisor had more than one student and they were supervised more as a group rather than individually. Similarly, in many studies, students rated their clinical placements and supervision by nurses as 'good'.[11,15,24,30] In a different study, the majority of students agreed with the statement "Nurses contribute to the clinical education of students".[20] The percentage of nursing students who found the communication of the clinical educators insufficient was quite low, while the perceptions of the students who found the educators' communication sufficient were more positive about the CLE.[4] In a study conducted on nursing and midwifery students in Ghana, the clinical experience was rated higher by students who received successful supervision compared to students who received unsuccessful or team supervision (where students are not assigned to a specific supervisor, but are supervised by qualified or registered nurses who are on call for the shift). Furthermore, frequent contact with the personal supervisor and successful supervision were associated with better evaluation of the clinical experience among students.[26] Likewise, the personalized supervision model was rated significantly higher than the staff supervision model by nursing students.[31]

Clinical teaching is not only a process carried out by the student and the instructor together, but also an educational process in which students have the opportunity to work with clinical nurses and requires the establishment of quality bonds with nurses.[3,32] Clinical nurses have an important role in helping nursing students integrate theoretical knowledge and practical applications and provide them with a professional identity.[20] The inability of nurses to support students and communicate effectively with them in clinical education negatively affects the students' learning.[19] The study conducted by Serçekuş and Başkale[17], most of the participants stated the support of nurses affected their learning, but they were often excluded from their rooms, and the nurses did not see them as colleagues and did not support them.[6] Nonetheless, throughout their clinical placement, students claimed to have completed ordinary tasks and non-nursing responsibilities.[19,20,33] Therefore, a pedagogical atmosphere should be provided where students have the best possible learning chances and have clearly defined tasks to complete. A positive, cooperative, and respectful attitude toward students may be fostered and the assistance they require can be given by making sure teachers and staff understand the significance of their role in students' clinical learning.[15] Indeed, Cebeci et al.[29] emphasized that nurses had a good approach in facilitating the learning process by supporting the students and that practicing one-on-one with nurses made it easier for them to learn and enhanced their practice. Also, they stated that practicing under the supervision of a nurse was safe for the patient and themselves.[29] Overall, students need support and supervision from nurses in the clinic. A poor communication with staff in the clinical setting may make students feel stressed and not feel like a member of the team, making learning difficult.

The study found that gender had no difference in nursing students' opinions on the CLE, supervision, and nurse teachers. Similarly, the other study showed there was no difference between the nursing students' mean scores regarding their perceptions of the CLE and their gender.[4] On the other hand, male students in the delivery room experienced stress due to caring for female patients and being exposed to gender discrimination, according to research by Potur and Bilgin.[34] In this regard, programs should be implemented to inform the public that nursing is not a gender-specific profession. Akpınar et al.[35] found male students had more difficulties in the clinical practice of women's health and diseases nursing and were more rejected by the patient. In particular, it was stated that facilitating clinical practice for male students should be planned.

In the study, first-year students' perceptions of the sub-dimensions of Pedagogical Atmosphere on the Ward, Leadership Style of the Ward Manager, and Premises of Nursing on the Ward were the highest. However, the students' perceptions of the clinical environment reached the lowest level in the third year, and it increased again in the fourth year. First-year students may feel safer because they are practicing for the first time and have more clinical facilitator support. They may also have less responsibility for the practices expected of them because they are in the clinical environment for the first time, which may lead to less stress and anxiety in students. In addition, the capacity of first-year students to evaluate the clinical environment may be more limited compared to other grades. By the second and third year, students have more knowledge and experience in both theoretical and clinical practice, so they are better able to evaluate and compare their environment. In the fourth year, students work as interns. This may have increased the students' perceptions of the clinical environment because it caused them to integrate with the team in the ward, to get to know the clinical environment better and to get one step closer to the profession. Similar to our study, nursing students with low levels of education were reported to experience a more positive CLE. Accordingly, nursing students with an advanced diploma experienced a more positive clinical learning environment than those with a bachelor's degree.[11] Consistent with previous research, fourth-year nursing students' perceptions of the CLE were found to be negative. This might be because as students go through the course, the learning objectives become increasingly complicated and challenging to meet.[15] In another study, student perceptions on the CLE varied by grade level. First-year students were not as satisfied with their clinical placements as second and third-year students, even though they had more instructor support.[22]

According to this study, the clinical nurse and nurse instructor were seen more favorably by the students whose opinions were collected during the clinical practice placement. Furthermore, students who felt they were in the right clinical setting and had no issues reported higher levels of satisfaction with their clinical experience. This indicates that there was a good rapport between the students and the instructors and nurses, that the students had enough help and direction, and that they were happy with the instructors and supervision throughout their clinical practices. Asking students for their opinions on clinical placement can make them feel valued. In addition, placing it in a clinical practice area close to their

settlements can satisfy the students and also prevent them from experiencing traffic problems and the stress of being late. In some other studies, increasing students' perceptions of the quality of the CLE and supervisor in which they performed their clinical placements positively affected student satisfaction[15], and students who had successful supervision experiences were satisfied with their clinical placements.[23]

Limitations

The study results cannot be generalized to students studying at universities that provide similar education because of the sample consisted of students studying at only one educational institution. Among the other variables that limited the study's generalizability was its small sample size. Participants may have given responses that they believed were suitable rather than ones that accurately reflected their experiences during their clinical placement because the study was based on students' self-report assessments.

The study indicated nursing students had favorable opinions of the CLE, supervision, and nurse teacher. First-year students' perceptions of the clinical environment were generally the highest, while they were the lowest in the third year. In the fourth year, their perceptions of the clinical environment increased again. It was also determined that nursing students who were placed in the compatible clinical environment, did not experience any problems, and were generally satisfied with the clinical practice had better perceptions of the clinical learning environment, supervision and nurse teacher.

Nursing students represent the future of the nursing workforce, and nursing education is an important investment in ensuring the quality of care. Therefore, supervisors, teachers, and other clinical staff should support an optimal learning environment that will contribute to students' positive experiences, ensuring their satisfaction and desire to work in their future careers. It is very important to take students' opinions about the problems they experience in the clinical environment and to offer solutions. Also, interventions should be implemented to ensure that students are satisfied and motivated in the clinical environment during the nursing education process. For this purpose, student requests can be taken into consideration by presenting options regarding the health institutions to be practiced before clinical placement and trainings can be given to introduce the area to be practiced and explain the rules to be followed. Moreover, ensuring the appropriate number of student placements in the clinical setting and rotating students to different clinics to gain experience in other fields can ensure that students benefit from the clinical field at an optimum level. Additionally, it may be recommended that clinical guide nurses undergo a certain preparation program to contribute to education at the desired level.

Although the use of a validated and reliability-tested tool to determine students' CLE and supervision experiences was one of the strengths of the study, there was no open-ended question that could give more examples of student satisfaction. However, because the quantitative survey approach cannot fully explain some elements of components, such as "satisfaction" qualitative research can be performed. Student interviews, for instance, can offer further details about their experiences or provide some other information.

Etik Komite Onayı: Etik kurul onayı Biruni Üniversitesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu'ndan (Tarih: 21.05.2021, Karar No: 2021/51-23) alınmıştır.
Bilgilendirilmiş Onam: Katılımcıların bilgilendirilmiş onamları Google form aracılığıyla alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
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Identifying Nursing Students' Views of Studying Mental Health and Diseases Nursing Course via Distance Education during the Pandemic

Pandemi Sürecinde Ruh Sağlığı ve Hastalıkları Hemşireliği Dersini Alan Öğrencilerin Uzaktan Eğitime Yönelik Görüşlerinin Belirlenmesi

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ABSTRACT

Objective: This research was conducted to determine students' opinions about taking the mental health and disease nursing course through distance education.

Methods: The research, designed as a descriptive quantitative study, and conducted with students (n=243) taking the Mental Health and Disease Nursing course at the Nursing Department of a state university in Ankara. "Participant Information Form", " Assessment Form for Mental Health and Diseases Nursing Course Distance Education," created by the researchers, and the "Opinions About Distance Education Scale" were used to collect the data. In data analysis, content analysis was performed for open-ended questions, and the data were presented under themes, sub-themes, and categories. Number, percentage, mean, standard deviation, median, minimum, and maximum values were given for the scale scores.

Results: The views of students on distance education were conceptualized under four themes: "Views on distance education", "Effectiveness of teaching methods used", "Effectiveness of methods used in the practice skill courses, "Preparedness for provide nursing care to patients followed up with a psychiatric diagnosis.' The total mean score of the participants for the opinions about the distance education scale was determined as 2.91±0.48.

Conclusion: The students evaluated the education provided through distance education as moderately sufficient. The teaching methods used in the mental health and diseases nursing course taken through distance education and ensuring permanence through repeated access to courses were stated as positive aspects in theoretical terms, significant deficiencies were expressed in terms of contacting patients in the clinical environment and gaining professional roles.

Keywords: Distance Education; Mental Health; Pandemic; Psychiatric Nursing

ÖZ

Amaç: Bu araştırma, öğrencilerin ruh sağlığı ve hastalıkları hemşireliği dersini uzaktan eğitim yoluyla almaya ilişkin görüşlerini belirlemek amacıyla yürütülmüştür.

Yöntemler: Tanımlayıcı niceliksel bir çalışma olarak tasarlanan araştırma, Ankara'da bulunan bir devlet üniversitesinin Hemşirelik Bölümü'nde Ruh Sağlığı ve Hastalıkları Hemşireliği dersini alan öğrenciler (n=243) ile gerçekleştirildi. Verilerin toplanmasında araştırmacılar tarafından oluşturulan "Katılımcı Bilgi Formu", "Ruh Sağlığı ve Hastalıkları Hemşireliği dersi Uzaktan Eğitim Değerlendirme Formu" ve "Uzaktan Eğitime Yönelik Görüşler Ölçeği" kullanıldı. Veri analizinde açık uçlu sorular için içerik analizi yapıldı ve veriler tema, alt-tema ve kategoriler altında sunuldu. Ölçek puanları için sayı, yüzde, ortalama, standart sapma, ortanca, minimum ve maksimum değerleri verildi.

Bulgular: Öğrencilerin uzaktan eğitime ilişkin görüşleri dört tema altında kavramsallaştırıldı: 'uzaktan eğitim ile ilgili görüşler', 'kullanılan öğretim yöntemlerinin etkinliği', 'uygulama beceri derslerinde kullanılan yöntemlerin etkinliği', 'psikiyatrik hastalık tanısıyla takip edilen hastalara hemşirelik bakımı verebilme konusunda hazır hissetme'. Katılımcıların uzaktan eğitime ilişkin görüş ölçeği toplam puan ortalaması 2,91±0,48 olarak belirlendi.

Sonuç: Öğrencilerin uzaktan eğitim yoluyla verilen eğitimi orta düzeyde yeterli değerlendirdikleri belirlendi. Uzaktan eğitim ile alınan ruh sağlığı ve hastalıkları hemşireliği dersinde kullanılan öğretim yöntemleri ve derslere tekrarlı ulaşım ile kalıcılığın sağlanması teorik anlamda pozitif yön olarak belirtilirken, klinik ortamda hasta ile temasa geçme ve mesleki rolleri kazanma açısından önemli eksiklikler ifade edilmiştir.

Anahtar Kelimeler: Uzaktan eğitim; ruh sağlığı; pandemi; psikiyatri hemşireliği

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INTRODUCTION

The pandemic (COVID-19) has become an epidemic that has affected and continues to affect the whole world, leading to significant changes and impacts in education, meanwhile, countries have decided to continue the education process.[1] After the first case was reported in Türkiye, measures and decisions were made to fight against the effects of the pandemic on education by the Higher Education Council. In line with the recommendations, the spring term of the 2019-2020 academic year was carried out within the framework of the emergency distance education plan, and the fall term of the 2020-2021 academic year was carried out as distance education.[2]

Distance education came to the fore as an emergency plan during the pandemic, but it is accepted that it started with letters in the 18th century.[3] Distance education has been affected by the changes and developments in technology, and radio, television, and computers have brought a new dimension to distance education after the letter.[3,4] Distance education applications can be used at all levels of education, and their most essential feature is that they offer students the opportunity to be independent of space and time, are student-oriented, and use methods that support active learning.[5] In distance education, student-faculty communication, collaborative learning, active learning, instant feedback, high expectations, time spent in class, diversified learning, and technology applications have been determined as the basic principles for good application in online undergraduate education.[5] While distance education is accepted as an alternative to traditional learning, sometimes the limitations imposed by physical and material conditions and sometimes crises such as the pandemic process show that distance education may be inevitable.[6-9]

Distance education can be as successful as face-to-face education, if the method and technology that can provide communication and interaction between the lecturer and the student in an appropriate and desired manner, is used.[10] Just as the application of different methods in face-to-face education, there are many different methods in distance education. In this context, universities use synchronous, asynchronous, or both synchronous and asynchronous distance education methods depending on their existing and developing infrastructure.[11] Knowing these methods' characteristics is crucial in deciding how to integrate them into distance education applications.[12] Advantages of distance education are reaching more students, profit, value creation, satisfaction, low cost, less time, knowledge generation and dissemination, and more accessibility and faster communication.[13] The difficulties of distance education can be stated as time limitation, lack of education and experience, lack of sense of belonging, high cost, technology and infrastructure problems, and lack of motivation and attention.[14] This education, which incorporates both advantages and disadvantages, will have a different effect on nursing undergraduate program students whose practice areas are clinical.

Unexpected emergencies such as pandemics or natural disasters (earthquakes, etc.) make it necessary to include distance education applications in the education process. Nursing education was also carried out online due to the fact that face-to-face education opportunities could not be used, and clinical practice could not be carried out during the pandemic period. Universities in our country have decided to continue the Mental Health and Disease Nursing course, which is included in the nursing curriculum, with distance education during this period. At the Mental Health and Diseases Nursing Education Workshop held by the Psychiatric Nursing Association on September 14, 2020, it was stated that the aims and objectives of distance education should be similar to face-to-face education.[15] Faculty members have made various plans for the student's achievements to be familiar with the successes of face-to-face education. Within the scope of these plans, multiple teaching methods and techniques have been applied in distance education, and measures have been taken to support the clinical practice process.

In the literature, study results on the effectiveness of distance education for nursing students generally focus on the structuring and results of the educational process.[16-19] Course-focused studies on the impact of distance education on vocational nursing courses, primarily where professional roles are taught through the clinical practice process, are limited. In the literature, in terms of conducting the mental health and psychiatric nursing course through distance education, Arslan et al.[20] stated that there was no difference in the comparison of students taking face-to-face and distance education in terms of course achievements and perception of psychiatric nursing.

However, students indicated that they wanted to receive face-to-face education and work with cases in clinical practice. In another study, Hallaç et al.[21] examined a hypothetical case example used as a measurement tool in evaluating the implementation of the mental health and diseases course in the distance education process. Considering the studies in the literature in Türkiye, the current study directly focuses on students' views regarding the mental health and disease nursing course and the structuring of distance education, and qualitative findings support the quantitative findings. In this context, the study

is thought to significantly contribute to the literature by reflecting experimential student views in planning distance education, structuring learning environments, and choosing educational methods.

AIM

In this context, the study aims to determine the opinions of students taking the mental health and diseases nursing course during the distance education process regarding the effectiveness of this process.

The research questions were determined as;

- What are the students' views about distance education and teaching methods in the Mental Health and Diseases Nursing course?
- What are the views of distance education students on the comprehensibility and permanence of theoretical knowledge?
- What are the views of distance education students about the effectiveness of the methods used in theoretical and practice skills courses?
- What are the views of distance education students about gaining practice skills?

METHODS

Design

The research was designed as a descriptive quantitative study.

Population and Sample

The study population consisted of fourth-year students (N=245) taking the Mental Health and Diseases Nursing course in the Department of Nursing in the Faculty of Health Sciences of a state university during the fall term of the 2020-2021 academic year. No sample selection was used in the study, and the aim was to reach the entire population (N=245). The inclusion criteria were determined as follows: clicking the "I accept" option in the online informed consent form and then completing the data collection forms exactly. The exclusion criterion was taking the course repeatedly. The study's sample consisted of n=243 students since two students did not fill out the data collection tools via the link.

Instruments

“Participant Information Form”, “Assessment Form for Mental Health and Diseases Nursing Course Distance Education” and the “Opinions About Distance Education Scale” were used to collect the data.

Participant Information Form: This form, prepared by the researchers, includes a total of 12 questions about the socio-demographic characteristics of the participants (such as age, gender, marital status, employment status, income status, ability to use internet connection, device used, presence of a different family member receiving distance education, preference for taking the course as distance education or face to face).

Assessment Form for Mental Health and Diseases Nursing* Course *Distance Education: The form prepared by the researchers consists of two parts and a total of 20 questions. The first part of the form includes 13 questions about the methods used in the theoretical course and practice skill courses, which are rated with a 3-point Likert-type rating. The second part of the form includes seven questions. Two of the questions allowing to mark more than one answer: [1] about the difficulties of distance education and [2] the more useful ones among learning methods; and also five open-ended questions on the effect of distance education on comprehensibility and permanence, the teaching methods used, and the effectiveness of Web 2.0 methods (such as posters, interactive videos, questionnaires, word cloud, flashcards, and concept maps).

The Opinions About Distance Education Scale: *The scale* was developed by Yıldırım et al.[22] to determine the views of the students participating in distance education about the teaching offered. The scale has 18 items with a 5-point Likert-type rating. The scale score ranges are as follows; 'Strongly disagree (Quite insufficient): 1.00-1.79', 'Disagree (Insufficient): 1.80-2.59', 'Undecided (Moderately sufficient): 2.60-3.39', 'Agree (Sufficient): 3.40-4.19', ' Strongly agree (Quite sufficient): 4.20-5.00'. The scale has four subscales; “*Personal Suitability* referring to the suitability of distance education for students' personal lives"; "*Effectiveness* referring to views on the effects of teaching activities carried out in distance education environments on student success”; "*Instructiveness* referring to the possibility of comparing traditional teaching and distance education in terms of learning characteristics" and "*Familiarity* referring to the approaches of the learners to the studies that must be performed in the learning process ."The Cronbach's alpha internal consistency coefficient of the scale was calculated as .86. In the present study, the Cronbach's alpha value was found to be .78.

Application

This study was conducted to determine the views of the students who took the Mental Health and Diseases Nursing course in the fall term of the 2020-2021 academic year during the COVID-19 pandemic on distance education. The Mental Health and Diseases Nursing course was carried out in two stages (theoretical courses and practice skills courses). It was completed as theoretical courses of 120

minutes and practice skills courses of 80 minutes on Mondays every week. Theoretical courses were carried out synchronously by the responsible instructor of the course over the distance education system of the institution. Researchers attended the theoretical courses as assistant lecturers. Explaining, asking questions, discussing, surveying, and presenting interactively from teaching methods, as well as using word clouds from interactive presentation applications, were used to ensure student interactions during the teaching of the theoretical courses. In addition, reading notes on the subjects specified in the syllabus were given before the course to ensure that the students were active in the theoretical courses. Practice skill courses were synchronized over the institution's distance education system or Microsoft Teams application. Practice skill courses were taught predominantly in the form of presentation of student group works (case and subject-specific article presentations), experience sharing of nurses who did their doctorate in Psychiatric Nursing or were working in a psychiatry clinic, discussion by the instructor about the film analysis prepared as a practice individual homework and the role play application for Good Morning Meeting and Job Orientation Meeting regarding roles and responsibilities of psychiatric clinical nurse. The students prepared their group presentations with the counseling of the responsible research assistants. The presentations of current cases or research articles determined based on the subject of theoretical course in the course syllabus on that day were carried out using various teaching techniques. These techniques include Web 2.0 methods such as posters, interactive videos, surveys, word clouds, flashcards, and concept maps. At the end of the student group presentations, all instructors gave feedback, and peer assessment was received from the students for the group making the presentation. During the Mental Health and Diseases Nursing course, Web 2.0 methods were actively used in theoretical and practice skills courses to establish more interactive, collaborative, effective communication and provide information sharing with the students.

The data were obtained between February and May 2021 after completing the theoretical and practice skills courses in Mental Health and Diseases Nursing in the fall term of the 2020-2021 academic year. The “Participant Information Form” which was prepared by the researchers, the “Assessment Form for Mental Health and Diseases Nursing Distance Education," and the “Opinions About Distance Education Scale” were used to determine the views of students about distance education. After the course assessment process was completed, a link containing the questionnaire was sent to all the students via e-mail, and the students were expected to complete the data collection tools prepared through “Google Forms”. They were expected to click the "I agree" option after reading the informed consent form, which is a mandatory part of the Participant Information Form, and then their answers were obtained.

Data Assessment

Descriptive analyses were assessed using the IBM SPSS 25.0 statistical package program. Number and percentage, mean, standard deviation or median, and minimum and maximum values were given in the presentation of the data. In the evaluation of the first part of the "Assessment Form for Mental Health and Diseases Nursing Course Distance Education" prepared by the researchers, the students' opinions were grouped as agree, partially agree, and disagree and stated as number and percentage. The content analysis technique was used in the second part of the analysis of the open-ended questions. Patton[23] defines content analysis as "any qualitative data reduction and interpretation effort to determine basic coherences and meanings by taking voluminous qualitative material". During the content analysis of the data, the researchers first transferred each participant's answers to a word file and carried out open codings. Codes with similar features from participant opinions were grouped under the same category, and categories were grouped under sub-themes and themes. In the content analysis stage of the data, the researchers worked as two separate groups, came together, and agreed on the categories and themes. The data analysis process was completed. The given conceptual structure was determined based on categories, sub-themes, and themes, and the data were supported by citing the participants' views on the relevant subject.

Ethics Approval

Before starting the study, approval from the Ethics Committee of Gazi University (Decision No: 11.12.2020-E.133170, Research Code No: 2020-651) and written permission from the related institution were obtained. In addition, permission was obtained from the responsible author via e-mail to use the "Opinions About Distance Education Scale" in the study. Before sending the link for the data collection tools to the students participating in the study, they were informed verbally and via e-mail. The students were expected to mark the "I accept" option after reading the explanation of the informed consent form, which is a mandatory field in the participant information form. Since it aimed to evaluate the students' views on conducting the Mental Health and Diseases Nursing course with distance education methods, the application was carried out upon completion of the course evaluation process to prevent students from experiencing test anxiety.

RESULTS

The mean age of the students participating in the study was 21.88±1.13 (min.=20.0; max.=28.0), 85.2% of them were female, all were single, 6.2% of the students were working in any job, 84.0% evaluated their income status as a medium, 55.0% were residing in the city center, and 74.1% had a nuclear family. It was determined that 58.0% of the participants had problems with internet use, 54.5% of the students were connected to distance education via phone, and 69.5% had another family member taking distance education. The students stated that they had problems mostly in socialization (20.1%), motivation (18.6%), and communication (16.0%) regarding distance education. Also, 85.6% of the students said they would prefer to take the Mental Health and Diseases Nursing course with the face-to-face education system after the pandemic. The students stated that specialist nurse experience sharing (14.1%), film analysis (13.6%), and case discussion (12.0%) among the teaching methods used in the practice skill course were the most effective methods (Table 1).

The majority of the students stated that the different teaching methods used in the theoretical and practical skill courses related to the distance education of Mental Health and Diseases Nursing were interesting, made them ready for the subject, reinforced the subject, and increased the interaction. Moreover, they stated that the practices within the scope of the practice skills course were supportive in knowing the roles and responsibilities of the psychiatric clinical nurse, observing the symptoms specific to psychiatric diagnosis, preparing an appropriate care plan, and developing critical thinking, decision-making, and practice skills. Article presentations within the scope of the courses enabled the acquisition of up-to-date information and improved the point of view (81.9%). About half of the students (47.3%) stated that peer assessments after group presentations helped them recognize their deficiencies (Table 2). The total mean score of the participants for the opinions about the distance education scale was determined as 2.91±0.48. Their mean scores for the subscales of the scale were 2.95±1.09 for Personal Suitability, 2.65±1.10 for Effectiveness, 4.02±0.98 for Instructiveness, and 2.03±0.90 for Familiarity (Table 3).

The answers to the open-ended questions asked to determine the students' views on distance education were conceptualized under four themes: 'Views on distance education', 'Effectiveness of teaching the methods used', 'Effectiveness of methods used in the practice skill courses' and 'Preparedness for provide nursing care to patients followed up with a psychiatric diagnosis .' The theme of views on distance education was divided into two sub-themes: advantages and disadvantages. The sub-theme of advantages was grouped into two categories: being understandable and permanent and accessing the courses repeatedly. In the category of being understandable and permanent, 141 students gave their opinions. The sub-theme of disadvantages included physical and technical deficiencies, time constraints, and intensive content that could have been more effective than face-to-face education. Most of the students stated physical and technical deficiencies as a disadvantage (n=37).

Table 1. Characteristics of Students' Access to The Distance Education System (n=243)

Variables	n (%)
Had problem using the internet	
Yes	141 (58.0)
No	102 (42.0)
Devices used in distance education*	
Computer	147 (44.0)
Phone	182 (54.5)
Tablet	5 (1.5)
Status of had another family member taking distance education*	
Yes	169 (69.5)
No	74 (30.5)
The challenges of distance education	
Socialization problems	184 (20.1)
Lack of motivation	170 (18.6)
Communication problems	145 (16.0)
Technology problems	134 (15.0)
Planning and coordination problems	121 (13.2)
Financial problems	67 (7.3)
Familial problems	87 (9.5)
Other (Conflict of classes with working hours, lack of practice)	3 (0.3)
Preference regarding the way the course is conducted	
Face- to- face	208 (85.6)
Distance education	35 (14.4)
Teaching methods found useful in conducting the course*	
Concept map	103 (7.6)
Animation- video	157 (11.7)
Word cloud	129 (9.6)
Online quiz	137 (10.2)
Example scenario work	133 (10.0)
Video display	151 (11.2)
Expert nurse experience sharing	185 (14.1)
Case discussion	162 (12.0)
Film analysis	183 (13.6)

*Percentages calculated from folded n.

Table 2. The Opinions of Students About The Mental Health And Diseases Nursing Course Taken Via Distance Education (n=243)

The Opinions of the Students	Disagree n(%)	Partially Agree n (%)	Agree n (%)
1. The word cloud application used to increase student interaction in theoretical courses increased my interest in the course.	8 (3.3)	35 (14.4)	200 (82.3)
2. Reading notes in theoretical courses were useful for me to be ready for the subject.	15 (6.1)	41 (16.9)	187 (77.0)
3. Conducting practice skills courses after the theoretical courses enabled to reinforce the subject.	8 (3.3)	25 (10.3)	210 (86.4)
4. Different teaching methods in the practice skills course increased my interest in the course.	7 (2.9)	21 (8.6)	215 (88.5)
5. Inviting nurses who were specialist in their fields (PhD student in Psychiatric Nursing, Consultation Liaison Psychiatry Nurse) to the course and sharing their experiences increased the interaction.	5 (2.1)	13 (5.3)	225 (92.6)
6. The sharing of nurses who were specialist in their fields, helped me to gain knowledge about the roles and responsibilities of psychiatric nursing and clinical experience.	2 (0.8)	15 (6.2)	226 (93.0)
7. As an individual homework in practice skill courses, film analyses enabled me to observe the symptoms specific to the diagnosis.	8 (3.3)	23 (9.5)	212 (87.2)
8. The discussion of the individual homework film analysis of the practice skills courses by the instructor allowed me to plan nursing care specific to the diagnoses.	4 (1.6)	22 (9.1)	217 (89.3)
9. Role-play practices (nurse-patient interview, good morning meeting and job orientation meeting) in practice skill courses enabled me to improve my practice skills.	7 (2.9)	32 (13.1)	204 (84.0)
10. Group presentations (case and article presentations) in practice skills courses helped me develop my critical thinking and decision making skills in psychiatry-specific cases.	10 (4.1)	38 (15.6)	195 (80.3)
11. Article presentations in practice skill courses helped me learn current information and improve my perspective on Mental Health and Diseases Nursing.	9 (3.7)	35 (14.4)	199 (81.9)
12. Sharing the questions that will create a discussion environment in the group presentations in practice skill courses contributed to the fluency of the course.	10 (4.1)	57 (23.5)	176 (72.4)
13. Conducting a peer review at the end of group presentations helped me recognise my own deficiencies.	79 (32.5)	49 (20.2)	115 (47.3)

Table 3. Mean scores of the Opinions About Distance Education Scale and Its Sub-dimensions (n=243)

Scale	$\bar{X}$ ± SS	min. –max.
Total score	2.91±0.48	1.5-5
Personal Suitability	2.95±1.09	1-5
Effectiveness	2.65±1.10	1-5
Instructiveness	4.02±0.98	1-5
Familiarity	2.03±0.90	1-5

X, Mean; SD, Standart deviation; min., minimum; max. maximum

Regarding the "effectiveness of the teaching methods used" two sub-themes were determined as effective and ineffective. The sub-theme of effective teaching methods consisted of four categories: making learning enjoyable, keeping the focus, increasing interest, and providing comprehensibility and permanence. Within the framework of the determined sub-theme, the students mostly expressed positive opinions regarding providing comprehensibility and permanence (n=101). The "effectiveness of the methods used in practice skills courses" theme included the sub-themes of skill acquisition and the ability to apply nursing skills in the clinic. The majority of students' opinions were collected under the sub-theme, stating that the methods used were effective in acquiring skills. The theme of "preparedness to provide nursing care to patients followed up with a psychiatric diagnosis" was divided into three sub-themes: yes, partial, and no. Although some of the students stated that they felt ready (n=95), a significant part of them (n=78) indicated that they did not feel ready (Table 4).

Table 4. Assessments on Mental Health and Diseases Nursing Course Taken Via Distance Education: Content Analysis of Student Responses to Open-Ended Questions

Question	Theme	Sub-theme	Category	n	Example quote
Please indicate your views on the comprehensibility and permanence of the theoretical courses within the scope of the Mental Health and Diseases Nursing course you have taken via distance education?	1. Views on distance education	1a. Advantages	Being understandable and permanent	141	"Although the theoretical courses were given via distance education, their comprehensibility and permanence are clear, understandable and well-arranged as in face-to-face education." (P15) "In face-to-face education, our classrooms were very crowded and we couldn't even see the instructor teaching us … Now at home, it is as though the instructor is teaching us one-on-one, things are clearer." (P61)
			Accessing to the courses repeatedly	15	"Having access the courses again allowed us to reinforce the courses that were already productive." (P7) "The ability for me to watch the course at any time has done a lot for me. When I watched the course multiple times over, I was able to recognise parts that I had not understood before." (P174) "Re-watching the parts of the course that I could not understand during the course helped me to complete the lack of theoretical knowledge." (P38)
		1b. Disadvantages	Physical and technical deficiencies	37	"I remember less in distance education than I do from face-to-face education. Moreover, limited internet access makes it difficult to join courses" (P126), "If I listen to the courses regularly, it becomes permanent, but it was very difficult to allocate time and make planning due to both the internet problem and family responsibilities at home." (P131),
			Time constraints and intensive content	7	"Someone walking into the room, trying to talk to me, and receiving notifications from my cell phone all the time all distracted me as I watch the course. I'm already distracted and can't focus on anything for more than 20 minutes"(P97). "...Although the instructor was good at explaining many subjects, the course subject contents were too intense, and therefore I can't grasp everything." (P13),
			Not being as effective as face-to-face education	27	"The topics were explained very clearly, but … after a while I had difficulties in focusing in front of the screen." (P41). "Theoretical courses were quite understandable for me, but I can definitely say that it is not more effective than face-to-face training." (P12), "Theoretical courses were very understandable. However, I think the face-to-face education is more permanent." (P58).
Concerning Web 2.0 methods used in the Mental Health and Diseases Nursing course you have taken via distance education; • What are your views on its contributions to the *theoretical courses?* • What are your views on the contributions to *the practice skill courses?*	2. Effectiveness of the teaching methods used*	2a. Effective	Making learning enjoyable	13	"I think that using these methods reduces the great number of the presentations, makes learning fun and arouses curiosity." (P70) "The use of many different methods increased the interest of all students. The use of remarkable content in the course also made the course fun." (P129)
			Keeping the focus	24	"I think that the interactive course and the educational methods applied had a positive effect on the learning process by increasing our attention on the subject." (P24) "I think that we are more active and encouraged to participate in the course. Also it increases focus because it arouses curiosity." (P12)
			Increasing interest	52	"They played a role in increasing my interest in the course. Instead of a monotonous course, I got more involved with different reinforcement techniques." (P51)
			Providing comprehensibility and permanence	101	"Since my visual memory and intelligence are better, it was greatly advantageous for me. It was very useful in theoretical courses in terms of the permanence of the information." (P33) "The word cloud helped me learn concepts. The concept map made it easy for me to learn" (P78) "I think they helped to understand the topics better." (P67)
		2b. Ineffective	-	11	"In the online education process, it was not as effective as the face-to-face" (P118).

*Web 2.0 methods (Poster, interactive video, survey, word cloud, flashcards, concept map)
** Case representation, article discussion, specialist nurse experience sharing, case study on film analysis

Table 4. Continued

Question	Theme	Sub-theme	Category	n	Example quote
Within the scope of the Mental Health and Diseases Nursing course you have taken via distance education, the methods used in the practice skill courses (case presentation, article discussion, experience sharing sessions, case study on film analysis); • Explain how did it affect skill acquisition? • Please explain what are your views on the skills gained in practicing in the psychiatry clinic and its applicability?	3. Effectiveness of the methods** used in the practice skills courses	3a. Skill acquisition	Effective	132	"I think it is very useful in concretising an abstract subject." (P21) "It was permanent for mentioned symptoms of diseases and a nursing planning." (P56) "The only successful thing of distance education, especially in the film analysis, this improved my perspective on nursing diagnoses." (P166) "Especially watching films brought the disease, etched the characteristics into our minds." (P16) "Experience sharing sessions were the most useful method for me, and I learned more clearly what my attitude should be when I encounter with patients." (P49) "Especially the sharing of the experiences of the working nurses gave an idea about what kind of environment we will enter." (P10)
			Ineffective	38	"Of course, it contributed to us about the causes and symptoms of the diseases, but because we were not in the clinic, what was learned was not fully reinforced." (P57) "Although the works are good, I do not think that it is as effective as a one-on-one conversation with the patient." (P83) "I can say that it supports the subject in terms of theory, but I think it is not enough in terms of skills." (P86)
		3b. Ability to apply nursing skills in the clinic	I have acquired clinical skills and can apply them.	152	"I felt as if I was doing an internship. I put my theoretical knowledge into practice." (P84) "While I had questions such as how can I communicate with the patient, how do I give training, etc., now I think I can do my duty very well towards a patient in the hospital." (P27) "Should we work at a psychiatric clinic upon graduation, at least in the beginning we'll have some idea about the challenges we'll be confronted with. They were very useful methods for us to be adapted quickly to the clinic." (P28) "It allowed me to look at patients from different angles. It allowed me to evaluate them holistically." (P121) "I now have a better idea about how I ought to act when making a diagnosis and communicating with patients." (P185)
			Needing to be supported with clinic.	91	"In general, it was good to deal with a patient in homework and to plan, but I think that I am insufficient in improving our communication skills because we do not communicate with a real patient." (P40) "I think it will positively affect our communication with patients, but every time the real experience is different." (P77) "Even if we weren't actually in the psychiatry clinic, they were at least instructive methods about what skills we should gain. However I don't think it can take the place of clinical practices." (P111) "I believe that I have learned all of them in terms of applicability, but I cannot think that I have gained skills. I feel little inadequate. When I encounter with a patient in real life, I do not know how to behave without one of my instructors." (P87) "Data on diseases in psychiatry provided us to have knowledge about their diagnosis and practices. However, I do not think that theoretical knowledge can be fully reinforced without clinical practice." (P167)

*Web 2.0 methods (Poster, interactive video, survey, word cloud, flashcards, concept map)
** Case representation, article discussion, specialist nurse experience sharing, case study on film analysis

Table 4. Continued

Question	Theme	Sub-theme	Category	n	Example quote
Do you think that taking the Mental Health and Diseases Nursing course via distance education made you prepared to communicate effectively with the patient followed up with a psychiatric diagnosis and to provide nursing care? (Please explain)	4. Preparedness for provide nursing care to the patients followed up with a psychiatric diagnosis	4a. Yes	-	95	"We have gained knowledge about communicating, I think I can apply it face to face.." (P11). "Although we took the course via distance education, information that I could use in my working life was tried to be taught with different methods. The course not only progressed by teaching theoretical knowledge, but also helped us to practice with different applications. Experts shared their experiences, which also helped us to have an idea about what kind of environment we will work in."(P86).
		4b. Partial	-	66	"Partially. Although our course was really understandable and reinforced with practice sections, I don't think we can be completely ready for this subject without communicating one-on-one with the patient." (P72). "Partially yes. In the light of theoretical knowledge, we were able to get an idea about what we could do or what our approach could be. But the experience is always different. We will only fully comprehend the theoretical information when we actually go to the clinic." (P28)., "In other words, I can't say exactly, but we can manage to take a step because it contributes to our knowledge." (P16).
		4c. No	-	78	"Distance education has very negative aspects, especially for departments like our department, where practice and communication are very important. Since there is no communication with a real patient, it incorporates many negative aspects such as communicating with predictable reactions, inability to collect sufficient data, and not being able to provide care." (P70) "I believe that if we don't put what we have learned in theory into practice, they will disappear. Since we couldn't do the internship, I don't think it fully prepared us." (P46) "The place where we can best reinforce the education we have received is clinical practice. Although various ways are used to increase the permanence of education and the participation of students in the online environment, the best place to learn the profession is clinical practice." (P35)

*Web 2.0 methods (Poster, interactive video, survey, word cloud, flashcards, concept map)
** Case representation, article discussion, specialist nurse experience sharing, case study on film analysis

DISCUSSION

The pandemic has led to significant changes and effects in the world and Türkiye, especially in health, economic, and social dimensions. Positive and negative results have occurred within the scope of education, which is one of the most affected areas, and countries have decided to continue the education process through distance education.[1] It was determined that most of the students in the present study who continued their education process through distance education had problems using the internet, were connected to distance education by phone, and had another family member taking distance education. The students reported having problems mostly in socialization, motivation, and communication. The literature, it was stated that students experienced communication problems because distance education led them to individual studies.[24,25] The study of Kürtüncü and Kurt[18] reported that students had difficulty following the lessons due to internet problems. In another study, students reported that they commonly experienced internet problems during the distance education process, and they experienced deficiencies in socialization, study motivation, and discipline.[25-27] The students in the present study found that the distance education applications were moderately sufficient. The total score of the Opinions About Distance Education Scale was found to be moderately sufficient in the study of Düzgün and Sulak[28] with students, which is similar to the present study. In the present study, the students evaluated the effect of the teaching methods used in distance education on their success as moderately sufficient. Another data supporting the effectiveness of teaching methods was when they compared traditional teaching and distance education in terms of learning characteristics, it was determined that distance education was evaluated as sufficient in terms of instructiveness. Students were insufficient in terms of familiarity with the studies planned to be carried out during the distance learning process. It is thought that the difficulties experienced by students in developing skills through distance education affect this result.

Qualitative Findings

In the study, the views of the students who took the Mental Health and Diseases Nursing course via distance education during the pandemic were conceptualized under four themes as a result of the content analysis: ‘Views on distance education’, ‘Effectiveness of teaching methods used’, ‘Effectiveness of methods used in the practice skill courses’ and ‘Preparedness for provide nursing care to patients followed up with a psychiatric diagnosis’.

Views on Distance Education

In the study, the majority of the students stated that distance education was understandable and permanent, and the ability to access the courses repeatedly was an advantage. From another point of view, it was noted that distance education provided a disadvantageous education process with its different aspects (physical and technical deficiencies, limited course duration, and intensive course content, not being as effective as face-to-face education). When considering the study results in the literature, it has been found that the positive effects of distance education are the opportunity to watch the course videos whenever they want and the subjects that are not understood.[18,29-30] In terms of its disadvantages, especially the students showed their physical and technical deficiencies in the foreground. Moreover, they stated that the course duration was too short compared to the intensive course content. Likewise, the studies conducted with university students reported that distance education was negatively affected due to technical problems[31], that distance education was tedious due to technical problems[32], and that students complained about connection problems[33]. In line with the results, although repeated access to course recordings for students is an influential factor in consolidating the course, improving the conditions of students during the distance education process is an inevitable necessity.

Effectiveness of Teaching Methods Used

In the present study, almost all students stated that the education methods used in the distance education process's theoretical and practice skill courses were effective. They stated that the methods used in the course were very effective in providing an enjoyable learning environment, keeping the focus, increasing interest, comprehensibility, and permanence. A study stated that the teaching methods used in distance education positively impacted students' focus better, increasing permanence and developing their researcher spirit.[34] On the other hand, some students stated that the teaching methods used in the theoretical and practical Mental Health and Diseases Nursing course taken via distance education were not as effective as face-to-face education. Students stated that they did not see distance education as effective in nursing education and that there would be deficiencies in practice-oriented professions.[19] In this context, it is thought that enriching teaching methods through visual and audio materials in distance education will increase the quality of education. With an interactive education approach, it is beneficial to create different platforms to increase students' interaction with their peers and instructors and discuss their theoretical knowledge.

Effectiveness of the Methods Used in the Practice Skill Courses

In the present study, most students stated that teaching methods such as case presentation, article discussion, specialist nurse experience sharing, and case study on film analysis used in practice skill courses effectively gained skills and embodied abstract concepts. However, although some students considered the methods used effective, they stated that they needed to be more when compared with clinical practice experience.

While the students stated that they could apply their nursing skills (communicating effectively, providing care for the patient followed up with a psychiatric diagnosis) in the clinic owing to the methods used in the practice skill courses, they focused on the importance of supporting the acquired skills with the clinic practice in terms of their applicability. In the study, Kürtüncü and Kurt[18] stated that students' staying away from the practice area prevented them from learning in the field, and therefore, the distance education system was not the right choice for the nursing department. The mental health and diseases nursing course aims to provide students with skills such as mental state assessment, observation, and interviewing. In addition, skills such as providing and maintaining a therapeutic environment and maintaining group activities are learned primarily through clinical observations and experiences. In this context, although mental health and disease nursing philosophy, mission and vision, roles, and responsibilities are tried to be taught in distance education through teaching methods such as case presentation, article discussion, expert nurse experience sharing, case study on film analysis; it is necessary to plan laboratory and hospital applications to gain clinical experience skills.

Preoaredness for Provide Nursing Care to Patients Followed Up with Psychiatric Diagnosis

In the present study, some students stated that they felt ready to provide care with the knowledge after the theoretical and practice skills courses they took with distance education. In contrast, a significant majority indicated that they did not feel ready. Likewise, the literature has reported that taking theoretical courses through distance education may be sufficient, but practical courses may cause problems.[35,36] In the study conducted by Casafont et al.[37] with fourth-year nursing students, they reported that students needed help to cope with ambivalent emotions in clinical practice. To train newly graduated psychiatric nurses who use effective communication and therapeutic environments as tools in providing patient care, the necessity of planning face-to-face clinical practices integrated into the distance education process is essential and cannot be ignored.

Limitatitons of the Study

The findings of this study are based on the opinions of participants who received training at only one institution.In addition, the subjective statements of the participants may not reflect observable behaviors.

In light of the research findings, the distance education method during the pandemic period has been found to be advantageous in terms of providing repeated access to the course and the effectiveness of the teaching methods used, providing a pleasant learning environment, increasing focus, increasing interest in the course and growing permanence. However, due to physical and technical deficiencies and insufficient course time, a negative difference was detected when distance education was compared with face-to-face education. In line with the study results, when mental health and disease nursing education is implemented entirely online, psychiatric nursing, as a profession focused on clinical skills, may bring about deficiencies in learning professional roles and responsibilities. The Students stated that they felt inadequate in terms of readiness to provide care for the patient in the clinic and would prefer to take the Mental Health and Diseases Nursing course, which they took with distance education, in face-to-face education.

Course outcomes determined within the scope of the purpose, philosophy, practice standards, professional roles, and responsibilities of Mental Health and Disease Nursing can be very difficult to impart to students through distance education and may not be assimilated from the student's perspective. In this context, it is recommended that the mental health and disease nursing course, as an applied course, should not be given via distance education except in compulsory cases. In the case of distance education, it is recommended that teaching methods in theoretical education be diversified and supported with techniques such as audio-visual materials, case studies, sharing the experiences of expert nurses in the field, and case discussions through movies. It would be supportive to develop the clinical practice process with the opportunity to work online with simulated/standard patients. Students' experiences taking the mental health and diseases nursing course via distance education are essential. In line with the study's results, which were conducted in a quantitative descriptive type and examined student experiences in depth within the scope of open-ended questions, it is recommended to investigate the subject with qualitative semi-structured focus group studies.

Etik Komite Onayı: Etik komisyon onayı Gazi Üniversitesi Etik Komisyonu'ndan (Tarih: 11.12.2020, Sayı: E.133170, Araştırma Kod No: 2020-651) alınmıştır.

Bilgilendirilmiş Onam: Çalışmaya katılan öğrencilerden Google Forms aracılığı ile onay alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- SD,DKİ,FE; Tasarım- FE,DKİ,EA,MI,SSŞ; Denetleme- SD; Malzemeler- SD,FE,DKİ; Veri Toplama ve/veya İşleme- DKİ,EA,MI,SSŞ; Analiz ve/veya Yorum- FE,DKİ,EA,MI,SSŞ; Literatür- DKİ,FE,EA,MI,SSŞ; Yazıyı yazan- SD,DKİ,FE; Eleştirel İnceleme: SD, FE.
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Investigation of the Effects of Oral Care Methods on Oral Health in Children with Asthma Using Inhalers: A Quasi-Experimental Trial

İnhaler İlaç Kullanan Astımlı Çocuklarda Ağız Bakım Yöntemlerinin Ağız Sağlığına Etkisinin Araştırılması: Yarı Deneysel Bir Çalışma

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ABSTRACT

Objective: This study was conducted to determine the effects of tooth brushing, wiping the mouth with bicarbonate, and rinsing the mouth with water on the oral care of children with asthma using inhalers.

Methods: The study used a quasi-experimental quantitative research design with a pretest-posttest control group. The sample of 6-10-year-old asthmatic children was divided into the tooth brushing training group (n=49), the bicarbonate mouth wiping training group (n=49), the water rinsing training group (n=49), and the control group (n=49). Data were collected using a "Sociodemographic Information Form" and an "Oral Assessment Guide". The oral assessment guide was re-administered 6 weeks after the children had received the education.

Results: The findings showed that the gums were better in the group applying the wiping the mouth with bicarbonate method (*P*=.046), swallowing complaints decreased in the group applying the rinsing the mouth with water method (*P*=.003), and mucous membranes were better in the group applying the wiping the mouth with bicarbonate method (*P*=.046).

Conclusion: As a result of the study, the method of rinsing the mouth with water was found to be more functional. Accordingly, it is recommended to rinse the mouth with water after using inhaler medication.

Keywords: Asthma, nursing, oral health

ÖZ

Amaç: Bu çalışma, astım tanısı konulmuş inhaler ilaç kullanan çocuklarda diş fırçalama, ağzı bikarbonat ile silme ve ağzı su ile çalkalamanın ağız bakımına etkisini belirlemek amacıyla yapılmıştır.

Yöntemler: Çalışmada ön test-son test kontrol gruplu yarı deneysel nicel araştırma deseni kullanılmıştır. 6-10 yaş arası astımlı çocukların örneklemi; diş fırçalama eğitim grubu (n=49), bikarbonatlı ağız silme eğitim grubu (n=49), su çalkalama eğitim grubu (n=49) ve kontrol grubundan (n=49) oluşmuştur. Veriler, "Sosyodemografik Bilgi Formu" ve "Ağız Değerlendirme Formu" kullanılarak toplanmıştır. Ağız değerlendirme formu, çocuklara eğitim verildikten 6 hafta sonra tekrar uygulanmıştır.

Bulgular: Bulgular, bikarbonat yöntemi ile ağız silme uygulayan grupta diş etlerinin daha iyi olduğunu (*P*=,046), su ile çalkalama yöntemini uygulayan grupta yutma şikayetlerinin azaldığı (*P*=,003), ve bikarbonat ile ağız silme yöntemi uygulanan grupta oral mukozanın daha iyi olduğu görüldü (*P*=,046).

Sonuç: Çalışma sonucunda, ağzı su ile çalkalama yöntemi daha işlevsel bulundu. Buna göre inhaler ilaç kullanımı sonrasında ağzın su ile çalkalaması tavsiye edilmektedir.

Anahtar Kelimeler: Astım, hemşirelik, ağız sağlığı

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INTRODUCTION

Asthma is defined as a chronic respiratory disease characterized by inflammation and bronchoconstriction, causing wheezing, coughing, and dyspnea.[1-3] It affects more than 300 million people worldwide, and it is thought that 100 million new cases will be diagnosed in 2025. The prevalence, morbidity, and mortality rates of asthma are increasing year on year, and asthma is one of the most common chronic diseases in preschool children.[4] Although asthma ranks first among childhood chronic diseases and mostly persists in childhood, it can occur at any age. However, 30% of patients are about one-year-old, and the first symptoms appear before the age of 4–5 in 80%–90% of patients. The disease reaches its highest prevalence between the ages of 6 and 11.[5] The prevalence of asthma in school-age children in the USA was reported to be 8.5%–12.2%, compared with 6.9%–15.3% in Turkey.[6]

Asthma can be controlled with the regular use of drugs; however, both long-term use and use of these drugs more than once during the day can result in oral health problems. It has been reported that the long-term use of inhaler drugs decreases the intraoral pH level and saliva production in children and increases the risk of the formation of dental caries.[3,7,8]

Although inhaled corticosteroids (ICS) used in the treatment of asthma are the most effective controlling and strongest anti-inflammatory drugs, steroids are known to have serious local and systemic side effects.[4,9] Rinsing the mouth with water after ICS use is widely recommended; however, other oral care methods may be more effective in reducing side effects.[10] Prior studies evaluating interventions for maintaining oral health have primarily involved cancer patients and patients treated in intensive.[11–15] Studies are needed to compare effectiveness of different oral care methods in the outpatient setting. In this study, we investigated the effects of tooth brushing, wiping the mouth with bicarbonate, and rinsing the mouth with water on the oral care of 6–10-year-old children with asthma who used ICS, and presented to the University Hospital Pediatric Allergy Polyclinic in the province.

AIM

This study was carried out to assess the effects of three methods (tooth brushing, wiping the mouth with bicarbonate, and rinsing the mouth with water) applied after ICS use on oral health and to determine the main outcomes in the mouth.

Research Hypothesis

H_1: Children who rinse their mouths with water after inhaler use will achieve better oral health (oral assessment guide) compared to children who wipe their mouths with bicarbonate after inhaler use, brush their teeth after inhaler use, or follow their usual oral care routine.

METHODS

Type of Research

This is a quasi-experimental quantitative study with a pretest-posttest control group.

Setting and Sampling

The study was carried out at a University Hospital Pediatric Allergy Outpatient Clinic between February and September 2019. The sample size of the study was determined using the G* Power 3.1.9.2 software package. For this purpose, the mean and standard deviation (SD) values of previous studies were used.[2] Accordingly, the sample size was calculated as 196 subjects for the four groups, based on the following values: s=0.05, β=0.20 (80%power), and F=0.24. The inclusion and exclusion criteria for the study sample are as follows:

The study included children aged 6–10 years with a diagnosis of asthma, who had been followed up for at least two months, who had been using ICS daily, whose parents agreed to participate in the study, and who had no communication problems. Patients who had to use drugs during an attack period were excluded from the study.

After we obtained written informed consent from the parents, the patients were divided into four groups by using the simple randomization method, according to the appointment system of the clinical responsible physician and according to the days of the week. The researchers only knew the groups of the patients based on the day. They were blinded to the patients' appointment days and therefore did not know which day the patients were scheduled for. In order to avoid interaction, each group was created from patients presenting to the clinic on one of the four days: Monday, Tuesday, Wednesday, and Friday. Since patients were not admitted to the polyclinic on Thursday, it was skipped (Figure 1).

Data Collection Tools

The Sociodemographic Information Form: This form consists of 30 questions designed to collect descriptive data about the children and their parents (child's age, gender, education level, mother's age, father's age, mother's education level, father's education level, mother's employment status, father's employment status, family type, number of individuals living in the family, and income level).

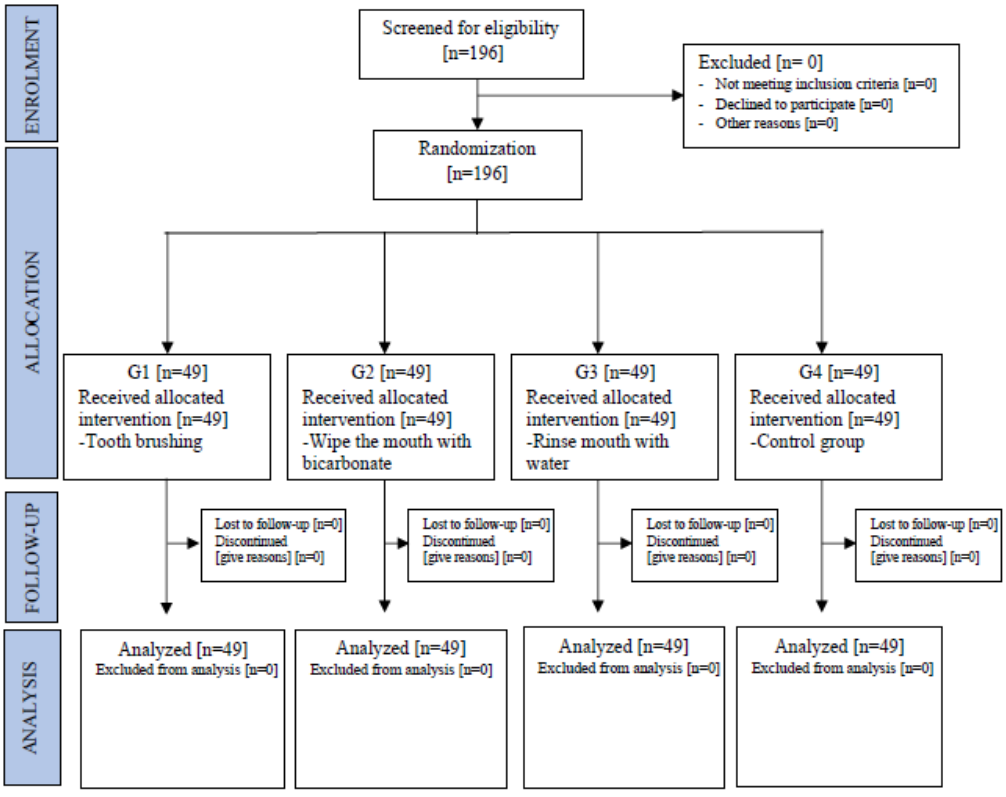

Figure 1. CONSORT 2010 Flow Diagram

The Oral Assessment Guide

This guide was created by Eilers et al.[16] It questions oral and dental health under eight different titles. It is used to assess the condition of voice, swallowing, lips, tongue, saliva, mucous membranes, gums, and teeth or dentures. Oral assessment scores are determined by assigning each variable 1, 2, or 3 points and summing them up. Oral assessment guide scores ranging between 8 and 24.[17] According to the oral assessment guide, low scores mean good oral health, while high scores indicate a negative change in oral health.

Intervention Procedures

The sociodemographic information form and oral assessment guide were administered to the families who presented to the outpatient clinic. Oral care training (i.e., brushing teeth, wiping the mouth with bicarbonate, rinsing the mouth with water) was provided by the researcher, who has three years of clinical experience in the field of pediatric nursing. After the training, training brochures prepared separately for each application group were given to the participants. Opinions regarding the training brochures were received from three lecturers who are experts in the field of child health and diseases nursing. Necessary corrections were made in line with their suggestions, and the brochure was given its final shape.

The oral assessment guide before and after the training was performed by the nurse in the pediatric allergy outpatient clinic. The researcher was blinded during the application of the guide. Patients were scheduled to return 6 weeks after the first examination and the training; therefore, the oral assessment guide was re-administered when they came to the clinic. In the home environment, the parents of the participants were asked to take notes daily, according to the study groups after the use of ICS, whether they applied or did not implement appropriate interventions. After inhaler use, interventions suitable for the study groups were asked to be applied twice a day.

Tooth brushing (group 1): The patients who presented to the outpatient clinic on Mondays were given education on tooth brushing after using inhaled drugs. The tooth brushing education was given using an oral care education brochure, and the brochures were given to the patients at the end of the education. The content of the education was as follows: “After the use of drugs that reach the respiratory tract directly, some side effects, such as changes in voice and thrush in the mouth and on the tongue can be seen. To avoid these side effects, teeth should be brushed after each drug use.”

Oral care with bicarbonate (group 2): The patients who presented to the outpatient clinic on Tuesdays were given education on wiping the mouth with bicarbonate after using inhaled drugs. The education on wiping the mouth with bicarbonate was given using an oral care education brochure, and the brochures were given to the patients at the end of the education. The content of the education was as follows: "After the use of drugs that reach the respiratory tract directly, some side effects, such as changes in voice and thrush in the mouth and on the tongue can be seen. In order to avoid these side effects, the mouth should be rinsed with carbonated water prepared with a teaspoon of bicarbonate (dining soda) into a tea glass of water after each drug use."

Rinsing the mouth with water (group 3): The patients who presented to the outpatient clinic on Wednesdays were given education on rinsing the mouth with water after using inhaled drugs. The education on rinsing the mouth with water was given using an oral care education brochure, and the brochures were given to the patients at the end of the education. The content of the education was as follows: "After the use of drugs that reach the respiratory tract directly, some side effects, such as changes in voice and thrush in the mouth and on the tongue can be seen. In order to avoid these side effects, the mouth should be rinsed with plenty of water after each drug use." Control group (group 4): Patients who came to the polyclinic on Fridays constituted the control group.

Data Analysis

Data were analyzed on SPSS 25.0 (IBM SPSS Statistics 25 software (Armonk, NY: IBM Corp.)) software package. Continuous variables were represented as mean ± standard deviation, median, and minimum-maximum values, and categorical variables were represented as counts and percentages. The normality of the data was examined with the Shapiro-Wilk test. Kruskal-Wallis Analysis of Variance was used to compare independent group differences. Wilcoxon paired-samples test was used in dependent groups. When significance was determined between the groups as a result of Kruskal-Wallis Analysis of Variance, Bonferroni-corrected Mann-Whitney U test was used to determine the groups causing the significant difference. In addition, Chi-square analysis was used to compare categorical variables. In all analyses, $P<.05$ was considered statistically significant.

Ethical Aspect of the Research

Before the study was initiated, necessary permissions were obtained from Pamukkale University Clinical Research Ethics Committee (Issue: 60116787-020/90540 and date 31/12/2018). An informed consent form was obtained from the parents of children. The study was carried out in full compliance with the Declaration of Helsinki (2013).

RESULTS

The distribution of the groups by the demographic characteristics of the participants is given. There were NSD (not significantly different) in demographic characteristic between groups (Table 1). When the asthma-related characteristics of the groups were examined, no difference was found between the groups in terms of having an asthma attack in the last year ($P=.400$), the severity of the attack ($P=.790$), hospitalization ($P=.251$), cough ($P=.374$), dyspnea ($P=.448$), wheeze ($P=.197$), and mucus variables ($P=.719$). Regarding the status of having an asthma attack in the last year, the rate of not having asthma attacks was high in all groups. The severity of asthma attacks was found to be moderate in all groups. According to the examination of hospitalization status, non-hospitalization was high in all groups. The examination of the asthma symptoms indicated the following: cough was present at a high-rate day and night in all groups, dyspnea was high both during the day and night in group 1, and wheezing and mucus complaint were high neither in the day nor the nighttime category (Table 2).

Table 3 shows the oral care of the groups following a routine practice. According to the results, there was no significant difference between the groups in terms of oral care ($P=.421$), frequency of daily oral care ($P=.198$), and oral care method employed after drug use ($P=.331$). Considering the frequency of oral care of the groups following routine practice, tooth brushing was found to be high in all groups. When the oral care method employed after drug use was examined, non-use of oral care methods after drug use was high in all groups.

In the home environment, the families of the participants reported that appropriate interventions were administered twice daily, according to the study groups, after the use of ICS. Table 4 shows the distribution of the participants' scores from the "Oral Assessment Guide" before and after the education. In terms of voice variable, the post-education scores of the groups decreased compared to their pre-education scores and the difference was statistically significant ($P<.001$). However, it was determined that there was no statistical difference between the mean scores of the groups ($P=.143$; $P=.107$). In terms of the swallowing variable, there was no statistically significant difference between the pre- and post-education scores of groups 1, 2, and 4.

Table 1. Distribution of Parents and Children Participated in The Study by Their Sociodemographic Characteristics

Sociodemographic Characteristics		Group 1		Group 2		Group 3		Group 4		*P**
		n	%	n	%	n	%	n	%	
Child's Gender	Female	22	44.9	16	32.7	17	34.7	21	42.9	.525
	Male	27	55.1	33	67.3	32	65.3	28	57.1	
Child's education level	Primary school graduate	29	59.2	38	77.6	37	75.5	38	77.6	.120
	Secondary school graduate	20	40.8	11	22.4	12	24.5	11	22.4	
Mother's education level	Primary school graduate	4	8.2	2	4	6	12.2	4	8.1	.371
	Secondary school graduate	8	16.3	11	22.4	15	30.6	12	24.5	
	High school graduate	31	63.3	27	55.1	21	42.9	22	44.9	
	University graduate	6	12.2	9	18.5	7	14.3	11	22.5	
Father's education level	Primary school graduate	3	6.1	4	8.1	6	12.2	3	6.1	.058
	Secondary school graduate	16	32.7	7	14.3	10	20.4	5	10.2	
	High school graduate	17	34.7	26	53.1	26	53.1	22	44.9	
	University graduate	13	26.5	12	24.5	7	14.3	19	38.8	
Mother's profession	Worker	22	44.9	24	49.0	17	34.7	17	34.7	.360
	Unemployed	27	55.1	25	51.0	32	65.3	32	65.3	
Father's profession	Worker	45	91.8	45	91.8	47	95.9	46	93.9	.811
	Unemployed	4	8.2	4	8.2	2	4.1	3	6.1	

**P* < .05 Statistically significant difference; Chi-square analysis

Table 2. Characteristics of the Groups Regarding Asthma

Asthma-related characteristics		Group 1		Group 2		Group 3		Group 4		*P*
		n	%	n	%	n	%	n	%	
Having an asthma attack in the past year	Yes	7	14.3	8	16.3	6	12.2	10	20.4	.400
	No	42	85.7	41	83.7	43	87.8	39	79.6	
Severity of the attack	Mild	3	42.9	2	25.0	3	50.0	4	40.0	.790
	Moderate	4	57.1	6	75.0	3	50.0	6	60.0	
Hospitalization	Yes	8	16.3	8	16.3	7	14.3	14	28.6	.251
	No	41	83.7	41	83.7	42	85.7	35	71.4	
Cough	Only daytime	6	12.2	1	2.0	3	6.1	2	4.1	.374
	Only nighttime	9	18.4	6	12.2	6	12.2	7	14.3	
	Both day and nighttime	31	63.3	33	67.4	33	67.4	36	73.5	
	Neither day nor nighttime	3	6.1	9	18.4	7	14.3	4	8.1	
Dyspnea	Only daytime	8	16.3	6	12.2	4	8.2	10	20.4	.448
	Only nighttime	2	4.1	3	6.1	6	12.2	4	8.2	
	Both day and nighttime	22	44.9	19	38.8	16	32.7	13	26.5	
	Neither day nor nighttime	17	34.7	21	42.9	23	46.9	22	44.9	
Wheeze	Only daytime	1	2.0	2	4.1	2	4.1	6	12.2	.197
	Only nighttime	1	2.0	-	-	2	4.1	3	6.1	
	Both day and nighttime	1	2.0	3	6.1	4	8.1	2	4.1	
	Neither day nor nighttime	46	93.9	44	89.8	41	83.7	38	77.6	
Mucus	Only daytime	3	6.1	2	4.1	2	4.1	5	10.2	.719
	Only nighttime	5	10.2	3	6.1	3	6.1	4	8.1	
	Both day and nighttime	3	6.1	5	10.2	1	2.0	2	4.1	
	Neither day nor nighttime	38	77.6	39	79.6	43	87.8	38	77.6	

**P* < .05 Statistically significant difference; Chi-square analysis

Table 3. Oral Care of Groups Following a Routine Practice

Oral care		Group 1		Group 2		Group 3		Group 4		*P*
		n	%	n	%	n	%	n	%	
Oral care	Tooth brushing	47	95.9	48	98	48	98	49	100	.421
	Rinsing the mouth with water	2	4.1	1	2	1	2	-	-	
Frequency of daily oral care	Once a day	17	34.7	17	34.7	28	57.2	25	51.0	.198
	Twice a day	28	57.1	29	59.2	18	36.7	20	40.8	
	Three times a day	4	8.2	3	6.1	3	6.1	4	8.2	
Oral care method following the drug use	Tooth brushing	4	8.2	4	8.2	5	10.2	9	18.4	.331
	Rinsing the mouth with water	5	10.2	6	12.2	8	16.3	2	4.1	
	None	40	81.6	39	79.6	36	73.5	38	77.5	

*P < .05 Statistically significant difference; Chi-square analysis

Table 4. Findings of The Comparison of the Pre-and Post-Interventional Mean Scores of the Groups Obtained from The Oral Assessment Guide

Oral assessment criteria		Group 1 X̄±SD	Group 2 X̄±SD	Group 3 X̄±SD	Group 4 X̄±SD	*P**
Voice	Pre-education	1.37 ± 0.49	1.41 ± 0.5	1.57 ± 0.58	1.33 ± 0.47	.143 [b]
	Post-education	1.1 ± 0.31	1.02 ± 0.14	1.14 ± 0.35	1.16 ± 0.37	.107 [b]
	P	.0001*[a]	.0001*[a]	.0001*[a]	.0110*[a]	
Swallowing	Pre-education	1.59 ± 0.5	1.73 ± 0.45	1.67 ± 0.47	1.78 ± 0.42	.222 [b]
	Post-education	1.45 ± 0.5	1.67 ± 0.47	1.41 ± 0.5	1.69 ± 0.47	.005*[b]
	P	.071 [a]	.439 [a]	.003*[a]	.248 [a]	
Lips	Pre-education	1.35 ± 0.48	1.24 ± 0.43	1.33 ± 0.47	1.35 ± 0.48	.660 [b]
	Post-education	1.16 ± 0.37	1.16 ± 0.37	1.1 ± 0.31	1.12 ± 0.33	.764 [b]
	P	.007*[a]	.317[a]	.005*[a]	.005*[a]	
Tongue	Pre-education	1.1 ± 0.31	1.02 ± 0.14	1 ± 0	1 ± 0	.009*[b]
	Post-education	1.06 ± 0.24	1 ± 0	1.02 ± 0.14	1.02 ± 0.14	.275[b]
	P	.317 [a]	.317 [a]	.317 [a]	.317 [a]	
Saliva	Pre-education	1.18 ± 0.39	1.12 ± 0.33	1.04 ± 0.2	1 ± 0	.006*[b]
	Post-education	1.1 ± 0.31	1.12 ± 0.33	1.06 ± 0.24	1 ± 0	.093[b]
	P	.157 [a]	1 [a]	.655 [a]	1 [a]	
Mucous membranes	Pre-education	1.43 ± 0.5	1.1 ± 0.31	1.18 ± 0.39	1.2 ± 0.41	.001*[b]
	Post-education	1.33 ± 0.47	1.02 ± 0.14	1.33 ± 0.47	1.41 ± 0.5	.0001*[b]
	P	.197 [a]	.046*[a]	.035*[a]	.008*[a]	
Gums	Pre-education	1.22 ± 0.42	1.08 ± 0.28	1.31 ± 0.47	1.31 ± 0.47	.026*[b]
	Post-education	1.14 ± 0.35	1 ± 0	1.27 ± 0.45	1.24 ± 0.43	.001*[b]
	P	.206 [a]	.046*[a]	.564 [a]	.405 [a]	
Teeth	Pre-education	1.39 ± 0.49	1.51 ± 0.51	1.43 ± 0.5	1.35 ± 0.48	.404[b]
	Post-education	1.41 ± 0.5	1.49 ± 0.51	1.49 ± 0.51	1.43 ± 0.5	.791[b]
	P	.655 [a]	.763 [a]	.317 [a]	.371 [a]	

*P < .05 Statistically significant difference; a: Wilcoxon paired-samples test; b: Kruskal-Wallis Analysis of Variance; X̄, Mean; SD, Standard deviation

The post-education scores of groups 3 decreased compared to their pre-education scores, and the difference was statistically significant (*P*=.003). Although there was no difference between the mean scores of the groups before the education (*P*=.222), the post-education difference between the mean scores of all groups was determined to be statistically significant (*P*=.005). The post-education means scores of 1st group (*P*=.007), 3rd group (*P*=.005), and 4th group (*P*=.005) were found to be lower regarding the lip's variable than their pre-education scores and the difference was statistically significant. In addition, the difference between the mean scores of all groups, both before (*P*=.660) and after the education (*P* =.764), was not statistically significant. There was no difference between

the mean scores of the groups before and after the education in terms of the saliva and tongue variables (*P*>.05). The difference between the mean scores the variable of the tongue of the groups was statistically significant before the education (*P*=.009), but not after (*P*=.275). The difference between the mean scores the variable of the saliva of the groups was statistically significant before the education (*P*=.006), but not after (*P*=.093). Regarding the variable of the mucous membrane, it was found that the post-education scores decreased in group 2 compared to the pre-education scores (*P*=.046) but increased in 3rd group (*P*=.035) and 4th group (*P*=.008) and that the difference was statistically significant. The difference in group 1 was found to be not statistically significant (*P*=.197). The difference between the pre- and post-education mean scores of the groups was statistically significant (*P*=.001). When the gums were examined, it was determined that the post-education scores of the 2nd group decreased compared to their pre-education scores and that the difference was statistically significant (*P*=.046). The difference between the pre- and post-education mean scores of the groups was found to be statistically significant (*P*=.001). Regarding the teeth variable, no significant difference was found between the mean scores of all groups before and after the education (Group 1: *P*=.655; group 2: *P*=.763; group 3: *P*=.317; group 4: *P*=.371). Likewise, there was no statistical difference between the mean scores of the groups before (*P*=.404). and after the education (*P*=.791).

After the study, it was determined that the oral evaluation scores were significant in groups 1, 2 and 3 (P<.001), while there was no change in the control group (group 4) (P=.099). In addition, it was found that the difference between the study and control groups before (P=.405) and after the training (P=.110) was not statistically significant (P=.110) (Table 5).

Table 5. Findings of the Comparison of the Pre-and Post-Interventional Total Mean Scores of the Groups Obtained from The Oral Assessment Guide

Group's	Pre-education X̄±SD	Post-education X̄±SD	*P*
Group 1	10.63±1.37	9.75±1.19	.0001[a]
Group 2	10.22±1.17	9.48±0.96	.0001[a]
Group 3	10.53±1.15	9.81±1.42	.0001[a]
Group 4	10.30±0.96	10.08±1.20	.099[a]
P	.405[b]	.110[b]	

*P < .05 Statistically significant difference; a, Wilcoxon paired-samples test; b, Kruskal-Wallis Analysis of Variance; X̄, Mean; SD, Standard deviation

DISCUSSION

This study was conducted to determine the effects of tooth brushing, wiping the mouth with bicarbonate, and rinsing the mouth with water on the oral care of children with asthma using inhalers. As a result of the study, the method of rinsing the mouth with water was found to be more functional.

The study, it was determined that the mouth evaluation scores were significant in the groups in which brushing, wiping the mouth with bicarbonate and rinsing the mouth with water were significant, but there was no change in the control group. In addition, it was found that the difference between the study and control groups before and after the training was not statistically significant. In the post-intervention, voice and dryness of the lips variables in the tooth brushing group (group 1); in the group wiping the mouth with bicarbonate (group 2) after the intervention the variables of voice, mucous membranes, and gums; in the group in which the mouth was rinsed with water (group 3), it was found that the mean scores of voice, swallowing, lips, and mucous membranes variables decreased significantly after the intervention (Table 4). Accordingly, hypothesis 1 "rinsing the mouth with water one of the oral care methods of the children; is more effective than tooth brushing, wiping the mouth with bicarbonate, and control group according to the sound, swallowing, dryness in the mouth, mucous membrane variable." was accepted within the limitations of the study.

The literature on basic oral care includes tooth brushing twice a day and rinsing the mouth with sodium bicarbonate or saline.[18-20] In clinical practice, it is known that routine oral care is generally used in patients with chronic diseases such as cancer and receiving treatment in intensive care, but no routine oral care practices for asthma patients have been encountered.[13-15]

Dysphonia and dryness in the mouth can be seen due to the particles remaining in the mouth after inhaled drug use and the side effects of steroid drugs.[21,22] Voice problems are the most common and most disturbing local side effects of inhaled corticosteroids, and they affect not only patients' adherence to treatment but also their quality of life.[23] No studies investigating the effects of inhalers on voice in

children with asthma were found. However, it is known that inhaler cause dysphonia. [24-27] After the education sessions, it was observed that the awareness of the patients was raised and that their voice complaints decreased in all groups. This result shows that, depending on the oral care methods used by the patients, selective benefit is obtained in one symptom and there is no change in other symptoms (such as swallowing, tongue, saliva).

Very little of the inhaled drugs reach the lungs. Due to the topical effect of these drugs on the oral mucosa, particles remaining in the oropharynx are seen as candidiasis infection. Candidiasis can also cause pain in the mouth and difficulty in swallowing.[28] Shivashankaran et al.[29] reported that salivary fluidity decreased after long-term use of inhalers. Studies have shown that inhaled corticosteroids reduce salivary IgA and cause candidiasis.[3,7] We recommend that children with asthma should practice oral care to increase salivary fluidity and prevent the development of candidiasis after inhaled drug use.

In addition to the use of bronchodilators in patients with asthma, dryness of the mouth and lips may increase due to mouth breathing.[7] Doğan et al.[30] reported that a geographic tongue appearance characterized by yellowish and whitish lines and shapes on the surface of the tongue was found in 8 out of 115 children with asthma who use inhaler drugs. In our study, we found similar side effects on the tongue surface of the children after drug use. Sköld et al.[31] stated that inhaled drugs triggered the formation of caries in children as they lowered the intraoral pH level. Doğan et al.[30] found that 49.4% of the children with asthma had dental caries and that 28.2% had a toothache. It was also found that children who practiced oral hygiene more than three times a day had a higher prevalence of dental erosion than children who practiced it once a day.[9] It is thought that tooth decay and sensitivity in the gums may have increased due to particles remaining in the mouth since all of the inhaled drugs cannot reach the lungs.

As a result of the study, it was found that the most effective oral care method after inhaler drug use is rinsing the mouth with water. This result is thought to be due to the limited range of scores of the oral assessment tool used in the study (1–3), and the methods used depend on the checklist and the statements of the participants. In addition, it can be said that the participants have weak adherence to the use of the recommended oral care method. The importance of oral care in children with asthma is increasing due to the side effects of inhaled drugs used to treat asthma. Apart from routine oral care, oral care that can be done to remove the drug particles remaining in the mouth after inhaler drug use can be effective. Considering that the participants were not in a hospital environment; It has been seen that the most practical and easiest way is rinsing the mouth with water, as obtained in the study after the use of inhalers. However, it has been observed that oral care applications after the use of the inhaler drug ensure the elimination of the particles remaining in the mouth and a decrease in the variables. It is recommended that more research be conducted on this subject to support the study.

Limitations of the Study

This study involves some significant limitations that are worthy of note. First of all, studies involving larger sample sizes will be required to define on the oral care of children with asthma using inhalers. The feasibility of the applications in the home environment could not be observed in this study. The parent checklist and the statements of the participants are the limitations of the research. Finally, the findings of the study cannot be generalized for all children with asthma using inhalers.

In conclusion, it was found that children who used inhaled drugs habitually brushed teeth, but that they did not perform oral care at a high rate after drug use. Rinsing the mouth with water, especially after the use of the inhaler drug, reduced the complaints of swallowing sound, swallowing, and dryness of the lips and mucous membranes in children, while other oral care methods applied by children effectively reduced the voice complaints.

The inhaled corticosteroids used in the treatment of asthma are the most effective means of controlling asthma symptoms and risk for exacerbations in the majority of subjects. These steroids are known to have local and systemic side effects. Therefore, oral care implemented after the use of inhalers is important to prevent and minimize these side effects. Interventions to reduce oral symptoms may be particularly beneficial, as the presence of these side effects may lead to avoidance of ICS use. The study findings indicate that subjects experiencing selected symptoms (voice, swallowing, lips, tongue, saliva, mucous membranes, gums, teeth), may benefit from use of one of the tested methods.

In the literature, there are not enough studies on oral care practices in children diagnosed with asthma and using inhaler medication. It is thought that this research will contribute to this gap in the literature.

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The Effect of Flipped Classroom Model and Kahoot for Intramuscular Injection Training on Nursing Students' Knowledge, Skills and Self-Efficacy Levels

İntramüsküler Enjeksiyon Eğitimi İçin Ters Yüz Sınıf Modeli ve Kahoot'un Hemşirelik Öğrencilerinin Bilgi, Beceri ve Özyeterlilik Düzeyleri Üzerindeki Etkileri

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ABSTRACT

Objective: To investigate the effects of using a flipped classroom model and Kahoot for intramuscular injection skill training on the knowledge, skill, and self-efficacy levels of nursing students.

Methods: The quasi-experimental study was conducted with a total of 180 nursing students (intervention group n=95, control group n=85). Data were collected using a "Knowledge Level Questionnaire," "Psychomotor Skill Control Form," and the "General Self-Efficacy Scale". The flipped classroom model was used in the intervention group. In addition, the multiple-choice questions in Kahoot were asked to both groups.

Results: The final test knowledge scores and general self-efficacy scores of the students in the intervention group were found to be statistically higher than the students in the control group (P<.001). The psychomotor skill scores of the students in the intervention group were statistically higher than the students in the control group (P=.010). Regarding the use of Kahoot, the percentage of correct answers for each question was significantly higher for the intervention group than the control group (P<.05).

Conclusion: It can be said that the flipped classroom model and Kahoot are effective in intramuscular injection training. The flipped classroom model and Kahoot could also be used for the teaching of other basic nursing skills.

Keywords: Basic nursing skills, flipped classroom, intramuscular injection, Kahoot, nursing students, self-efficacy

ÖZ

Amaç: İntramüsküler enjeksiyon beceri eğitimi için ters yüz sınıf modeli ve Kahoot kullanımının hemşirelik öğrencilerinin bilgi, beceri ve öz yeterlilik düzeylerine etkisini araştırmaktır.

Yöntemler: Yarı deneysel çalışma toplam 180 hemşirelik öğrencisi ile yürütülmüştür (müdahale grubu n=95, kontrol grubu n=85). Veriler "Bilgi Düzeyi Anketi", "Psikomotor Beceri Kontrol Formu" ve "Genel Öz Yeterlilik Ölçeği" kullanılarak toplanmıştır. Müdahale grubunda ters yüz edilmiş sınıf modeli kullanılmıştır. Ayrıca, Kahoot'taki çoktan seçmeli sorular her iki gruba da sorulmuştur.

Bulgular: Müdahale grubundaki öğrencilerin son test bilgi puanları ve genel öz yeterlik puanları kontrol grubundaki öğrencilere göre istatistiksel olarak daha yüksek bulunmuştur (P<.001). Müdahale grubundaki öğrencilerin psikomotor beceri puanları kontrol grubundaki öğrencilerden istatistiksel olarak daha yüksektir (P=.010). Kahoot kullanımı ile ilgili olarak, her bir soru için doğru cevap yüzdesi müdahale grubunda kontrol grubuna göre anlamlı derecede daha yüksektir (P<.05).

Sonuç: Ters yüz sınıf modeli ve Kahoot'un intramüsküler enjeksiyon eğitiminde etkili olduğu söylenebilir. Ters yüz sınıf modeli ve Kahoot diğer temel hemşirelik becerilerinin öğretiminde de kullanılabilir.

Anahtar Kelimeler: Temel hemşirelik becerileri, ters yüz sınıf, intramüsküler enjeksiyon, Kahoot, hemşirelik öğrencileri, öz yeterlilik

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INTRODUCTION

Basic concepts of nursing care and basic nursing skills are taught in the Fundamentals of Nursing course, which is a mandatory course at undergraduate-level nursing schools in Turkey. Traditional methods of theoretical courses, demonstrations, and videos are used for the teaching of the most basic nursing skills within the scope of the Fundamentals of Nursing course. Also, professors frequently share their own experiences during courses. Students are always passive listeners during the the Fundamentals of Nursing course.[1] Intramuscular injection (IM), one of the most important basic nursing skills included in the curriculum, aims to ensure patient safety and requires sufficient knowledge and skills. IM injection is defined as the injection of a drug into the deep and large muscles.[2,3] IM injections are one of the most common basic nursing skills used for parenteral drug applications, but it is also a complex process that requires nurses to have psychomotor skills and to be able to make critical decisions about the application method and tools.[4] However, when not performed with a safe and accurate injection technique, it is known that IM injections can cause serious complications such as local and systemic infections, hematoma, ecchymosis, pain, and vein and nerve damage.[5,6] It is stated that these complications caused by IM injections are mostly caused by a lack of knowledge and skills.[7] Therefore, it is critically important that the nurses who perform this intervention have sufficient knowledge and psychomotor skills to prevent complications associated with IM injections.[8-10] To safely administer IM injections in clinical practice, this skill must be acquired during nursing education. On the other hand, some studies in the literature indicate that the IM injection knowledge and skill levels of nursing students are not sufficient.[7,11] Therefore, different teaching methods should be developed to improve the knowledge and skill levels of nursing students on IM injections.[12] For nursing education in Turkey, IM injection skills are generally taught using traditional methods such as theoretical lectures, demonstrations, videos, and practice on task-trainer models. However, parallel with the technological developments in recent years, it has become inevitable that learner-centered teaching methods (invention, teaching with scenario, experimental method and teaching with games) are used. One of the learner-centered teaching methods is the flipped classroom model.[13]

The flipped classroom model, developed by Bergmann and Sams,[14] is defined as "flipping the order of typical activities in the classroom lectures with traditional teaching methods and home assignments and usually supporting or integrating it with instructive videos".[15] This method enables reading and access to information before courses and ensures the performance of learner-centered activities during courses. In this method, lecture content and related interactive training videos are shared with the students beforehand and sample cases are studied, techniques are explained, and interactive discussions are held during the lectures.[16,17] Kahoot, one of the most common interactive applications, is an easy, free, real-time, and game-based learning platform.[18] Kahoot is a free tool used for preparing exams and questionnaires. The tool can be used for the introduction to the subject, summary of the subject, and the verification of student's knowledge. The tool allows for setting a time limit to complete the task according to the difficulty level and the progress of the students. The instructor can view the student's progress and their answers. The results are obtained as a percentage after completing the test, which eases evaluating the results.[18,19]

The flipped classroom model has become one of the most important teaching methods commonly used in nursing education in recent years.[13] The efficiency of the flipped classroom model in nursing education was assessed in a meta-analysis study and it was identified that it positively affected nursing students' clinical sufficiency, critical thinking skills, self-management, and learning satisfaction.[13] In a randomized controlled trial examining the effect of gamified flipped classroom on improving nursing students' skill competence and motivation to learn, it was found that compared to traditional flipped classrooms, gamified flipped classrooms increased nursing students' motivation, preparation intensity, skill knowledge and self-confidence during laboratory clinical practice.[20] The effects of the flipped classroom model on anatomy and physiology courses of nursing students were investigated in another study. In this study, it was stated that the academic success of the students who were educated using the flipped classroom model was higher than those who were educated with traditional teaching methods; 78% of the students stated that the model enhanced learning and increased the interest in the course.[21] In another quasi-experimental study examining the learning effects of the flipped classroom model on the vital signs skills of nursing students, it was found that the use of the flipped classroom model in nursing education positively affected both theoretical knowledge and psychomotor skill acquisition.[22] In another study examining the effect of flipped classroom technique on nursing students' knowledge and self-efficacy regarding the care of COVID-19 infected pregnant women; it was suggested that the flipped classroom applied in online formats can be a

very useful resource for designing active learning environments where university students can improve their knowledge and sense of self-efficacy.[23]

Instead of traditional teaching methods that are still frequently used in nursing education, it is recommended to use effective teaching methods that can provide students with the opportunity to perform procedures such as IM injections without time and space limitations, which students cannot find enough observation and practice opportunities in the clinical environment or cannot experience enough due to concerns about patient safety.[7,24] In the literature, the flipped classroom model and Kahoot were used for different areas such as medicine, pharmacy, dentistry, and nursing.[25-28] However, no study was found that evaluated the effects of these two methods together on IM injection training. It was stated in a meta-analysis study that using the flipped classroom model for nursing education would improve clinical skills, learning motivation, and self-efficacy.[13]

AIM

The present study aimed to investigate the effects of the flipped classroom model and Kahoot for IM injection training on the knowledge, skill, and self-efficacy levels of first-year nursing students.

Hypotheses of the Research:

H_0: The flipped classroom model and Kahoot for IM injection training do not affect the knowledge, skill, and self-efficacy levels of nursing students.

H_1: The flipped classroom model and Kahoot for IM injection training are effective on the knowledge, skill, and self-efficacy levels of nursing students.

METHODS

Study design

The quasi-experimental study aimed to evaluate the effects of the flipped classroom model and Kahoot for IM injection training on the knowledge, skill, and self-efficacy levels of first-year nursing students.

Population and sample of the study

IM injections are taught to first-year nursing students in the Fundamentals of Nursing course. IM injection training includes 4 hours of theoretical lectures and 4 hours of laboratory practice. The population of the research comprised first-year nursing students who took the Fundamentals of Nursing course in the spring semester of 2021-2022. Students are divided into two branches, A and B, in this course, because the number of first-year nursing students is very high. This course is given in two branches on different days (A branch on Tuesday-Wednesday, B branch on Thursday-Friday). Students choose these branches themselves during course registration. Half of the students were enrolled in one branch and the other half were enrolled in the other branch. In the study, branch A was chosen as the intervention group and the branch B was chosen as the control group. A total of 246 students took the Fundamentals of Nursing course. Twenty-two of these students who took the class for the second or third time were excluded from the study and first-year nursing students who took the Fundamentals of Nursing course for the first time were included in the study. The population of the research comprised 224 students. The G*Power software package was used for calculating the sample of the research. In a meta-analysis study by Park and Sub,[13] the effect size of the effect of the flipped classroom model in nursing education on clinical skills was calculated as 0.53. The sample size of the research was primarily calculated using the t-test for independent groups of a total of 114 students (57 students in each group) by using 80% power, 95% confidence intervals, and the effect size value (d=0.53). Assuming a 10% loss in the sample, it was aimed to reach at least 126 students. The study was conducted with students who agreed to participate. Ninety-five students were included in the intervention group and 85 students were included in the control group.

Application

In the research, the theoretical part of the Fundamentals of Nursing course is given for a total of 14 weeks during the spring semester. IM injection techniques were explained in theoretical courses for 4 hours per week in the morning and then, laboratory practice of IM injections was performed for 4 hours for both groups (intervention and control groups) on the same day in the afternoon. Nursing students participated in laboratory practices in groups of 15-20 and performed IM injections on the task-trainer models one by one. Each student practiced on the models at least three times until they learned the IM skill. Final tests were collected from both groups at the end of the laboratory practice and Kahoot with five questions being given to both groups immediately after the practice.

Intervention group: Students in the intervention group forming branch A received IM injection training by using the flipped classroom model and Kahoot on Tuesday. The intervention group was provided with theoretical lecture notes a week before. Moreover, students were provided with links to both interactive videos about the subject and animated videos on IM injection skills on the Edpuzzle platform, which is a free online interactive learning tool that was used specifically for this study. Only the students in the intervention group were given access to these videos. These videos also included multiple-choice

questions, true-false questions, and notes. During the theoretical classes, the instructor and students held discussions about the interactive videos, and the parts that the students did not understand were explained. Moreover, the instructor performed a demonstration using task-trainer models during the theoretical class. Each student in the intervention group performed IM injections on task-trainer models during the laboratory practice. Kahoot was used at the end of the laboratory practice.

Control group: Students in the control group forming branch B were given IM injection training using traditional teaching methods on Thursday. Traditional teaching methods included PowerPoint presentations and demonstrations using task-trainer models. Each student performed IM injections on task-trainer models during the laboratory practice. Kahoot was used at the end of the laboratory practice.

Data collection

The research was conducted in a nursing faculty located in the south of Turkey. The data of the research were collected using pre-tests and post-tests. Pre-tests were collected before the theoretical classes and post-tests were collected at the end of the laboratory practice. In addition to the socio-demographic characteristics (age, sex) of the participating students, a Knowledge Level Questionnaire and General Self-Efficacy Scale were used for the pre-tests and post-tests. Task-trainer models and low-fidelity simulations were also used by the instructor during the laboratory practice for both groups. Each student was asked to perform IM injections on the task-trainer model following the simulation. The students' skill levels were evaluated by the instructors of the Fundamentals of Nursing course by using the Psychomotor Skill Control Form. Post-tests (Knowledge Level Questionnaire and General Self-Efficacy Scale) were administered at the end of the laboratory practice. Pre-tests and post-tests were completed by the students (Figure 1).

Measurements

Data from the research were collected using the "Knowledge Level Questionnaire," "Psychomotor Skill Control Form," and "General Self-Efficacy Scale."

Knowledge Level Questionnaire: Experts in the field were consulted in the creation of the knowledge level questionnaire, and questions regarding the technique of IM injection administration skills were included. The questionnaire, prepared by the researcher, consists of 10 questions on IM injection training. All questions are multiple-choice. Each question is evaluated as 10 points and the total score of the questionnaire is 100 points. Item analysis was performed on knowledge-level questions. The item difficulty index (p) for 10 questions of knowledge level varies between 0.21 and 1.00. These values mean that the questions range from very hard to very easy. The item distinctiveness index (r) ranges from 0.38 to 0.58, which shows that item discrimination ranges from good to excellent discrimination.[29]

Psychomotor Skill Control Form: The Psychomotor Skill Control Form was prepared by the researchers according to the literature[4,30-33] and an expert's opinion. The form was completed by seven instructors who give the Fundamentals of Nursing course. The form includes information on ventrogluteal IM injections and consists of a total of 17 items ("6 right principles," "ensuring privacy," "positioning the patient," "determining the ventrogluteal IM site," " IM injection administration technique," "removal of contaminated materials," and "recording the procedure"). Each item is scored differently. Each student was given a total skill score after evaluating each item as "Performed" or "Not performed". Accordingly, the form is scored as "0-30 points: Inadequate," "31-69 points: Needs improvement," and "70 points and above: Adequate".

General Self-Efficacy Scale: The original form of the scale including 23 items was developed by Sherer et al.[34] The scale was adapted into Turkish by Yıldırım and İlhan.[35] The scale is a five-point Likert scale with responses ranging from "not at all true" to "completely true" to the question "How well does it describe you?" Items 2, 4, 5, 6, 7, 10, 11, 12, 14, 16, and 17 are reverse scored. The scale consists of three sub-dimensions, "Initiative" (2, 4, 5, 6, 7, 10, 11, 12, 17), "Effort" (3, 13, 14, 15, 16), and "Persistence" (1, 8, 9). The total score that can be obtained from the scale ranges from 17 to 85. A higher score indicates an increase in self-efficacy. Cronbach's alpha coefficient for the Turkish validity and reliability study of the scale was 0.80.[35] In this study, Cronbach's alpha coefficient for the pre-test General Self-Efficacy Scale was found as 0.858 and Cronbach's alpha coefficient for the post-test General Self-Efficacy Scale was found as 0.877.

Kahoot! Test

The Kahoot! test includes a total of five multiple-choice questions with five options. Each question has only one correct answer. This test was performed by asking the same questions to both groups immediately after the post-tests. The questions in this test are different from those in the Knowledge Level Questionnaire.

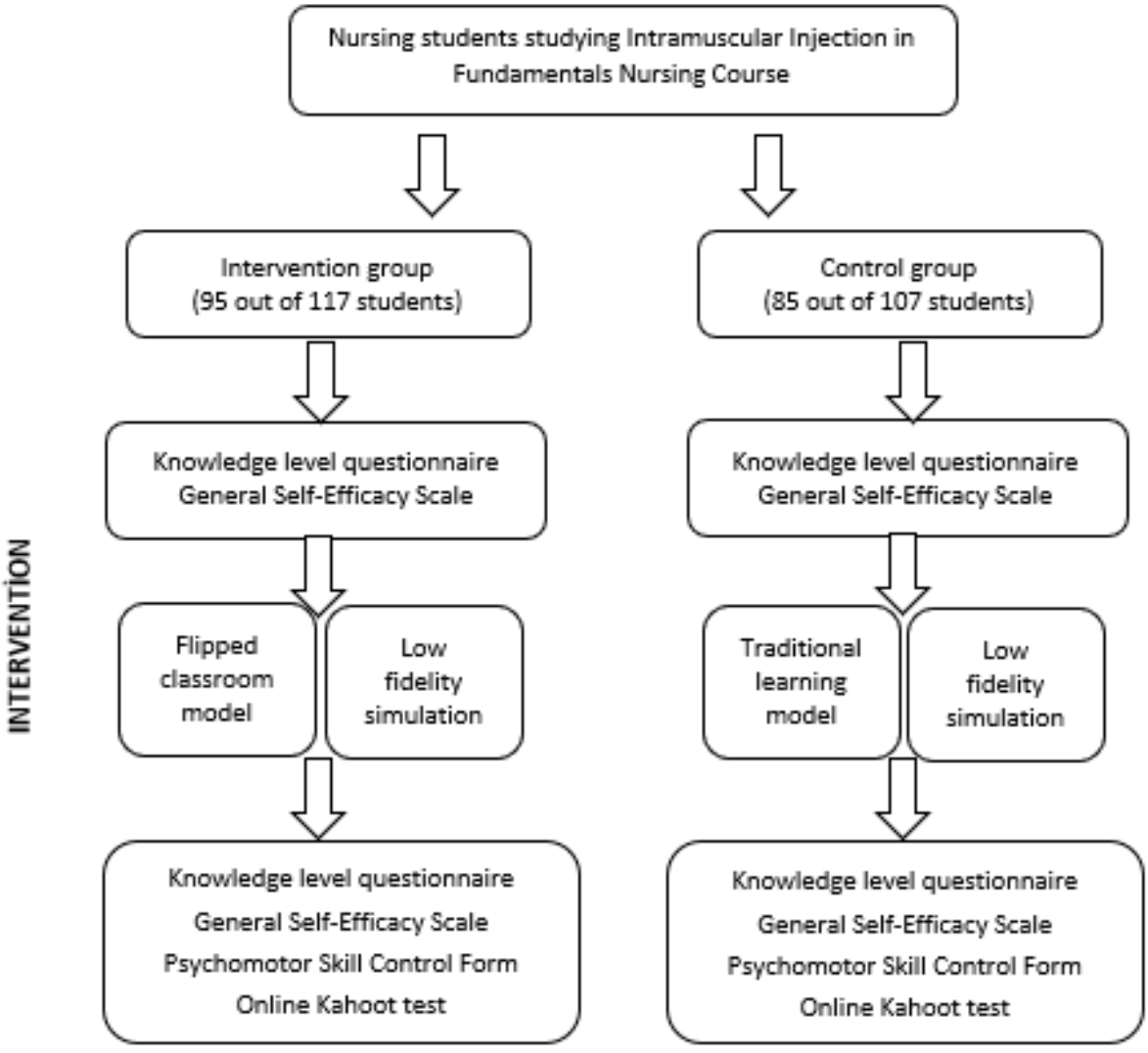

Figure 1. Flow-Chart of Study

Data analysis

A licensed IBM SPSS 23.0 statistical program was used for data analysis. The conformity of the data to normal distribution was evaluated using normality tests and it was identified that the data were not normally distributed. The Wilcoxon signed-ranks test was used for the in-group comparison of the knowledge scores, psychomotor skill scores, and scores obtained from the General Self-Efficacy test. The Mann-Whitney U test was used to compare the pre-test and post-test scores of the two groups (comparison between groups). The Chi-square test was used for the comparison of the students' answers to the Kahoot questions (comparison between groups). The level of statistical significance (α) was accepted as 0.05.

Ethical approval

The Declaration of Helsinki was abided by throughout the research and students' willingness and voluntariness to participate in the research was taken into account. Written consents were obtained from Akdeniz University Faculty of Medicine Clinical Research Ethics Committee (Date: 16/03/2022, Number: KAEK-175) and the institution at which the research was conducted. Written consent from the students who agreed to participate in the research was obtained. The flipped classroom model and Kahoot were applied to all students in the intervention group. However, to be ethical, Edpuzzle videos were shared with the students in the control group after completing the post-tests.

RESULTS

The average age of the first-year nursing students who participated in the research was 19.36±1.07 years and 68.9% of the participants were female. In the comparison

of the knowledge scores of the students between groups, there was no difference between the pre-test knowledge scores of the intervention and control groups. However, the post-test knowledge score of the intervention group was significantly higher than the control group (*P*<.001). In the in-group comparison of knowledge scores, the post-test scores of both groups were higher than their pre-test scores (*P*<.001) (Table 1). The psychomotor skill scores of the nursing students were compared, and the psychomotor skill scores of the students in the intervention group were significantly higher than those in the control group (Table 2).

Table 1. Participants' Knowledge Scores on Intramuscular Injections

	Pre-test Knowledge Score Mean (SD) Median (IQR)	Post-test Knowledge Score Mean (SD) Median (IQR)	z and *P*-value
Intervention group (n=95)	49.68 (20.90) 50.00 (30.00)	88.52 (11.38) 90.00 (20.00)	-8.30 / **<.001****
Control group (n=85)	48.00 (18.63) 50.00 (20.00)	74.23 (14.00) 70.00 (20.00)	-7.08 / **<.001****
z and *P*-value	-0.58/ .560*	-6.67/ **<.001***	

SD, Standard deviation; IQR, Interquartile range; *Mann-Whitney U test; **Wilcoxon signed-ranks test

Table 2. The Psychomotor Skill Scores Regarding Intramuscular Injection of The Nursing Students in The Intervention And Control Groups

	Psychomotor Skill Score for Intramuscular Injections Mean (SD) Median (IQR)	z and *P*-value
Intervention group (n=95)	91.28 (9.65) 95.00 (13.00)	-2.58/ **.010***
Control group (n=85)	80.43 (26.47) 82.00 (14.00)	

SD, Standard deviation; IQR, Interquartile range; *Mann-Whitney U test

General self-efficacy scores of the nursing students were compared both in-group and between groups. The pre-test general self-efficacy scores of the two groups were similar (*P*>.05). However, there was a statistically significant difference between the post-test scores of the two groups (*P* <.05). The post-test general self-efficacy scores of the intervention group were higher than the control group. In an in-group comparison, the post-test general self-efficacy scores of the intervention group were found higher than the pre-test scores. No significant difference was found between the pre-test and post-test general self-efficacy scores of the control group (*P* >.05) (Table 3).

As a result of Kahoot being used with the nursing students, the percentage of correct answers for each question was significantly higher in the intervention group than in the control group (*P*<.05). Most mistakes were made in the fifth question and the students in the intervention group had a higher correct answer rate (Table 4).

DISCUSSION

In the Fundamentals of Nursing course, nursing students learned about an invasive intervention for the first time during the IM injection skill training. Students usually have difficulties in fully remembering the steps of IM injection processes after watching demonstrations. Therefore, different methods should be used to teach nursing students IM injections to teach it with the correct steps. Moreover, it is essential to increase the students' self-efficacy for them to gain IM injection skills. In this study, the flipped classroom model and Kahoot were used to increase the knowledge, skill, and self-efficacy levels of the students in IM injection skill training.

Table 3. The Change in General Self-Efficacy Levels of Nursing Students in The Intervention and Control Groups

	Pre-test Knowledge Score Mean (SD) Median (IQR)	Post-test Knowledge Score Mean (SD) Median (IQR)	z and *P*-value
Intervention group (n=95)	65.09 (10.70) 67.00 (13.00)	72.18 (8.21) 75.00 (10.00)	-6.54 / **<.001****
Control group (n=85)	65.90 (9.20) 67.00 (11.50)	67.38 (10.35) 70.00 (13.00)	-1.78 / .075**
z and *P*-value	-0.12/ 0.909*	-3.35/ **.001***	

*Mann Whitney U test; **Wilcoxon signed-ranks test

Table 4. Responses of Nursing Students in The Intervention and Control Groups to Kahoot Questions

		Intervention Group*		Control Group*			
		n	%	n	%	χ^2	*P*
Question 1	**Correct answer**	84	58.3	60	41.7	5.873	**.015**
	Wrong answer	22	39.3	34	60.7		
Question 2	**Correct answer**	68	61.8	42	38.2	7.631	**.006**
	Wrong answer	38	42.2	52	57.8		
Question 3	**Correct answer**	79	58.1	57	41.9	4.417	**.036**
	Wrong answer	27	42.2	37	57.8		
Question 4	**Correct answer**	81	57.9	59	42.1	4.420	**.036**
	Wrong answer	25	41.7	35	58.3		
Question 5	**Correct answer**	42	79.2	11	20.8	19.940	**<.001**
	Wrong answer	64	43.5	83	56.5		

*All students in the class were included

In the study, the average score of the post-test knowledge level of IM injections was higher in the students in the intervention group than in the control group. In a study by Özaras Öz and Ordu,[10] it was found that web-based education and Kahoot had positive effects on nursing students' knowledge of IM injections. In another study that investigated nursing students' knowledge levels of IM injections, it was stated that students had low average scores for the IM injection success test according to their self-reports.[7]

In the literature, in other studies investigating nursing students' knowledge levels of IM injections, it is emphasized that students' theoretical knowledge and application skills of IM injections should be improved.[36,37] On the other hand, in another study in which the flipped classroom model was used to teach a biostatistics class, it was identified that the flipped classroom model was a method that integrated technology into the teaching process and provided benefits to education in terms of variables such as academic success, student participation, and motivation.[38]

The flipped classroom model eases the interaction between students with various skills and learning preferences, and it is also stated that this model could increase students' participation in learning. In this teaching method, students can individually study the education material and actively participate in class discussions. In a flipped teaching environment, instructors can provide more opportunities for the students to actively participate in the class.[17] According to the results of the study, which are compatible with the literature, learner-centered teaching methods such as the flipped classroom model should be developed and integrated into the curriculum for the skill training of nursing students.

According to the results, the flipped classroom model and Kahoot in teaching IM injection increased the psychomotor skill scores of the students. It is stated that the web-based tool, which was developed by Márquez-Hernández et al.[39]

to evaluate nursing students' clinical skills, is an effective strategy. In a similar study by Özaras Öz and Ordu[10], web-based education and Kahoot showed positive effects on nursing students' IM injection skills. In another study, it was identified that the flipped classroom model increased nursing students' psychomotor skills for subcutaneous injection.[40] Although there is no study in the literature comparing the flipped classroom model with the traditional training model in IM injection training, the flipped classroom model eliminates time and space limitations and allows students to gain knowledge outside the classroom environment. In addition, it facilitates interactive interaction between the student and the instructor outside the classroom. In this way, it makes it easier for the student to reinforce the information learned and make it permanent. Therefore, it can be used in IM injection teaching.[20,41]

Kahoot and interactive videos on the Edpuzzle platform about IM injection skills offer a non-traditional learning environment for students. Students can benefit from the features such as access to the lecture videos whenever and wherever they want, ease of study, pausing videos when needed, rewinding, rewatching, and progressing by answering the questions in the videos and learning from the quick facts in the video. Therefore, the success of the students in the intervention group can be attributed to the independence of self-learning by the flipped classroom model and to the positive effects of gamifying assessments with Kahoot. Our result is compatible with the results of other studies.

The general self-efficacy scores of the intervention group in this study increased. In a study conducted with Korean nursing students, it was confirmed that simulation training using flipped classroom model had positive effects on the students' self-efficacy and learning satisfaction.[40] In a systematic review by Banks and Kay,[42] it was stated that the self-efficacy levels of healthcare students increased considerably with the flipped classroom model. In a qualitative study by Chu-Ling[1] that investigated the efficiency of IM injection techniques on nursing students using interactive software, it was stated that the application increased the students' self-confidence and sense of achievement, fulfilled their need for learning, and the techniques taught in the classes increased their motivation of learning.

Self-efficacy is defined as "the ability to take an action to manage a future situation".[43] Therefore, nursing students' self-efficacy towards IM injection skills is an important element that can help students to improve their knowledge, practice, and professional skills. Once the nursing students achieve an adequate level of self-efficacy for IM injection skills, they can achieve positive learning results and efficiency in basic nursing skills. Thereby, in this study, it can be said that using the flipped classroom model for IM injection skills was effective, and hypothesis (H1) was confirmed.

The flipped classroom model, a method that allows students to actively participate in classes, may have a positive effect on students' general self-efficacy. Moreover, increasing general self-efficacy with this method may have facilitated the performance of other nursing skills. Thus, the flipped classroom model and Kahoot can also be used for the teaching of other skills.

According to the Kahoot results in the study, it was found that the students in the intervention group who used the flipped classroom model were more successful. In another similar study, it was stated that Kahoot was effective in increasing students' IM injection skills.[10] Kahoot, a game-based, fun, online learning tool, has features that provide instant feedback, are interactive, and create an energetic competition between students.[44,45] Hence, it can be concluded that the students in the study reinforced their knowledge of IM injections, they had fun while testing themselves, and became successful by increasing their motivation. Kahoot can be integrated into the evaluation of all classes in nursing education. Foundations such as necessary equipment and uninterrupted internet access could be improved to effectively use this fun online tool.

Moreover, it was identified that the students mostly made mistakes on the fifth question on Kahoot. In the study, the interactive animated video shared on Edpuzzle platform explained IM injections in the ventrogluteal site, all of the IM injection sites were demonstrated on the model during the laboratory practice, and students were asked to perform IM injections in the ventrogluteal site. The fifth question on Kahoot was about the fact that the dorsogluteal site should be avoided for IM injections, which suggests that the question could be a distracter for students. Although current evidence[4] suggests that the ventrogluteal site is the safest site for IM injection, it is a known and ongoing issue that clinical nurses still prefer the dorsogluteal site to ventrogluteal site for IM injections and nursing students cannot put this correct information into practice.[7] As a result of the study, the H1 hypothesis was confirmed by identifying that the flipped classroom model and Kahoot for IM injection training were effective in increasing the students' knowledge, skill, and self-efficacy levels.

Limitations of the Study

There were some limitations to the research. One of the limitations was not being able to perform randomization. Another is that due to the high number of students, they were divided into groups during the laboratory practice, and the psychomotor skill control forms were completed by different observer instructors. Although these instructors had been supporting the laboratory practice of the fundamentals of the nursing course for at least 5 years, the interobserver agreement index could not be calculated for the form because they were completed by different instructors and for different students.

It is very important to develop and use different technological teaching methods that allow active participation and interactive interaction for students to gain the basic nursing skills necessary as future nursing professionals. In this study, the effects of the flipped classroom model and Kahoot on gaining IM injection skills were evaluated. As a result of the study, it was found that the flipped classroom model and Kahoot increased students' knowledge, psychomotor skills, and self-efficacy levels for IM injection skills. Based on the results of this study, it can be suggested that the flipped classroom model should be included in the nursing curriculum and Kahoot should be used as an alternative tool for assessment and evaluation.

Etik Komite Onayı: Etik kurul onayı Akdeniz Üniversitesi Tıp Fakültesi Klinik Araştırmalar Etik Kurulu'ndan (Tarih: 16/03/2022, Sayı: KAEK-175) alınmıştır.
Bilgilendirilmiş Onam: Çalışmaya katılan öğrencilerden yazılı onam alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- BT, AI; Tasarım- BT, AI; Denetleme- BT, AI; Kaynaklar- BT, AI; Veri Toplanması ve/veya İşlemesi- BT, AI; Analiz ve/veya Yorum- AI; Literatür Taraması- BT; Yazıyı Yazan- BT; Eleştirel İnceleme- BT, AI.
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

Ethics Committee Approval: Ethics committee approval was obtained from Akdeniz University Faculty of Medicine Clinical Research Ethics Committee (Date: 16/03/2022, Number: KAEK-175).
Informed Consent: Written informed consent was obtained from the students participating in the study.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept– BT, AI; Design- BT, AI; Supervision- BT, AI; Resources- BT, AI; Data Collection and/or Processing - BT, AI; Analysis and/or Interpretation- HDK, NBA, UÖY; Literature Search- BT; Writing Manuscript-BT; Critical Review- BT, AI.
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Validity and Reliability Study of the Questionnaire on Communicating Bad News for Healthcare Professionals Adapted into Turkish

Türkçe'ye Uyarlanan Sağlık Profesyonelleri için Kötü Haber Verme Ölçeğinin Geçerlik ve Güvenirlik Çalışması

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ABSTRACT

Objective: In this study, it was aimed to make a validity and reliability study by adapting the questionnaire on communicating bad news to be used to evaluate the knowledge and skills of nurses and midwives in breaking bad news.

Methods: The questionnaire adaptation study was carried out in a gynecology and obstetrics hospital between 15/05/2022 and 15/12/2022. The questionnaire was translated into Turkish and then expert opinion was obtained. Cronbach's alpha coefficient was used for the reliability of the questionnaire. The stability of the questionnaire over time was evaluated by test-retest. For the purpose of construct validity of the questionnaire, exploratory factor analysis was used. SPSS 17.00 and AMOS programs were used for the validity and reliability analyzes of the questionnaire.

Results: The Cronbach Alpha value of the 21-items final version of the questionnaire (n=262) was 0.87. Intraclass Correlation Coefficient value was 0.95 (n=21) and Cronbach's alpha coefficient was 0.97 (P<.001). Five components were obtained, which explained 53.631% of the variance of the questionnaire. Total score obtained from the questionnaire was 55.10 ±5.53 (min=35, max=63).

Conclusion: As a result of the evaluation of multiple the fit indices, it showed that the Communicating Bad News Questionnaire was statistically significant, valid and reliable for nurses and midwives.

Keywords: Nurse, Midwives, Bad news, Communication

ÖZ

Amaç : Bu çalışmada hemşire ve ebelerin kötü haber verme konusundaki bilgi ve becerilerini değerlendirmek amacıyla kullanılabilecek olan kötü haber verme anketinin geçerlik ve güvenirlik çalışması yapılması amaçlanmıştır.

Yöntemler : Anket uyarlama çalışması 15/05/2022 ile 15/12/2022 tarihleri arasında bir kadın hastalıkları ve doğum hastanesinde gerçekleştirilmiştir. Anketin Türkçe'ye çevirisi yapılmış, daha sonra uzman görüşü alınmıştır. Anketin güvenirliği belirlemek için Cronbach alfa katsayısı kullanılmıştır. Anketin zaman içinde kararlılığı test-tekrar test ile değerlendirilmiştir. Anketin yapı geçerliğini sağlamak amacıyla açımlayıcı faktör analizi kullanılmıştır. Anketin geçerlik ve güvenirlik analizlerinde SPSS 17.00 ve AMOS programları kullanılmıştır.

Bulgular : Anketin 21 maddelik son versiyonunun (n=262) Cronbach Alpha değeri 0,87'dir. Grup içi korelasyon katsayısı değeri 0,95 (n=21) ve Cronbach alfa katsayısı 0,97'dir (P<,001). Beş bileşen elde edilmiş ve bu da anketin varyansının %53,631'ini açıklamıştır. Anketten alınan toplam puan 55,10±5,53 (min=35, max=63)'dir.

Sonuç : Çoklu uyum indekslerinin değerlendirilmesi sonucunda Kötü Haber Verme Anketi'nin hemşire ve ebeler için istatistiksel olarak anlamlı, geçerli ve güvenilir olduğu saptanmıştır.

Anahtar Kelimeler: Hemşire, Ebe, Kötü haber, İletişim

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INTRODUCTION

Communication with the patient and his family is an essential component of health services.[1] Healthcare professionals can often be faced with the task of delivering bad news.[2] The concept of "bad news", which is most accepted by health professionals, is defined by Buckman as "one that will seriously or negatively change patients' perspective on the future".[3] While breaking bad news puts emotional stress and can result in emotionally unstable situations on health care professionals, receiving bad news can cause different emotional distress for the patient and their family.[4,5] It is stated that the psychophysiological stress response experienced when breaking bad news can lead to increased anxiety, burnout, and alienation from the situation and the patient.[6]

Health teams have difficulties in breaking bad news and the main reason why they avoid the task of breaking bad news is their lack of skills.[4] A study conducted in Pakistan found that failure to deliver bad news in a timely and appropriate manner resulted in violence against healthcare professionals.[7] Although the content of bad news is important and unavoidanable situation, it is possible to reduce its impact by improving the communication skills of healthcare professionals. For this reason, it is of great importance for healthcare professionals to improve their competencies required for this difficult task.[8]

It has been reported that nurses' role in communicating bad news (CBN) is largely unrecognized and undervalued, and nurses feel they are not trained enough to break bad news.[9] Çevik et al. report that nurses do not communicate with the patient because they do not know what to talk about a negative situation and think that it would be more appropriate for physicians to talk.[10] There are studies that consider breaking bad news as the duty of the doctor rather than the nurse, and that the main responsibility for breaking bad news lies with the doctor.[5,11] However, nurses play an important role in this regard by providing information, preparing patients for the situation, and supporting them to understand and cope with bad news.[9] In the healthcare system, nurses are a professional group that is in constant communication with patients/healthy individuals,[12] and interventions to improve communication will improve the quality of interpersonal relationships and care provided to the patient.

Studies highlight the need to create a tool that evaluates how bad news is delivered.[1] In the international literature, different models such as SPIKES, ABCDE, PEWTER, BREAK, TALK have been developed regarding bad news.[13] The SPIKES is a valid and reliable questionnaire administered to medical residents by Farokh Yar.[14] The Breaking Bad News Attitudes Scale (BBNAS) is another scale that has been applied to doctors and its validity and reliability have been established.[15] These scales are not specific to nursing, but have also been used to measure nurses' skills in breaking bad news.[16,17] Health professionals who have intense communication and interaction with the patient are nurses and midwives. Determining the communicative competencies of nurses and midwives will direct the communication training to be given to nurses/midwives. In our country, there is no questionnaire related to breaking bad news.

AIM

In this study, it was aimed to make a validity and reliability study by adapting a valid and reliable tool in our country to evaluate the knowledge and skills of nurses and midwives in breaking bad news. In addition, it was aimed to determine the necessary areas of need by evaluating the knowledge and skills of healthcare professionals in breaking bad news to patients.

METHODS

Study design

This methodological study was a questionnaire adaptation and validity and reliability study.

Sample

This study was carried out in a gynecology and obstetrics hospital between 15/05/2022 and 15/12/2022.The population of the study consists of nurse/midwife group health professionals. Since the generally accepted approach is that the number of items should be at least 10 times,[18] the sample was taken in the study with an average of 10 times the number of 25-items questionnaire items (262 nurses/midwives).

Health professionals (nurses/midwives) who agreed to participate in the study and worked in the institution for at least one year were included in the study. Health workers (nurses/midwives) who did not accept participation and did not complete their 1-year working period were excluded from the study.

Data Collection Tools

The data collection form prepared for the collection of research data consists of two parts. In the first part, there was sociodemographic data about the participant. In the second part, there was the “CBN questionnaire”.

CBN Questionnaire was developed by González-Cabrera et al in 2020 and its pilot study was applied to a group of nurses in order to identify possible deficiencies in the knowledge and skills of healthcare professionals in CBN to patients. Cronbach's alpha of CBN questionnaire was 0.82. Principal component analysis supported a four-

dimensional structure. It was found that this questionnaire is a valid and reliable tool with high internal consistency for evaluating the knowledge and skills of nursing professionals in reporting bad news, and it was suggested by the author to investigate its validity in other healthcare professionals. The questionnaire has a 4-point Likert type rating as “never”, “sometimes”, “always” and “I have no idea”. In this pilot study, no scoring or cut-off point was specified on the questionnaire.[8]

Data Collection

After the participants were informed about the face-to-face study and their consent was obtained, they filled out the data collection form themselves. There was an average of 15 minutes of response time.

Since it was determined in the preliminary application of our study with 10 nurses/midwives that the options were frequently marked as "I have no idea", the questionnaire was applied on a 3-point Likert type and graded as "never", "sometimes" and "always". The questions were scored on a Likert scale ranging from 1 to 3. [1 (never), 2 (sometimes), 3 (always)]. With this scoring, a high score indicated good communication skills in breaking bad news. Total score was 21-63.

Translation and content validity of the questionnaire

Turkish translation and cultural adaptation of the questionnaire was carried out according to the International Pharmaceutical Economics and Outcomes Research Association guideline. (ISPOR).[19] Permission was received via e-mail from the author who developed the questionnaire. The translation from English to Turkish was made by one researcher and two person who work in the health field and have language proficiency. It was then evaluated and organized by the researchers. It was then translated back from Turkish to English by a native speaker of both languages who works in the healthcare field. The statements of the questionnaire prepared by the researchers in both languages were sent to ten person who are experts in their fields (two master's degree nurses, 1 doctoral degree nurses, 2 doctoral degree nursing instructors, two associate professor nursing instructors, three obstetricians) and they were asked to evaluate the expressions in the questionnaire within the scope of wording, comprehension, relevance ve global assessment dimensions for content validity. In order to determine the degree of consensus among experts, a descriptive analysis of the data was made and the median value was evaluated in terms of wording, comprehension, relevance ve global assessment. A 5-point Likert-type scale was used to evaluate the items (Interquartile range 1=maximum agreement and 5=minimum agreement). The questionnaire was finalized after minor corrections were made on the questionnaire according to expert opinions.

The reliability of the questionnaire

The reliability of the questionnaire was evaluated with Cronbach Alpha. The Cronbach's alpha reliability coefficient was used to analyze internal consistency. The stability of the questionnaire was evaluated by test-retest at 20-day intervals.

The construct validity of the questionnaire

For the construct validity of the questionnaire, confirmatory factor analysis (CFA) was used to confirm the factor structure of the original form in Turkish health professionals (nurse/midwife). Since CFA could not be verified, exploratory factor analysis (EFA) was performed to reveal the structure of the original form of the questionnaire on Turkish health professionals. Multiple fit indices were used to determine the adequacy of the model tested in EFA. Chi-Square ($\chi 2$), Goodness-of Fit Index (GFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Relative Fit Index (RFI), Incremental Fit Index (IFI), Root Mean Squared Residual (RMR) and Root Mean Square Error of Approximation (RMSEA) fit indices were used. As with the fit indices, it is >.90 for GFI, CFI, NFI, RFI and IFI, and <.05 for RMSEA and RMR.[20] Item-total correlation was used in item analysis.

Data analysis

SPSS 17.00 and AMOS programs were used for analysis. The characteristics of the nurses/midwives were analyzed using number, percentage, mean, standard deviation, minimum, maximum, and median. For the validity analyses of the questionnaire, content and construct validity were performed. ICC and Cronbach’s alpha analyses were performed for reliability. The difference between the participants' variables and the total score of the questionnaire was evaluated using the Mann-Whitney U test and the Kruskal Wallis Test. Correlation was done with Spearman correlation analysis. The significance level was used as $P<.05$.

Ethical Considerations

Permission was received via e-mail from the author who developed the questionnaire. Ethical approval was obtained from “Etlik Zübeyde Hanım Kadın Hastalıkları Eğitim ve Araştırma Hastanesi” Clinical Research Ethics Committee (Date: 11.05.2022, Number: 2022/65). Informed consent was obtained from the volunteers. The principles of the Declaration of Helsinki were followed at all stages of the research.

RESULTS

The mean age of nurses and midwives was 31.68 ± 8.16 (24-58). 55% of the study group were married, 43.1% were single and 1.9% were separated. There was a university education level of 85.1% in the research group. Looking at the professions of the group, it was 61.8% nurses and 38.1% midwives. Working period was determined as 32.1% 1 year and above-3 years, 21.4% 0-1 years, 19.1% 10 years and above-20 years, 11.8% 20 years and above. The workplace was 44.7% clinic, 28.5% other, 14.5% delivery room, 11.8% emergency, 0.8% polyclinic. According to expert opinions, the content validity of the questionnaire showed a high degree of agreement on Wording, Comprehension, Relevance and Global Assessment for all items. The median score of consensus regarding the adequacy of the items was found to be for each between one and two points (Table 1)

Table 1. Evaluation of the Communicating Bad News Questionnaire Items by the Experts (n=10)

Items	Wording Median	Comprehension Median	Relevance Median	Global Assessment Median
Item 1	1 (min.1 max:2)	1 (min.1 max:2)	1 (min.1 max:2)	1 (min.1 max:2)
Item 2	1.5 (min:1 max:2)	1.5 (min:1 max:2)	1 (min:1 max:2)	1.5 (min:1 max:2)
Item 3	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)
Item 4	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)
Item 5	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)
Item 6	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)
Item 7	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)
Item 8	2 (min:1 max:2)	2 (min:1 max:2)	2 (min:1 max:2)	2 (min:1 max:2)
Item 9	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)
Item 10	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)
Item 11	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)
Item 12	2 (min:2 max:3)	2 (min:2 max:3)	2 (min:2 max:3)	2 (min:2 max:3)
Item 13	1 (min:1 max:3)	1 (min:1 max:2)	1 (min:1 max:1)	1 (min:1 max:2)
Item 14	1 (min:1 max:3)	1 (min:1 max:3)	1 (min:1 max:3)	1 (min:1 max:3)
Item 15	2 (min:1 max:2)	2 (min:1 max:3)	1.5 (min:1 max:2)	1 (min:1 max:2)
Item 16	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)
Item 17	2 (min.1 max:2)	2 (min.1 max:2)	2 (min.1 max:2)	2 (min.1 max:2)
Item 18	1 (min:1 max:2)	1 (min:1 max:1)	1 (min:1 max:2)	1 (min:1 max:2)
Item 19	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)
Item 20	1 (min:1 max:2)	1 (min:1 max:3)	1 (min:1 max:2)	1.5 (min:1 max:2)
Item 21	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:1)
Item 22	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)	1 (min:1 max:2)
Item 23	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)	2 (min:1 max:3)
Item 24	2 (min:1 max:3)	2 (min:1 max:2)	2 (min:1 max:3)	2 (min:2 max:3)
Item 25	1 (min:1 max:2)	2 (min:1 max:3)	2 (min:1 max:2)	1.5 (min:1 max:2)

IQR: Interquartile range. Wording (1 point: Very well written; 2 points: Well written; 3 points: Acceptable; 4 points: Poorly written; 5 points: Very poorly written). Comprehension (1 point: Good; 2 points: Sufficient; 3 points: Ok; 4 points: Poor; 5 points: Very poor). Relevance (1 point: Very relevant; 2 points: Quite relevant; 3 points: Relevant; 4 points: Not very relevant; 5 points: Not relevant). Global assessment (1 point: Very good; 2 points: Good; 3 points: Ok; 4 points: Poor; 5 points: Very poor).

The Cronbach Alpha value of the 25-items questionnaire was determined to be 0.89 in the nurse/midwife group (n=262). To determine the validity of the structure of the questionnaire, firstly, CFA with a 4-factor structure suitable for the original questionnaire was conducted. According to the model obtained as a result of CFA; χ2/df (363.234/113)=3.214, RMSEA=0.096, GFI=0.844, CFI=0.881, NFI=0.838, RFI=0.805 and IFI=0.883. RMSEA and χ2/sd values are within acceptable values, but other goodness-of-fit indices were found to be below acceptable values.[20-22] It was concluded that the revisions made in line with the modification suggestions did not ensure sufficient correction in goodness of fit.

In this reason, EFA was performed to determine the construct validity of the questionnaire, whose construct validity could not be determined by CFA. In the EFA analysis, the results of the KMO test and Bartlett's sphericity test (KMO=0.88 and Bartlett's χ2=2057.0, df=300, *P*<.001) were considered good.[23] In the test used to evaluate the stability of the questionnaire through test-

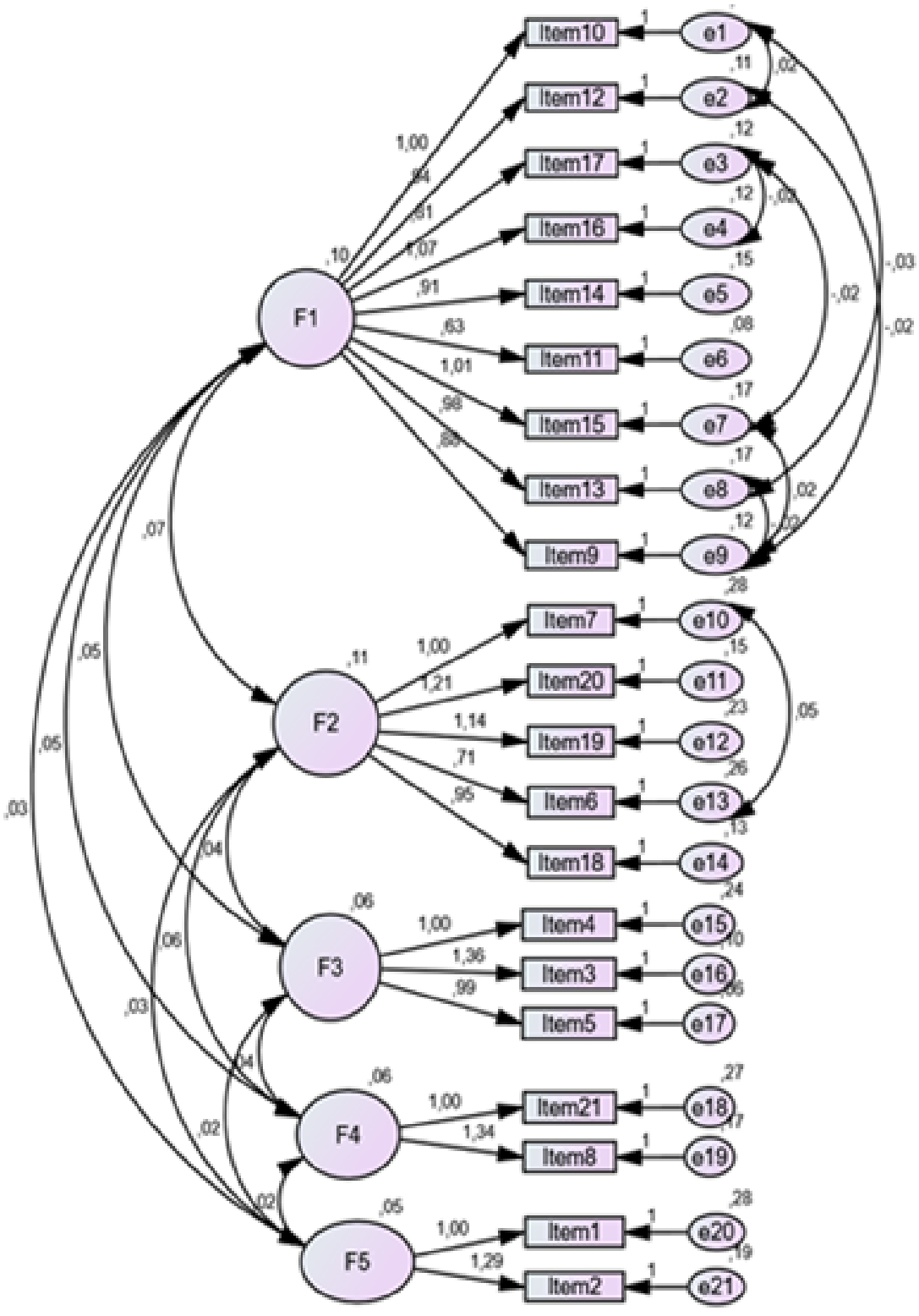
retest, the Intraclass Correlation Coefficient (ICC) value of the 25-item form of the questionnaire was found to be 0.94 (n=21), *P*<.001, and Cronbach's alpha value was 0.97. Seven components with eigenvalues greater than one were obtained, explaining 59.21% of the variance of the questionnaire. In the resulting component matrix, the weights of each item in the seven components were tested and varimax rotation was performed to facilitate interpretation. Item total correlation values were between 0.215-0.613. In general, it is stated that items with item-total correlations below 0.20 should not be included in the test.[24] Since it is recommended that item factor loadings be at least 0.30,[25] factor loadings above this value were taken. Since it was recommended to remove items with an item factor load difference of less than 0.10 among the four items,[26] four ıtems were removed from the questionnaire respectively, starting with the smallest difference (items 14, 15,7 and 3).

Table 2.Total Explained Variance of Communicating Bad News Questionnaire (Final Version with 21 Items)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.279	29.898	29.898	6.279	29.898	29.898
2	1.526	7.265	37.163	1.526	7.265	37.163
3	1.234	5.878	43.041	1.234	5.878	43.041
4	1.185	5.644	48.685	1.185	5.644	48.685
5	1.039	4.945	53.631	1.039	4.945	53.631
6	.994	4.733	58.364			
7	.946	4.506	62.869			
8	.876	4.171	67.041			
9	.810	3.859	70.900			
10	.758	3.608	74.508			
11	.676	3.217	77.725			
12	.634	3.018	80.743			
13	.604	2.878	83.621			
14	.563	2.680	86.301			
15	.545	2.595	88.896			
16	.467	2.223	91.119			
17	.434	2.064	93.184			
18	.413	1.965	95.149			
19	.383	1.823	96.972			
20	.332	1.580	98.552			
21	.304	1.448	100.000			

After removing the items, the Cronbach Alpha value of the remaining 21-items (n=262) was determined as 0.87. KMO test was 0.87 and Bartlett's test of sphericity was χ2=1588.28, df=210, *P*<.001. Five components with eigenvalues greater than one were obtained, explaining 53.631% of the variance of the questionnaire (Table 2). While varimax rotation and Principal Component Analysis were used. Item factor loadings were found to be between 0.464-0.793. The factors were classified as the first factor empathy and support, the second factor individual care, the third factor positive communication, the fourth factor respect and the fifth factor communication environment (Table 3). The ICC value of the 21-items final version of the questionnaire was found to be 0.95 (n=21), and Cronbach's alpha coefficient was 0.97 (*P*<.001).

According to the results of goodness of fit indices (χ2/df=1.544, RMSEA=0.046, SRMR=0.012, GFI=0.917, CFI=0.935, IFI=0.937, TLI=0.920, AGFI=0.887, NFI=0.839, RFI=0.802) the model was statistically significant (P<.001). Figure 1 shows the analysis diagram for the five factors determined by EFA.



χ2/df=1.544, RMSEA=0.046, SRMR=0.012, GFI=0.917, CFI=0.935, IFI=0.937, TLI=0.920, AGFI=0.887, NFI=0.839, RFI=0.802, *P*<.001

Figure 1. Analysis diagram for the five factors of the Communicating Bad News Questionnaire determined by EFA

Table 3. Rotated Component Matrix

Factors	Communicating Bad News Questionnaire Items	Component 1	2	3	4	5
Factor 1	Item 9	.550				
"Empathy and Support"	Item 10	.745				
	Item 11	.594				
	Item 12	.668				
	Item13	.561				
	Item 14	.600				
	Item 15	.566				
	Item 16	.609				
	Item 17	.648				
Factor 2	Item 6		.584			
"Individual care"	Item 7		.755			
	Item 18		.484			
	Item 19		.631			
	Item 20		.692			
Factor 3	Item 3			.630		
"Positive communication"	Item 4			.765		
	Item 5			.581		
Factor 4	Item 8				.464	
"Respect"	Item 21				.793	
Factor 5	Item 1					.769
"Communication environment"	Item 2					.637

Extraction Method: Principal Component Analysis Item. Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 7 iteration item.

Table 4. Correlation of Factor Scores with the Total Score Obtained from the Communicating Bad News Questionnaire

	Mean±SD	Med (min-max)	Correlations with Total Communicating Bad News Questionnaire Score
Total Score	55.10±5.53	56 (35-63)	
Factor 1 (empathy and support)	24.52 ±2.77	25 (12-27)	ρ= 0.847 *P*< .001
Factor 2 (individual care)	12.29 ±1.95	12 (7-15)	ρ= 0.831 *P*< .001
Factor 3 (positive communication)	8.31 ±1.03	9 (4-9)	ρ= 0.485 *P*< .001
Factor 4 (respect)	5.02 ±0.87	5 (3-6)	ρ= 0.567 *P*< .001
Factor 5 (communication environment)	4.96 ±0.86	5 (2-6)	ρ= 0.437 *P*< .001

ρ= Spearman's rho

Figure 2 includes the final questionnaire items and the answers given to the items.

Table 4 includes correlation of factor scores with the total score obtained from the CBN questionnaire. It was seen that there was a significant and positive relationship between the total score of the questionnaire and the scores of the factors that make up the questionnaire (*P*<.001). Not stayed in the tables, a negative, weak and statistically significant relationship was found between age and CBN questionnaire total score (ρ= -0.175; *P*=.005). No statistically significant difference was detected between the total score of the questionnaire and variables other than the workplace (education level, marital status, working time, being in the midwifery or nursing profession) (*P*>.05). It was determined that the difference regarding the workplace stemmed from the outpatient clinic unit and that the bad news skills of employees in this unit were lower than those workplaces (x2= 18.463; df= 4; *P*<.001).

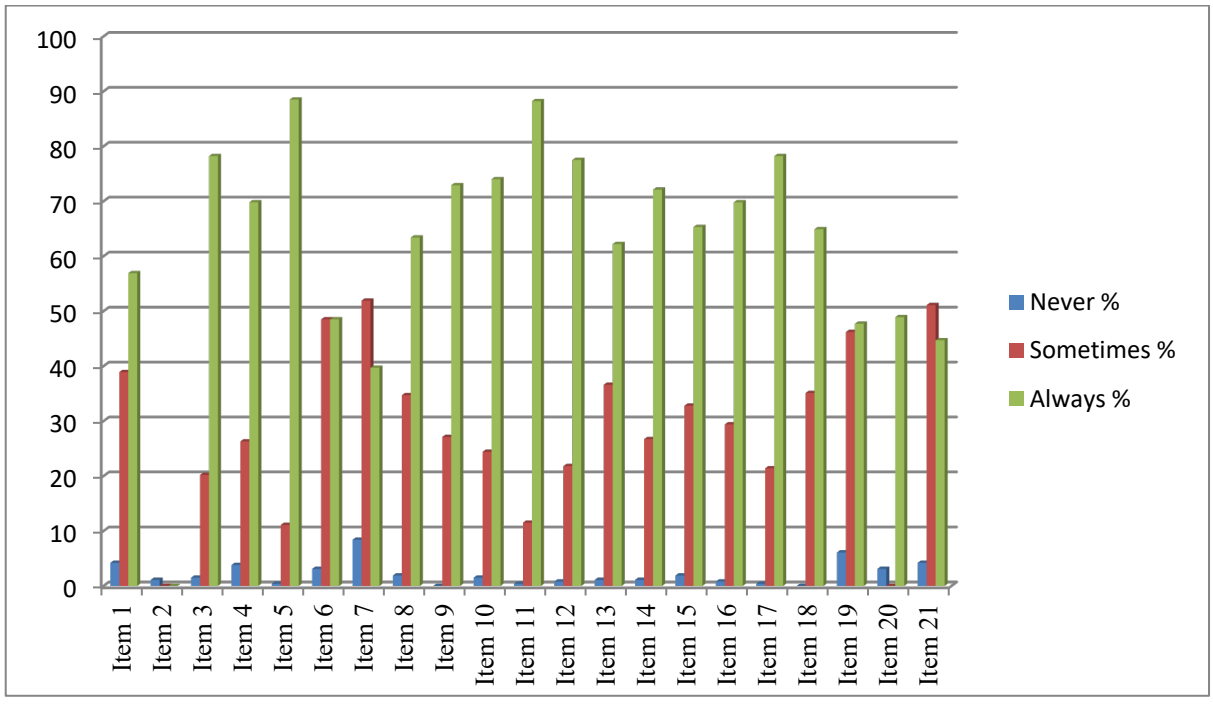


Figure 2. Distribution of answers to Communicating Bad News Questionnaire items (Appendix 1)

DISCUSSION

In this study, CBN-Questionnaire [8] was adapted to Turkish to evaluate midwives and nurses' competence in breaking bad news to patients. It has been tested to be a valid and reliable tool in assessing the knowledge and skills of health professionals in breaking bad news.

According to expert opinions, all of the items of the language validated questionnaire showed a high degree of agreement in terms of Wording, Comprehension, Relevance and Global Assessment, and all of the items were included in the questionnaire.

The Cronbach Alpha value of the final version of the questionnaire (21 items) was determined as 0.866 in the nurse/midwife group. Cronbach's alpha coefficients have been reported to be an acceptable value between 0.70 and 0.95.[27] The five factor components explained 53.631% of the variance of the questionnaire. Çokluk et al.[23] stated that this value being between 40% and 60% is sufficient. In the study of González-Cabrera et al.,[8] the Cronbach alpha value was found to be 0.82 and the percentage of explaining the total variance was 40.32. Since the KMO coefficient values obtained in our study were 0.70-0.80, sample adequacy was considered good.[23] It can be said that the chi-square value in the Bartlett test of sphericity is statistically appropriate. Since it is desired that the factor loadings of the items in a factor be 0.45 and above, it can be interpreted that the items under the relevant factor measure the relevant structure.[24]

As a result of the test-retest of the 21-items final version of the questionnaire, the ICC value was found to be 0.95 and Cronbach's alpha coefficient was 0.97. ICC value >0.90 is reported as excellent and Cronbach's alpha coefficients are reported to be an acceptable value between 0.70 and 0.95.[27,28] For this result, it can be said that the ICC value between the two measurements was at an excellent level. According to the results of the goodness of fit indices, used to evaluate the fit of the model $\chi 2/df$, RMSEA, SRMR were perfect fit, GFI, CFI, IFI, TLI and AGFI were acceptable fit, while NFI and RFI were low fit. In our study, the evaluation of the fit indices according to the literature [29,30] shows that the model was statistically significant and valid.

Although there is no cut-off value for the questionnaire score in our study, it can be said that nurses and midwives have good skills in breaking bad news when the mean score was compared to the highest score that can be obtained (55.10±5.53/63). According to the SPIKES questionnaire results of 200 general practitioners, the mean score for breaking bad news skills was determined as 63.56±6.15. Since the total maximum score of the questionnaire was 100, it was stated that the skill levels of the participants were at a relatively desired level.[31]

In addition, in our study, it was found that those whose workplace was a polyclinic had lower levels of CBN skills. In a study, it was determined that 36% of nurses with knowledge about palliative care had received training on breaking bad news/communication skills.[32] In another

study, the mean score of nurses' skills of breaking bad news was 3.5±0.8 out of 5 and there was a significant relationship between the skill of breaking bad news and sex, the work experience, and the workplace.[17] Rosin et al.[16] identified and compared the role of healthcare professionals (51 nurses, 38 doctors, and 26 social workers) in breaking bad news to patients. Physicians achieved higher scores in feeling responsible for breaking bad news, social workers in providing psychological support, and nurses in providing supportive tool. All three groups gave high scores to the emotional exhaustion, sadness and identification this task caused them. Nurses became more afraid of breaking the news of death and made more efforts to avoid this duty.[16] The primary duty of nurses is to meet the physical, psychological and social care needs of individuals. Effective communication is a fundamental component of nursing, an integral part of quality care, and is critical to nursing practice.[33] Nurses should develop skills in addressing patients' concerns, being humane, being sensitive in breaking bad news, actively listening to the patient, being willing to answer the questions of relatives, and guiding family/relatives in preparing for this process.[12]

Limitations

Although the sample size is sufficient, this study is limited to the results obtained from the opinions of midwives and nurses working in the hospital where the research was conducted.

Effective communication between healthcare professionals and patients is essential to improve the quality of individualized healthcare. Since nurses and midwives are in closer and longer communication with patients, they may have to discuss negative situations with patients. They may be faced with the situation of breaking bad news about the patient's condition to them directly or indirectly. Questionnaire to measure nurses'/midwives' competence in breaking bad news are limited. In this study, CBN questionnaire was adapted to measure the competence of nurses/midwives in breaking bad news. This questionnaire was adapted to Turkish and tested to be a valid and reliable tool for evaluating the knowledge and skills of health professionals (nurses/midwives) in breaking bad news. It was concluded that the 21-items CBN questionnaire was valid and reliable for nurses and midwives**.**

Etik Komite Onayı: Etlik Zübeyde Hanım Kadın Hastalıkları Eğitim ve Araştırma Hastanesi Klinik Araştırmalar Etik Kurulu'ndan onay alındı (Tarih: 11.05.2022, Sayı:2022/65).
Hasta Onamı: Gönüllülerden bilgilendirilmiş onam alındı.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- GKB; Tasarım- GKB; Denetleme-GKB, YEÜ; Kaynaklar-GKB, CK, YEÜ; Veri Toplanması ve/veya İşlemesi-GKB, CK ; Analiz ve/ veya Yorum-GKB, CK; Literatür Taraması- GBK, CK, YEÜ; Yazıyı Yazan- GKB; Eleştirel İnceleme-GKB, CK, YEÜ.
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

Ethics Committee Approval: Approval was received from the Clinical Research Ethics Committee of Etlik Zübeyde Hanım Gynecology and Pediatrics Training and Research Hospital (Date: 11.05.2022, Number:2022/65).
Informed Consent: Informed consent was obtained from the volunteers.
Peer-review: Externally peer-reviewed.
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Appendix 1

Items:

Item 1. Do you choose a quiet and private place beforehand to communicate bad news?

Item 2. Do you ensure that there will be no foreseeable interruption occurring (phone, consult by a colleague, etc.)?

Item 3. Do you introduce yourself to the patient first?

Item 4. Do you call the patient by their name?

Item 5. Do you look at the patients face or in the eyes while you talk or listen?

Item 6.To find out what the patient knows and how much they want to know, do you use questions such as: Before I talk, do you want to tell me anything or ask me something?

Item 7. Before communicating bad news, do you find out in what way the news may affect the patient's personal, social or work life?

Item 8. In the event that the patient is unsure they wish to be informed, do you give the patient time to consider it?

Item 9. Do you tend to facilitate dialog with the patient or let them vent/blow off steam talking?

Item 10. Do you keep in the mind the opinion of the patient?

Item 11. Do you use appropriate language to allow the patient to digest the bad news?

Item 12. In terms of the feelings, fears and worries of the patient, do you verbally express your awareness or responsiveness?.

Item 13. When the patient's response is anxiety, fear, sadness or aggression, do you maintain an attitude of active listening?

Item 14. Do you show support and understanding non-verbally?

Item 15. When you communicate bad news, do you present yourself assertively, expressing your thoughts confidently?

Item 16. If a disagreement with the patient exists, do you wait for their input and find a solution to the problem?

Item 17. Do you observe the emotions that have emerged in the patient following the communication of bad news?

Item 18. Do you ensure that at the end of the conversation the patient has no further doubts or questions?

Item 19. Do you establish, if necessary, a care plan together with the patient to address the new situation?

Item 20. Do you explore the possible occurrence of challenging situations after the communication of bad news and establish a strategy for future action?

Item 21. Do you farewell the patient at the end of the conversation?

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Using a Board Game to Learn a Physical Assessment Course in Nursing Education: A Randomized Controlled Study

Hemşirelik Eğitiminde Fiziksel Değerlendirme Dersinde Masa Oyununun Kullanılması: Randomize Kontrollü Bir Çalışma

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ABSTRACT

Objective: Nursing students are expected to acquire the skills necessary to provide competent patient care in complex healthcare settings. This study aimed to explore the effect of a physical assessment board game on nursing students' knowledge level and determine their opinions about the game.

Methods: A randomized controlled study design was used. The study was conducted from December 2019 to January 2020 among 56 nursing students (game group= 28, control group= 28) enrolled in an undergraduate nursing program in Türkiye. The data were collected using the Kolb's Learning Styles Inventory to determine students' learning styles, the Knowledge Evaluation Form for physical assessment, and the Student Opinion Form for students' opinions about the game. Mean scores for the pre-test and post-tests were compared using independent and paired sample t-tests.

Results: A significant difference was found between the pre-test and post-test knowledge scores of the game group (P<.05). The mean post-test knowledge score of the students in the game group was higher than that of the students in the control group, and the difference between the groups was statistically significant (P<.05).

Conclusion: The game was beneficial for teaching physical assessment course. Future studies should incorporate different game samples, such as the development of a web-based game, as this study focused on a board game that supported physical assessment skills.

Keywords: Board game, learning, nursing, nursing education, nursing student

ÖZ

Amaç: Hemşirelik öğrencilerinin karmaşık sağlık bakım ortamlarında yetkin hasta bakımı sağlamak için gerekli becerileri kazanmaları beklenmektedir. Bu çalışmanın amacı fiziksel değerlendirme dersi için geliştirilen masa oyununun hemşirelik öğrencilerinin bilgi düzeylerine etkisini ve oyun hakkındaki görüşlerini belirlemektir.

Yöntemler: Araştırmada randomize kontrollü araştırma deseni kullanılmıştır. Aralık 2019-Ocak 2020 tarihleri arasında Türkiye'de bir hemşirelik lisans programına kayıtlı 56 hemşirelik öğrencisi (oyun grubu= 28, kontrol grubu= 28) ile araştırma gerçekleştirilmiştir. Veriler, öğrencilerin öğrenme stillerini belirlemek için Kolb Öğrenme Stilleri Envanteri, fiziksel değerlendirme için Bilgi Değerlendirme Formu ve öğrencilerin oyun hakkındaki görüşleri için Öğrenci Görüş Formu kullanılarak toplanmıştır. Ön test ve son test ortalama puanları bağımlı ve bağımsız gruplarda t testleri kullanılarak karşılaştırılmıştır.

Bulgular: Oyun grubunun ön test ve son test bilgi puanları arasında anlamlı farklılık bulunmuştur (P<.05). Oyun grubundaki öğrencilerin son test bilgi puanı ortalaması kontrol grubundaki öğrencilere göre daha yüksek olup, gruplar arasındaki fark istatistiksel olarak anlamlıdır (P<.05).

Sonuç: Araştırmada geliştirilen oyun, fiziksel değerlendirme derslerini öğretmek için faydalı bulunmuştur. Bu çalışma, fiziksel değerlendirme becerilerini destekleyen bir masa oyununa odaklandığından, gelecekteki çalışmaların web tabanlı bir oyun geliştirilmesi gibi farklı oyun örneklerini içermesi önerilmektedir.

Anahtar Kelimeler: Masa oyunu, öğrenme. hemşirelik, hemşirelik eğitimi, hemşirelik öğrencileri

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INTRODUCTION

As nursing students are expected to have gained skills after attending theoretical courses on anatomy, pharmacology, physiology, they must also be prepared to put into practice psychomotor and procedural skills in patient care.[1,2] This expectation requires nurse educators to create educational environments to make sure graduate nurses gain cognitive, affective, and psychomotor skills. To ensure this, students must be motivated.[3,4]

In addition, these students have different learning styles which affect their learning methods. For effective learning to occur, education methods that appeal to these students' learning styles and preferences are needed.[5,6,7] Accordingly, it is recommended that educators use active teaching methods to make courses more interesting for students.[8-11] Since interest and motivation have been considered as an important step in learning, using games as an educational strategy may improve learning outcomes.[12,13] Games are one of the active teaching methods used in nursing education to meet students' diverse learning needs and styles.[8,14,15] Nurse educators are challenged to implement innovative strategies that provide opportunities for students to practice their skills. In nursing education, games offer learning through trial and error. For instance, when students are at risk of harming a patient, within the context of the game, communication and decision-making skills are sharpened, teamwork increases, and learning occurs in a fun and motivating environment where stress and anxiety decrease.[14,15] Furthermore, the games used in nursing education have diversified from computer-based games such as virtual reality (VR) to card and board games.[10] Although computer-based games are a highly promising approach to motivating students[16], card and board games are more practical and cost-effective than computer and VR games while still having a positive impact on knowledge levels, motivation, teamwork, and communication skills.[17,18]

The literature also presents evidence that board games are effective learning tools in education related to nursing, medicine, and patient care.[14,17,19,20] However, a physical assessment game did not exist amongst the current literature, and so one was developed for this study.

AIM

This study aimed to investigate the effect of the developed game on nursing students' knowledge level of a physical assessment course. Furthermore, the study also aimed to determine students' opinions about the game.

METHODS

Study design

A randomized controlled study design was used. Moreover, to prevent the pre-test effect, a post-test control group design was used.

Sample and setting

The study was conducted at the Nursing Skill Laboratory at a university between December 2019 and January 2020. The study comprised of 202 second-year nursing students who were enrolled in a physical assessment course. Students enrolled in the nursing department are divided into two groups, A and B, according to their registration numbers, regardless of their success level. In the fall semester of the 2nd year, the physical evaluation course taken by these students consists of 8 weeks of theory and 4 weeks of simulation laboratory practice. The theoretical part of the course was completed in the traditional way, subsequently, after the completion of the program by using courses and PowerPoint presentations, simulation laboratory practices took place. The control group received the teaching through the standard process provided. The game was played with 28 students, who were included randomly according to the learning styles of the group. The game group divided into groups of four and formed into seven groups. The game group played the game organized in four-hour sessions for four weeks.

The G* Power software program was used to calculate the sample size and achieved a power of 80% and 95% confidence, with a 0.80 effect size of 42 students. Considering the students who wanted to participate and those who wanted to leave, a sample of 56 students (28 experimental and 28 control) was formed within the scope of the study.

After taking the course, including courses and high-fidelity simulations in the laboratory, the Kolb Learning Styles Inventory was administered to 202 students who were actively attending the physical assessment course in the 2nd grade fall semester. After determining the learning styles of the students, a software table was created for all students according to four learning styles and participants were divided into four groups according to their learning styles: assimilating, converging, accommodating, and diverging. The students were randomly distributed into game (28 students) and control (28 students) groups using a software program, with 7 students belonging to each learning style category (Figure 1).

Game Design. The game was inspired by a board game designed by Gibson and Douglas[14] similar to Monopoly and Trivial Pursuit, used in learning to care for critically ill patients. It was also inspired by the Nursopardy game created by Boctor.[8] The board game consists of 96 questions including right or wrong, multiple choice and open-ended questions. The questions were categorized into easy (yellow question cards), medium (green question cards) and difficult (red question cards). Question topics related to the data collection methods of physical assessments. For instance, preparing the patient both mentally and physically; skin, hair, and nail assessment; head, eye, ear assessment; nose, mouth, throat assessment; and respiratory, cardiovascular, gastrointestinal, and neurological assessment.

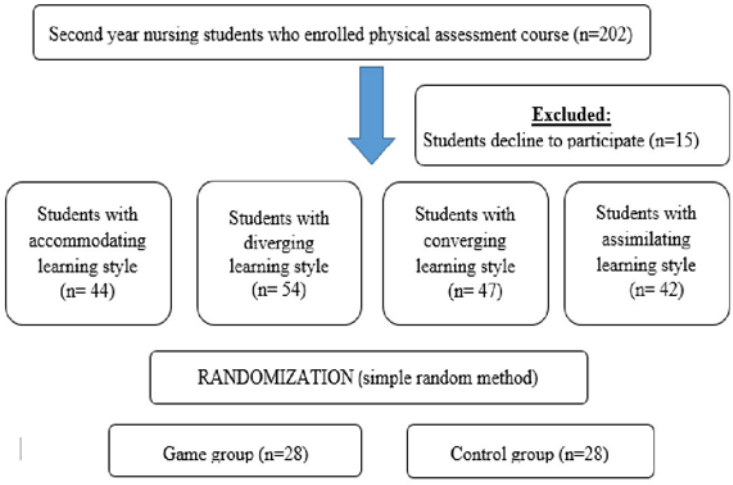

Figure 1. Flow Chart for The Recruitment of The Sample

The game was played with four students and each student was given an icon to follow their progress within the game. Players moved from start to finish by throwing dice and answering questions correctly. The game ended when someone reached finish first. Next, scores were calculated by totalling the points of correctly answered questions and the winner was determined by having the most points. Questions were scored according to the difficulty level (yellow cards: 2 points, green cards: 4 points, red cards: 6 points). To make the game more challenging, Duel, Joker, and Chance categories were placed on the template randomly (Figure 2).

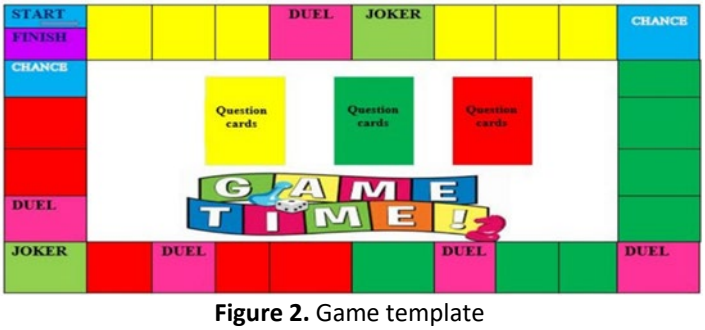

Figure 2. Game template

Data collection tools

The data were collected using the Kolb Learning Styles Inventory to determine students' learning styles, while the Knowledge Evaluation Form was used for physical assessment and the Student Opinion Form was used for students' opinions about the game.

Kolb's Learning Styles Inventory: The inventory was published by Kolb in 1999. The Cronbach's alpha reliability coefficients of the learning style dimensions of the inventory, whose validity and reliability study was performed by Evin Gencel, were adapted to Turkish and varied between 0.71 and 0.80. The inventory comprised 12 items with four options each which students can were asked to select as 4 for the most appropriate, 3 for the second appropriate, 2 for the third appropriate, and 1 for the least appropriate. As each option represented one of the four main learning methods: concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE), scores for the four learning styles were obtained from the total items. By subtracting scores, two dimensions (AC - CE) and (AE - RO) were derived and the learning styles of the students (accommodating, assimilating, converging, diverging) were obtained by placing the scores obtained from the learning styles cycle on the Kolb's Learning diagram.[21] In this study, Cronbach's alpha of the inventory was determined as 0.90.

The Knowledge Evaluation Form for Physical Assessment: This form was prepared by authors to determine the students' knowledge level of the physical assessment. A total of twenty multiple-choice questions were developed from course notes and recommended reference textbooks utilised in our undergraduate program.[22,23] The correct

answers given to the questions were evaluated as four points and the wrong answers as zero points. There are 25 questions in knowledge evaluation form for physical assessment and the lowest and highest scores on the form are 0 and 100. The higher score indicates a higher level of knowledge. The reliability coefficient of Kuder-Richardson-20 (KR-20) was calculated and was found to be 0.81.

The Student Opinion Form: In this form students were asked for statements about the positive and negative aspects of the game as well as its limitations in nursing education.[8,15,24] This form included socio demographic questions such as students' age, gender, marital status and questions about their opinions about the game. It contains three open-ended questions including the positive, negative aspects of the game and suggestions for the development of the game.

Data collection

After the students had completed both the physical assessment course and laboratory practices, The Student Opinion Form and Knowledge Evaluation Form for Physical assessment were completed by the game group. Next, the game was played by the students while the researcher took on the roles of observer and facilitator. For the control group, learning continued traditionally with the use of course notes. Finally, the Knowledge Evaluation Form for Physical Assessment was given to both groups (Figure 3).

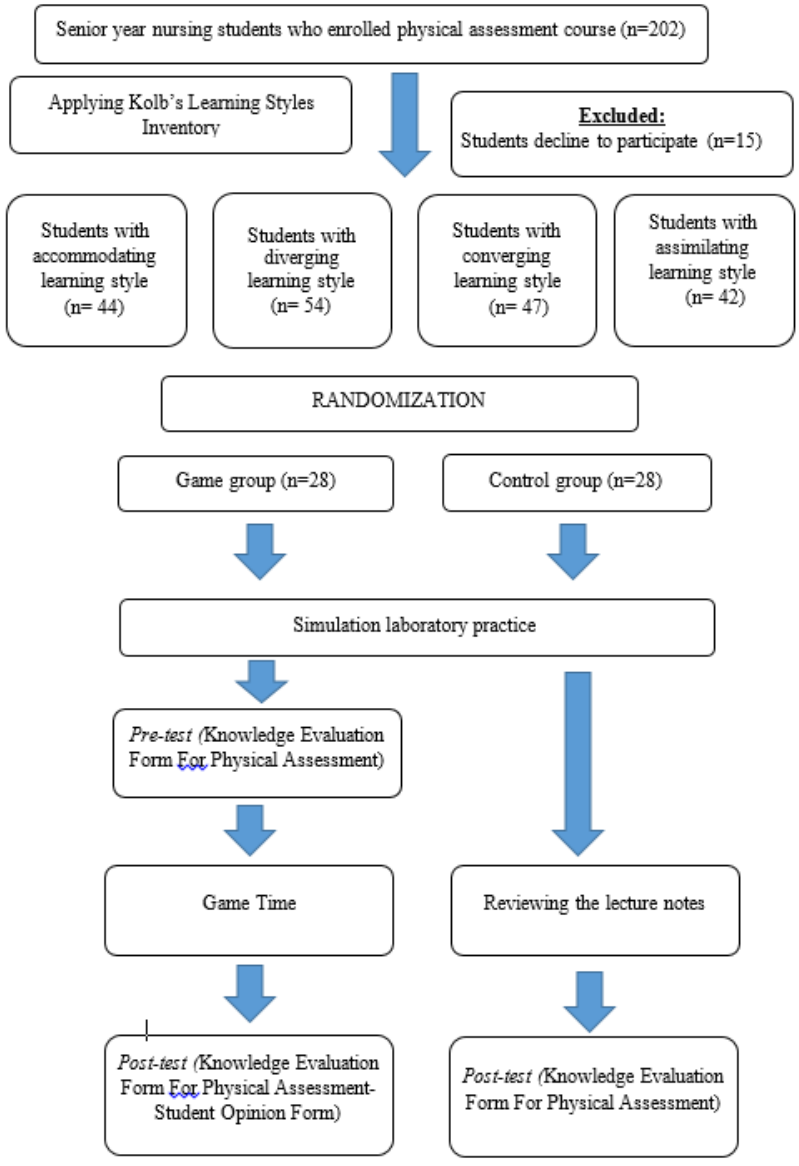

Figure 3. Study Flow Diagram

Data analysis

The data were evaluated using the SPSS 24.0 descriptive statistics software package. The chi-squared test was used to compare the equivalence of demographic characteristics between the game and control groups. Frequency (f), number (n), percentage (%), mean ($\bar{X}$), and standard deviation (SD) were used to describe the data. Homogeneity and normal distribution assumptions were also analysed. Normality testing showed that the data were normally distributed based on the nonsignificant Kolmogorov–Smirnov test. The mean scores for the pre-test and post-test were calculated. The scores were compared using independent and paired sample t-tests. The level of significance was set at $P<.05$.

After the answers to the open-ended questions were written in word format, they were read by both authors. Statements of students were grouped under two headings, positive and negative contributions, and the relative frequency and percentages were calculated.

Ethical consideration

Ethical approval was obtained from the Non-Interventional Health Research Ethics Committee of Duzce University (Date: 16.12.2019 / No: 2019/274). Furthermore, after a thorough explanation of the content and purpose of the study by the researcher, informed consent was obtained by all participating students.

RESULTS

The descriptive characteristics of the nursing students participating in the study showed that of a total of 56 nursing students, 38 (67.9%) were female and 54 (96.4%) were single. The average age of the students was 20.67±1.60 years. There were no statistical differences between the gender ($x^2 = 0.000$, $P=1.000$), marital status ($x^2 = 0.000$, $P=1.000$), age (t = -2.238, $P= .29$), and learning styles of the groups ($x^2 = 0.000$, $P= 1.000$) (Table 1).

Table 1. Descriptive Characteristics of Students

Variable	Total (n=56)		Game group		Control group		Test value
	n	%	n	%	n	%	
Gender							
Female	38	67.9	19	67.9	19	67.9	$\chi2 = 0.000$
Male	18	32.1	9	32.1	9	32.1	$P= 1.000$
Marital status							
Single	54	96.4	1	3.6	1	3.6	$\chi2 = 0.000$
Married	2	3.6	27	96.4	27	96.4	$P= 1.000$
Learning style							
Accommodating	14	25	7	23.3	7	23.3	
Diverging	14	25	7	23.3	7	23.3	$\chi2 = 0.000$
Converging	14	25	7	23.3	7	23.3	$P= 1.000$
Assimilating	14	25	7	23.3	7	23.3	
Age ($\bar{X}$±SD)	20.67±1.60		20.21±1.57		21.14±1.53		t = -2.238 $P= 0.29$

n, number; %, percentage; $\chi2$, Pearson's chi-squared test; t, independent sample t-test; $\bar{X}$, Mean; SD, Standard deviation

When the physical assessment knowledge scores of the game group were compared, it was found that there was a significant difference between the pre-test and post-test scores of the game group (t = –7.21, $P= .00$). The post-test scores of the students were higher than the pre-test scores. The mean post-test score of the students in the game group was higher than that of the students in the control group, and the difference between the groups was statistically significant (t = 3.614, $P= .01$) (Table 2).

There was no significant difference between the knowledge scores and learning styles of the students in the game (F= 1.052, $P=.388$) and control groups (F=1.034, $P=.43$). However, the knowledge scores of nursing students with all four learning styles (accommodating, diverging, converging, and assimilating) were found to be above average (Table 3).

Table 2. Comparison of Physical Assessment Knowledge Scores of Groups

	Game group $\bar{X}$±SD	Control group $\bar{X}$±SD	Test value
Knowledge			
Pre-test	69.28 ± 14.57	--	t = 3.614
Post-test	82.32 ± 8.97	71.42±13.18	P= .01
Test Value	t= -7.21 P= .00		

$\bar{X}$, Mean; SD, Standard deviation; t, t-test

Table 3. Physical Assessment Knowledge Scores According to Students' Learning Styles

	Physical assessment knowledge scores	
Learning style	Game group $\bar{X}$±SD	Control group $\bar{X}$±SD
Accommodating	85.71±7.86	81.12±3.23
Diverging	77.85±5.66	66.04±2.33
Converging	84.28±7.86	75.05±6.24
Assimilating	81.42±12.81	80.22±9.87
Test value	F= 1.052 *P*=.388	F=1.034 *P*=.43

$\bar{X}$, Mean; SD, Standard deviation; F,ANOVA test

Concerning the positive contributions of the game, the students stated that they learned new information about physical assessments (f=23) and that they had fun while learning (f=18) (Table 4). Most of the students stated that the game had no negative aspects (f=24). However some of the students reported the game being based on luck (f=3), having not enough time for some questions (f=2) and causing competition among friends (f=1) as a negative aspects of the game. When their recommendations about the game was asked, the students suggested that the game should be longer and would be played with more students (Table 4).

Table 4. The Opinions of Students About the Game

Students' statements		f	%
Positive contributions	I learnt new information related to physical assessment.	23	34.8
	I had fun while learning.	18	27.3
	I think the information was more permanent in this way.	14	21.2
	I found it more exciting because there was competition in the game.	9	13.6
	It made me realize both what I knew and what I didn't know about physical assessment.	2	3.1
	Total	66	100

f, Frequency; %, percentage

DISCUSSION

In the present study, it was found that the knowledge level of the game group increased after playing the game (Table 2), and the knowledge level of the game group was significantly higher than that of the control group (Table 2). Boctor found that the students who played the Nursopardy game stated that the game was beneficial for reviewing the fundamentals of nursing information and reinforcing the information learned.[8] Similarly, studies have shown that the game environment allows students to assess their knowledge and progress and facilitates information retention.[25,26] These results support that the game can be used in conjunction with courses to acquire knowledge and retain information.

The use of games in nursing education is a successful teaching strategy to help engage students and motivate learning.[27] However, students' learning needs and styles still vary. Thus, it is important to use teaching strategies and learning tools that correlate to the students' various learning styles.[6,7] In this study, the knowledge scores of nursing students with all four learning styles (accommodating, diverging, converging, and assimilating) were found to be above average (Table 3). Moreover, students with 'accommodating' and 'converging' learning styles have higher knowledge level scores than students with other learning styles. This could be because these learning style facilitates making inferences and observations based on trial and error, consulting others, and a preference for group work, learning mainly through experience and active participation, all of which are found in a game setting. Studies show that today's students prefer learning environments where they actively participate and learn by doing and experimenting but there is none dominant learning styles among nursing students.[28-30] In this study, the high knowledge scores of students with 'accommodating' and 'converging' learning styles based on learning by doing and experimenting support the literature. That being said, 'converging' students, who need guidance and feedback from their educator and 'diverging' students, who tend to introspect while configuring learning topics,

also increased their knowledge scores by using the game.[31] Hence the game is a tool that creates active learning environments for different learning styles.

Most of the students listed learning new information about physical assessments while having fun as positive contributions of the game (Table 4). This sentiment is paralleled in a study that found that the Jeopardy board game increased enjoyment and motivation among nursing students.[8] All this can be deemed as evidence of the advantages of using games in nursing education.[15] Furthermore, nursing students have stated that their education is their biggest stressor[32,33], thus, a fun and motivating learning environment using games is not only beneficial but also necessary. The vast majority of students did not identify any negative aspects of the game, however, a small minority stated that the cards get picked up by chance, time consumption, and competition were negative aspects of using the game to learn. Overall students' attitudes about using games for learning are mostly positive, however, limitations were listed as subject, having more time for the game, size of the class, and the learning environment.[15] Sealover and Henderson[26] found that students listed competitiveness, confusion, losing the game, time, and difficult questions as what they liked least about learning by using games.[26] That being said, literature states that games should include challenging situations for students.[34] Learning with competition and challenges improves students' academic results and motivates them to participate more actively in their learning process.[24] Still, only some students consider a game-orchestrated learning environment as motivating and a success incentive[15], while others consider using players, rules, luck, winners and losers, and competition, as a negative. It should be noted that students' lack of existing knowledge on the games' content may influence their experience of playing it and thus their overall opinions on using games in education.

Study Limitations

The limitations of this study include drawing a sample from only one nursing department, and using only second-year students because it may hinder generalisability. In addition, the game only covered the content of one course and whether students had studied the material and not knowing study habits can also be considered a limitation. However, regardless of the present limitations this game-based strategy is impactful in the nursing curriculum especially for courses that do not offer practical nursing processes, theories, and models. In future, the board game can be designed to cover different courses with different samples or can be developed as a web-based game.

Although it is recommended to use active learning environments in education, simulation and virtual techniques may not always be cost effective. Being easily implemented, integrated, and developed for various topics and yielding knowledge and motivation, board games offer a cost-effective alternative to computer based and VR learning games.

Overall, the board game that was developed for this study was found beneficial. It allowed nursing students to review the physical assessment course they had just completed and was deemed a positive and useful learning strategy when evaluated by them. The game was easy to implement and can be used to create a fun and active learning environment to improve learning. Thus, it is an effective learning tool for physical assessment courses. Yet, some educators hesitate to use games in education and so this study, and further studies in this area, provide evidence of the benefits of game use in nursing education. This study also provides options for overcoming the current limitations of game use in education.

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ATATÜRK ÜNİVERSİTESİ YAYINLARI
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Romatolojik Hastalıkların Semptom Kontrolünde Masajın Etkisi: Sistematik Derleme

The Effect of Massage in Symptom Control of Rheumatologic Diseases: A Systematic Review

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ÖZ

Amaç: Masajın romatolojik hastalıklarda semptom kontrolüne yönelik etkisini değerlendirmektir.
Yöntemler: Araştırmaya CINAHL, Cochrane Library, ProQuest, PubMed, Science Direct, Web of Science ve ULAKBİM veri tabanlarında İngilizce ve Türkçe anahtar kelimeler kullanılarak, 2000-2023 tarihleri arasında ulaşılan çalışmalar dahil edildi. Araştırma PRISMA-P kontrol listesi ve Cochrane Risk of Bias temel alınarak hazırlandı. Dahil edilme kriterleri; 18 yaş ve üzeri, romatolojik hastalığa bağlı semptom bildiren katılımcıları dahil eden, randomize kontrollü çalışma tasarımında olan, İngilizce ve Türkçe dilinde yayınlanmış çalışmalardır.
Bulgular: Araştırmada 3.704 çalışma incelendi ve dahil edilme kriterlerine uygun 16 randomize kontrollü çalışma saptandı. Yapılan masajın ağrı şiddeti, analjezik kullanımı, anksiyete, depresif durum, sabah tutukluğunu azalttığı, uyku kalitesi ve hareket açıklığını arttırdığı saptandı. Derlemeye dahil edilen bir araştırmada masajın uyku sorunlarını azaltmadığı, iki farklı çalışmada ise uzun vadede masajın semptom yönetiminde fayda sağlamadığı belirlendi.
Sonuç: Romatolojik hastalıkların semptom kontrolünde kullanılan masaja yönelik optimal bir süre ve teknik bulunmamakla birlikte, masaj sıklıkla osteoartrit ve fibromiyaljide kullanılmaktadır. Masaj uygulaması semptom kontrolü sağlayarak hastaların fizyolojik ve psikolojik iyilik halini arttırmaktadır. Bu nedenle semptom kontrolünde hemşirelik bakım uygulamalarında masaja yer verilmesi önerilmektedir.

Anahtar Kelimeler: Romatizmal Hastalıklar, Masaj, Semptom Kontrolü, Hemşirelik, Bakım

ABSTRACT

Objective: To evaluate the effect of massage on symptom control in rheumatologic diseases.
Methods: Studies accessed between 2000 and 2023 using English and Turkish keywords in CINAHL, Cochrane Library, ProQuest, PubMed, Science Direct, Web of Science and ULAKBIM databases were included in the study. The study was based on the PRISMA-P checklist and Cochrane Risk of Bias. The inclusion criteria were studies that included participants aged 18 years and older, who reported symptoms related to rheumatologic disease, had a randomized controlled trial design, and were published in English and Turkish.
Results: We reviewed 3,704 studies and identified 16 randomized controlled trials that met the inclusion criteria. It was found that massage decreased pain intensity, analgesic use, anxiety, depressive state, morning stiffness, and increased sleep quality and range of motion. One study included in the review found that massage did not reduce sleep problems, while two different studies found that massage did not benefit symptom management in the long term.
Conclusion: Although there is no optimal duration and technique for massage in symptom control of rheumatologic diseases, massage is frequently used in osteoarthritis and fibromyalgia. Massage application increases the physiological and psychological well-being of patients by providing symptom control. Therefore, it is recommended to include massage in nursing care practices in symptom control.

Keywords: Rheumatic Diseases, Massage, Symptom Control, Nursing, Care

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GİRİŞ

Romatolojik hastalıklar, eklem-bağ dokuları özellikle de klinik olarak eklem ve periartiküler (eklem çevresi) dokuları etkileyen, remisyon ve ataklarla seyreden; ağrı, hareket kaybı ve deformitelere neden olan, kas-iskelet sistemi ile birlikte diğer tüm sistemleri etkileyen kronik, otoimmün hastalıklar olarak tanımlanmaktadır.[1,2,3] Romatolojik hastalıkların dünya çapında iki milyon insanı etkilediği ve ikinci engellilik nedeni olduğu Küresel Hastalık Yükü (2010) çalışmasında vurgulanmıştır.[4] Nüfus projeksiyonları içinde önümüzdeki yıllarda bu hastalıkların gelişmiş ve gelişmekte olan ülkelerde prevalansının artacağı hem hastalara hem de sağlık bakım sistemleri üzerinde önemli bir yük oluşturacağı ön görülmektedir.[5]

Sistemik olarak adlandırılan romatizmal hastalıklar, bireyde fizyolojik ve emosyonel fonksiyon kayıplarına yol açarak yaşam kalitesini olumsuz yönde etkilemektedir.[3] Bu grupta bulunan bir ya da birkaç hastalığa sahip bireylerde sıklıkla eklem ağrıları, eklemlerde hareket kayıpları, inflamasyon, krepitasyon, eklem nodülleri, artrit, sabah tutukluğu gibi kas iskelet sistemini etkileyen semptomların yanı sıra ateş, ağrı, anemi, yorgunluk, halsizlik, döküntü gibi birçok semptom görülebilmektedir.[6]

Romatolojik hastalığa sahip bireyler deneyimledikleri semptomlar nedeniyle yaşamlarında birçok güçlükle karşı karşıya kalırlar. Hastalığın ve semptomların yönetimi için ilaç tedavisi, fizik tedavi, davranışsal tedaviler, beslenme ve integrative (bütünleştirici) yöntemlerin içinde olduğu multimodal bir konsept kullanımı önerilmektedir.[2] Romatolojik hastalıkların yönetiminde hemşireler integratif yöntemleri sıklıkla bakım planlarına dahil etmektedirler. Literatürde bu görüşü destekleyen, integratif yöntemlerin en sık kullanıldığı hastalık gruplarından birisinin romatolojik hastalıklar olduğu vurgulanmaktadır.[7] Romatolojik hastalıkların semptom yönetiminde kullanılan en popüler integratif yöntemler arasında masaj uygulaması öne çıkmaktadır.[8]

Masaj, eller ya da mekanik yollar aracılığıyla manipülasyon uygulamalarına dayanan, vücutta yumuşak dokuların uyarılması ile organizmada fizyolojik ve psikolojik etkiler meydana getirir. Dokunma ile yapılan uygulamaların şifa kaynağı olduğu eski çağlardan beri bilinmektedir[9]. Bilim ve teknolojinin gelişmesiyle birlikte manuel tekniklerin yanı sıra alet ve cihazlarla yapılan masajın modern hemşirelik uygulamalarının bir parçası olduğunu gösteren birçok hemşirelik çalışması bulunmaktadır.[10,11]

Masaj; venöz ve lenfatik dolaşımı arttırır, metabolik artıkların atılımını sağlar, arteriyel kan akımına yardım ederek hücrelere etkin oksijen ve besin girişini sağlar, kan basıncını ve ödemi azaltır, hücrelerin rejenerasyonunu sağlar, kapiller duvarların permeabilitesini arttırır, parasempatik aktiviteyi uyararak kortizol seviyelerinde azalmaya yol açar, oksitosin düzeyini yükselterek ağrıyı azaltır, anksiyete, stres gibi negatif duyguları ve bunların yol açtığı fizyolojik semptomları azaltır, beynin pozitif duygular ile ilgili bölümlerini olumlu yönde etkiler.[12] Ek olarak masaj; eklemlerdeki kan dolaşımını arttırarak kıkırdağın beslenmesini sağlar, kan akımını arttırarak indirekt etki ile kemik iyileşmesine yardımcı olur, iyileşme sürecinde yumuşak dokularda liflerin düzgün dizilimini sağlar, kas, tendon ve ligamentlerdeki adezyonların azaltılmasında rol oynar ve kas gerilimini azaltarak gevşemeyi sağlar.[13] Literatürde romatizmal hastalığa sahip bireylerin integratif yöntemler arasında en sık kullandığı yöntemlerden birinin masaj olduğu ve ek olarak masaj aletinin de kullanıldığı görülmektedir.[14,15]

AMAÇ

Bu sistematik derlemenin amacı romatolojik hastalığı olan bireylerin semptom kontrolü üzerine masajın etkisini değerlendiren randomize kontrollü çalışmalar incelenerek romatoloji hemşireliği alanına katkı sağlamaktır.

Araştırma Sorusu

- Masaj romatoloji hastalarının semptomları üzerine etkili midir?

YÖNTEMLER

Araştırmanın Türü

Romatizmal hastalıkların semptom kontrolü için uygulanan masajın etkilerini belirlemeye yönelik yapılan randomize kontrollü araştırmaların sistematik bir incelemesi yapıldı. PRISMA-P (**P**referred **R**eporting **I**tems for **S**ystematic **R**eview and **M**eta-**A**nalysis **P**rotocols)[16] rehberi, bu sistematik derlemenin doğru ve eksiksiz yürütülmesini ve raporlanmasını sağlamak için kullanıldı.

Literatür Tarama ve Tarama Stratejisi

Bu araştırmanın konusu olan çalışmalar, 2000-2023 yılları arasında yayınlanmış CINAHL, Cochrane Library, ProQuest, PubMed, Science Direct, Web of Science ve ULAKBİM veri tabanları 1 Mart- 1 Nisan 2023 tarihleri arasında tarandı. Tarama için İngilizce anahtar kelimeler 'Medical Subject Headings' ve Türkçe anahtar kelimeler ise 'Türkiye Bilim Terimleri' dizinlerine bakıldı (Tablo 1).

Dahil Edilme ve Dışlanma Kriterleri

Araştırmaya dahil edilme kriterleri PICOS'a (Population, Intervention, Comprison, Outcome, Study design)[17] uygun olacak şekilde belirlendi. Sistematik derlemeye yalnızca hakemli dergilerde yayınlanan ve tam metnine ulaşılabilen araştırmalar dahil edildi (Tablo 2).

Çalışmadan dışlanma kriterleri; Dahil edilme kriterlerini karşılamayan, Türkçe ya da İngilizce dışında bir dilde yazılmış, tam metnine ulaşılamayan ve randomize kontrollü olmayan çalışmalardır.

Tablo 1. Taramada kullanılan anahtar kelimeler

İngilizce (ABD)	Türkçe
Rheumatology and massage	Romatoloji ve masaj
Rheumatic diseases and massage	Romatolojik hastalıklar ve masaj
Rheumatoid arthritis and massage	Romatoid artrit ve masaj
Osteoarthritis and massage	Osteoartrit ve masaj
Spondyloarthropathy and massage	Spondiloartrit ve masaj
Arthritis and massage	Artrit ve masaj
Massage	Masaj
Randomized controlled trial	Randomize kontrollü çalışma

Tablo 2. Dahil Edilme Kriterleri

P (Patient / Katılımcı)	Romatolojik hastalık ilişkili semptom bildiren 18 yaş ve üzeri bireyler
I (Intervention/Müdahale)	Masaj uygulamaları
C (Comparison/Karşılaştırma)	Rutin bakım
O (Outcome/Sonuç)	Masaj sonrası semptom skorları
S (Study design/Çalışma deseni)	Randomize kontrollü çalışmalar

Çalışmaların Seçimi

Veri tabanı taraması araştırmacılar tarafından yapıldı. Literatür taraması yapılırken romatizmal hastalıkların ve masaj müdahalelerinin tamamı incelendi. Her bir veri tabanında bulunan toplam yayın sayısıyla birlikte uygun yayınlarda tanımlanan toplam çalışma sayısını belgelemek için Şekil 1'de yer alan PRISMA akış şeması oluşturuldu. Romatizmal hastalıklarda uygulanan masaj müdahalesine yönelik dili İngilizce ve Türkçe olan makaleler incelendi ve tarama sonucunda 3704 araştırma makalesine ulaşıldı. Bu makaleler arasından başlığı uygun olmayan çalışmalar ve tekrarlı çalışmalar dışlandı (n=3674). Başlık ve özet incelemelerinde araştırmacı (FA) tarafından dışlanan çalışmalar, başka bir araştırmacı (AÖ) tarafından incelendi. Uygun görülen, dahil edilmesi gerektiği düşünülen çalışmalar derlemeye dahil edildi. Dahil edilen çalışmalar uygunluk açısından değerlendirilip, tam metinleri detaylı bir şekilde incelendi. Özeti uygun olmayan (n= 1), tam metnine ulaşılamayan (n=1) ve randomize olmayan klinik araştırma makalesi (n=1) ve masajla birlikte diğer yöntemlerin bir arada uygulandığı kombine çalışmalar (n=5) dışlandı. Tüm bu işlemler sonrası kalan 16 araştırma makalesi sistematik derleme kapsamına alındı (Şekil 1).

Çalışmaların Metodolojik Kalitesinin Değerlendirilmesi

Derlemeye dahil edilen 16 randomize kontrollü çalışma, Joanna Briggs Enstitüsü (JBI) tarafından randomize kontrollü araştırmalar için oluşturulmuş kontrol listesine göre değerlendirilmiştir. 13 maddeden oluşan kontrol listesi seçim, performans, tespit ve eksiltme yanlılığını değerlendirmektedir. Kontrol listesinde yer alan her bir madde "Evet =1, Hayır = 0, Belirsiz = 0 veya Geçerli değil = 0" şeklinde puanlanmaktadır.[18] Değerlendirme sonucu randomize kontrollü deneysel çalışmalar için en fazla 13 puan alınabilmektedir. Çalışmaların toplam puanı arttıkça, metodolojik kalitesi de artmaktadır (Tablo 3). Yanlılık Riskinin Değerlendirilmesi

Derlemeye dahil edilen araştırmaların yanlılık değerlendirmesinde Cochrane grubunun tasarladığı A Cochrane risk-of-bias tool for randomized trials – (RoB 2) kullanıldı.19 Araştırmaya dahil edilen çalışmalar, RoB 2 kapsamında ele alınan 6 kritere (randomizasyon süreci, amaçlanan girişimlerden sapmalar, sonuçların ölçüm yanlılığı, eksik sonuç verileri, bildirilen sonuçların yanlılığı ve genel yanlılık) göre incelendi. Bu kriterlere göre araştırmaların yanlılık riski, "yüksek önyargı riski", "şüpheli önyargı riski" ve "düşük önyargı riski" olarak sınıflandırıldı (Tablo 4).

Araştırmanın Etik Yönü

Bu araştırmada, örneklem kapsamına alınan araştırma makaleleri, açık erişime sahip arama motoru ve elektronik veri tabanlarından alındığı için etik izin gerektirmemekle birlikte incelenen araştırma makaleleri kaynakçada belirtildi. Ayrıca araştırma protokolü sistematik derleme ve meta-analiz çalışmalarını kayıt altına alan PROSPERO (International Prospective Register of Systematic Reviews) veri tabanına CRD42023403878 kayıt numarası ile kaydedildi.

BULGULAR

Araştırma Desenleri

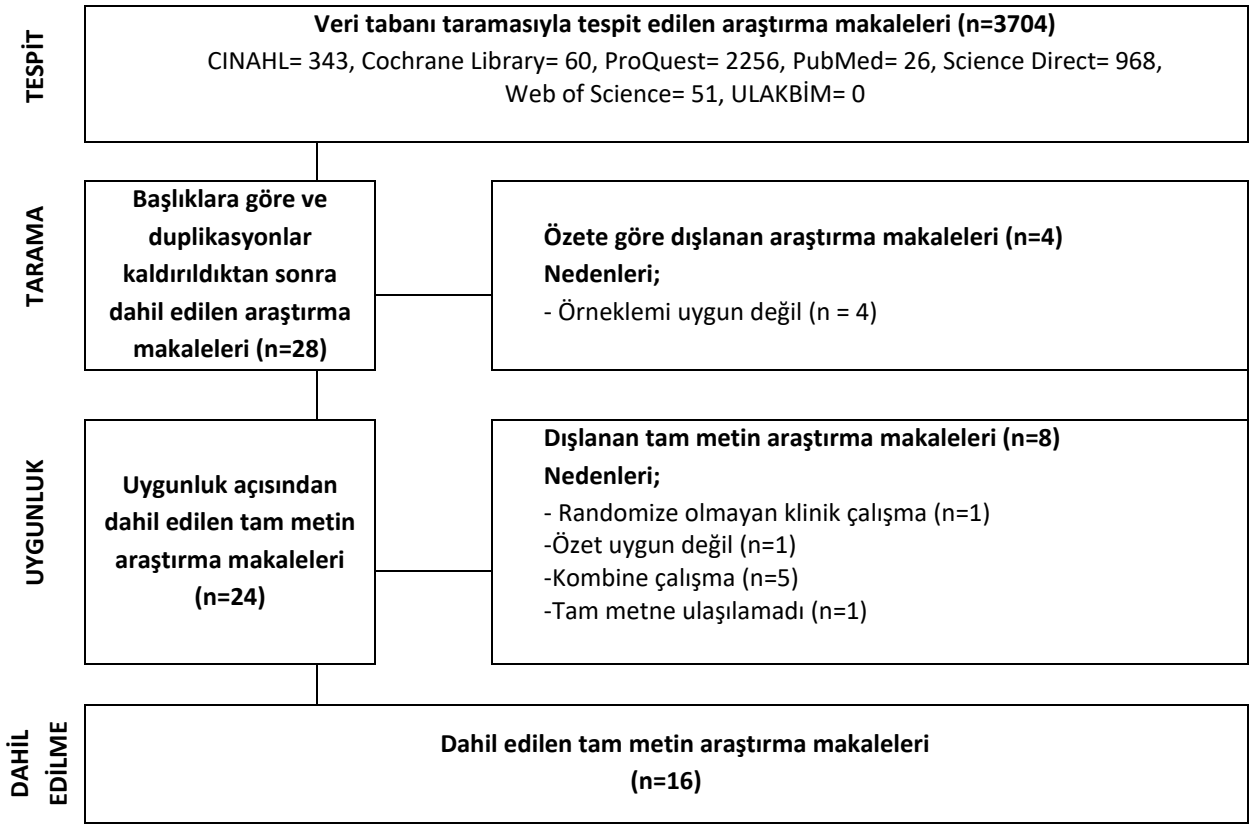
Araştırmaya 2000-2023 yılları arasında yayınlanan toplam 16 randomize kontrollü çalışma dahil edilmiştir.

Araştırmaların Metodolojik Kaliteleri ve Yanlılık Riskinin Değerlendirilmesi

Sistematik derlemeye dahil edilen randomize kontrollü çalışmaların metodolojik kalite değerlendirmesinden ortalama 10 (min=9, max=11) puan almıştır (Tablo 3).
Randomize kontrollü çalışmaların yanlılık riski değerlendirmeleri Tablo 4'te sunulmuştur.

Araştırmaların Yürütüldüğü Yerler

İncelenen araştırmalar Amerika Birleşik Devletleri (ABD) (n=6), İran (n=3), İspanya (n=2), Türkiye (n=2), Japonya (n=1), Polonya (n=1) ve Tayland'da (n=1) yapılmıştır.



Şekil 1. Araştırmanın PRISMA-P Akış Şeması

Tablo 3. Çalışmaların Metodolojik Kalite Değerlendirmeleri

Çalışma Künyeleri	Kriter 1	Kriter 2	Kriter 3	Kriter 4	Kriter 5	Kriter 6	Kriter 7	Kriter 8	Kriter 9	Kriter 10	Kriter 11	Kriter 12	Kriter 13	Toplam (%)
Field ve ark.[20], 2002	+	?	+	?	-	?	+	+	+	+	+	+	+	9/13 (%69,2)
Perlman ve ark.[21], 2006	+	?	+	+	?	-	+	+	+	+	+	+	+	10/13 (%76,9)
Ekici ve ark.[22], 2009	+	+	+	?	+	-	+	+	+	+	+	+	+	11/13 (%84,6)
Castro-Sánchez ve ark.[23], 2011	+	?	+	?	?	-	+	+	+	+	+	+	+	9/13 (%69,2)
Perlman ve ark.[24], 2012	+	+	+	-	+	?	+	+	+	+	+	+	+	11/13 (%84,6)
Field ve ark.[25], 2013	+	?	+	+	?	?	+	+	+	+	+	+	+	10/13 (%76,9)
Field ve ark.[26], 2014	+	?	+	-	-	+	+	+	+	+	+	+	+	10/13 (%76,9)
Chiranthanut ve ark.[27], 2014	+	+	+	?	-	+	+	+	+	+	+	+	+	11/13 (%84,6)
Romanowski ve ark.[28], 2017	+	-	+	?	-	-	+	+	+	+	+	+	+	9/13 (%69,2)
Tanaka ve ark.[29], 2018	+	+	+	?	?	+	+	+	+	+	+	+	+	11/13 (%84,6)
Perlman ve ark.[30], 2019	+	+	+	-	?	?	+	+	+	+	+	+	+	10/13 (%76,9)
Nadal-Nicolás ve ark.[31], 2020	+	+	+	?	+	-	+	+	+	+	+	+	+	11/13 (%84,6)
Sabet ve ark.[32], 2021	+	?	+	?	+	?	+	+	+	+	+	+	+	10/13 (%76,9)
Hasanpour-Dehkordi ve ark.[33], 2021	+	?	+	?	?	+	+	+	+	+	+	+	+	10/13 (%76,9)
Ünal Aslan, Çetinkaya[34], 2022	+	?	+	+	-	-	+	+	+	+	+	+	+	10/13 (%76,9)
Sahraei ve ark.[35], 2022	+	+	+	+	?	-	+	+	+	+	+	+	+	11/13 (%84,6)

+, Evet; -, Hayır; ?, Belirsiz/Geçerli değil; Kriter 1 – 13, JBI randomize kontrollü çalışmalar için sistematik derleme kontrol listesine ait kriterler

Katılımcı Özellikleri

Sistematik derlemeye dahil edilen araştırmaların toplam katılımcı sayısı 996 olup; osteoartrit (n=7), fibromiyalji (n=4), romatoid artrit (n=3), el artriti (n=1) ve ankilozan spondilit (n=1) hastaları oluşturmaktadır.

Masajın Türü ve İçeriği

Derlemeye dahil edilen araştırmalarda masaj, lokal ya da tüm vücut masajı olarak uygulanmaktadır. Bu araştırmalarda İsveç masajı[20,21,24,31,32,35], manuel lenf drenaj, bağ doku masajı[22], 18 hassas noktaya uygulanan masaj uygulaması[23], el ve omuz masajı[25], elden dirseğe kadar uygulanan masaj terapisi[26], thai masajı[27], derin doku ve terapötik masaj[28] uygulamaları kullanılmıştır (Tablo 5).

Masajın Uygulama Süresi

Masaj uygulaması en az haftada 1 gün, en fazla 4 gün uygulanmış, her bir seans uzunluğunun 5 dakika ile 90 dakika arasında değiştiği belirlenmiştir. Araştırmaya dahil edilen makalelerde toplamda en az 1 hafta, en fazla 52 hafta boyunca masaj uygulanmıştır.

Masaj Uygulayıcıları

Masaj müdahalesini uygulayan kişiler, hemşire[34,35], masaj terapisti[20,21,24,25,26,28,29,30,32], fizyoterapist[22,23,31,33] ve profesyonel uygulayıcıdan[27] oluşmaktadır.

Değerlendirme Ölçütleri

Derlemeye dahil edilen çalışmalarda masajın, ağrılı bölge sayısı, sabah tutukluğu, hareket açıklığı, yürüme ve basamak çıkma süreleri, el kavrama gücü, analjezik kullanımı, yorgunluk, kas spazmı, uyku süresi, uykunun etkinliği ve kalitesi, kaygı düzeyi, depresif duygu durumu, fonksiyonel kapasite, yaşam kalitesine yönelik etkinliğinin değerlendirildiği belirlendi (Tablo 5).

Romatolojik Hastalıklarda Masajın Semptomlar Üzerine Etkileri

Sistematik derlemeye dahil edilen araştırmalarda romatoloji hastalarında masaj müdahalesinin semptom yönetimi üzerine etkisi, müdahale sonrasında masajın etkinliği değerlendirilmiştir. Araştırma kapsamında değerlendirilen kanıtlara göre masajın ağrı şiddetini azalttığı, uyku süresini ve kalitesini arttırdığı, depresyon ve kaygı düzeyini azalttığı, sabah tutukluğunu azalttığı, hareket açıklığını arttırdığı, el kavrama gücünü arttırdığı, yorgunluğu azalttığı, fonksiyonel kapasiteyi ve yaşam kalitesini artırdığı belirlendi. Ayrıca masajın analjezik kullanımını, kan da CRP ve IL-6 seviyelerini azalttığı saptandı. Bir araştırmada ise manuel lenf drenaj tedavisinin bağ doku masajına göre ağrının azalması ve yaşam kalitesinin yükselmesinde daha etkili olduğu saptandı (Tablo 5).

Tablo 4. Randomize Kontrollü Çalışmaların ROB-2 Aracılığı ile Yanlılık Riski Değerlendirilmesi

Kriter	Derlemeye Dahil Edilen Araştırmalar															
	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Randomizasyon sürecinden kaynaklanan yanlılık riski	+	+	+	+	+	+	?	?	+	+	+	+	+	+	+	+
Amaçlanan müdahalelerden sapmalar nedeniyle önyargı riski (atamanın müdahaleye etkisi)	?	?	?	+	+	+	?	?	+	+	+	+	?	+	+	+
Amaçlanan müdahalelerden sapmalar nedeniyle önyargı riski (müdahaleye bağlı kalmanın etkisi)	-	-	+	-	+	?	+	-	+	+	+	+	+	+	+	?
Eksik sonuç verileri nedeniyle önyargı riski	-	?	?	?	-	+	?	+	+	+	+	+	+	+	+	+
Sonucun ölçümünde yanlılık riski	+	+	-	+	-	?	+	+	?	+	?	+	+	?	-	+
Raporlanan sonucun seçiminde yanlılık riski	?	+	+	?	+	+	+	+	+	?	+	+	+	?	?	?

+ Düşük Önyargı Riski ? Şüpheli Önyargı Riski - Yüksek Önyargı Riski

Tablo 5. Romatizmal Hastalıklarda Masaj Uygulaması ile İlgili Yapılan Randomize Kontrollü Çalışmalar

Araştırmanın Adı (Yazar, Yıl) Ülke	Örneklem Özellikleri ve Sayısı	Değerlendirilen semptom, fonksiyonel durum	Değerlendirme aracı	Örnekleme Ait Özellikler		Sonuç	Masaj Uygulayıcısı
				Uygulama grubu	Kontrol grubu		
Fibromyalgia Pain and Substance P Decrease and Sleep Improves After Massage Therapy (Field ve ark.[20], 2002) ABD	18 yaş ve üzeri, fibromiyalji tanısı konulan hastalar	-Ağrı şiddeti -Uyku süresi ve etkinliği -Kaygı düzeyi -Depresif duygu düzeyi	-CES-D (Center for Epidemiological Studies Depression Scale/Epidemiyolojik Araştırmalar Merkezi Depresyon Ölçeği) -STAI (State Trait Anxiety Index/Durumluk-Sürekli Kaygı Ölçeği) -POMS (Profile of Mood States/ Duygudurum Profili) -VAS (Visuel analog skala/Görsel analog ölçek)	(n=12) 5 hafta boyunca hafta da 2 kez 30 dakika tüm vücut masaj terapisi (İsveç masajı ve Shiatsu) yapıldı.	(n=12) 5 hafta boyunca hafta da 2 kez 30 dakika gevşeme terapisi uygulandı.	Her iki grupta da anksiyete ve depresif duygu düzeyinde azalma görüldü (P<0,05). Uygulama grubunda uyku saatlerinin süresi artarken, uyku esnasında hareketlerde azalma saptandı (P<0,05). Uygulama grubunda değerlendirilen ağrılı hassas nokta sayısı kontrol grubuna göre daha azdı (P<0,005).	Masaj Terapisti
Massage Therapy for Osteoarthritis of the Knee: A Randomized Controlled Trial (Perlman ve ark.[21], 2006) ABD	18 yaş ve üzeri, diz osteoartrit tanısı konulan hastalar	-Ağrı şiddeti -Sabah tutukluğu -Fonksiyonel kapasite	-WOMAC (Western Ontario and McMaster Universities) Osteoartrit indeksi -Fonksiyonel skor -VAS	(n=34) 16 hafta boyunca, haftada 2 seans 60 dakika, tüm vücut İsveç masajı uygulaması yapıldı. 8. ve 16. haftalarda değerlendirme yapıldı.	(n=34) Rutin bakım ve tedavi uygulanan hastalar.	Diz osteoartrit tedavisinde ağrı şiddeti (P<0,001), sabah tutukluğu (P<0,001) ve fonksiyonel kapasitenin arttırılmasında masajın etkili olduğu belirlendi (P<0,001).	Masaj Terapisti
Comparison of manual lymph drainage therapy and connective tissue massage in women with fibromyalgia: a randomized controlled trial. (Ekici ve ark.[22], 2009) Türkiye	18 yaş ve üzeri, fibromiyalji tanısı konulan hastalar.	-Ağrı şiddeti -Yaşam kalitesi	-VAS - FIQ (Fibromyalgia Impact Questionnaire /Fibromyalgia etki anketi) -Nottingham sağlık profili - HRQoL (Health-Related Quality of Life /Sağlıkla ilgili yaşam kalitesi)	(n= 25) Manuel lenf drenaj tedavisi 3 hafta boyunca, haftada 5 kez, her seferinde 45 dakika uygulandı.	(n= 25) Bağ doku masajı programı 3 hafta boyunca haftada 5 kez uygulandı. Masaj süresi uygulanan bölgeye göre 5 ila 20 dakika arasında değişiklik gösterdi. Masaj uygulanan bölgeler; lumbosakral bölge, torasik bölge, skapular ve interskapular bölge ile servikooksipitaldi.	Her iki uygulama da ağrı şiddeti azaldı (P<0,05) ve yaşam kalitesi yükseldi (P<0,05). Fakat manuel lenf drenaj tedavisinin bağ doku masajına göre daha üstün olduğu sonucuna ulaşıldı (P=0,10).	Fizyoterapist
Benefits of Massage-Myofascial Release Therapy on Pain, Anxiety, Quality of Sleep, Depression, and Quality of Life in Patients with Fibromyalgia (Castro-S´anchez ve ark.[23], 2011) İspanya	18 yaş ve üzeri, fibromiyalji tanısı konulan hastalar	-Ağrı şiddeti ve duyarlılığı -Kaygı düzeyi -Uyku kalitesi -Fonksiyonel kapasite	-VAS -Durumluk sürekli kaygı envanteri -SF-36 anketi -Pittsburgh Uyku Kalitesi İndeksi	(n=30) Haftada bir, 90 dakikadan oluşan seanslarla 20 hafta boyunca tüm vücutta belirlenen 18 hassas noktaya masaj yapıldı.	(n=29) 20 hafta boyunca haftada bir 30 dakika boyunca magnetoterapi servikal (15 dakika) ve lumbar (15 dakika) bölgeye uygulandı.	Fibromiyalji hastalarında uygulanan masaj, ağrı algısını iyileştirerek hassas noktalarda ağrı duyarlılığını ve hastaların kaygı düzeylerini azalttı (P<0,05), uyku kalitesini (P<0,05), fiziksel işlev ve fiziksel fonksiyonu iyileştirdi (P<0,01).	Fizyoterapist

Tablo 5. Devamı

Araştırmanın Adı (Yazar, Yıl) Ülke	Örneklem Özellikleri ve Sayısı	Değerlendirilen semptom, fonksiyonel durum	Değerlendirme aracı	Örnekleme Ait Özellikler		Sonuç	Masaj Uygulayıcısı
				Uygulama grubu	Kontrol grubu		
Massage Therapy for Osteoarthritis of the Knee: A Randomized Dose-finding Trial (Perlman ve ark.[24], 2012) ABD	18 yaş ve üzeri, diz osteoartrit tanısı konulan hastalar	-Ağrı, tutukluk, eklemin işlevselliği -Hareket açıklığı -50 fit (15 metre) yürüme süresi	-WOMAC Global Skorları -VAS	n=25 kişilik 4 uygulama grubu oluşturuldu. Grup 1: Haftada 1 seans, her seansta 30 dakika tüm vücut İsveç masaj uygulaması. Grup 2: Haftada 2 seans, her seansta 30 dakika tüm vücut İsveç masaj uygulaması. Grup 3: Haftada 1 seans, her seansta 60 dakika tüm vücut İsveç masaj uygulaması. Grup 4: Haftada 2 seans, her seansta 60 dakika tüm vücut İsveç masaj uygulaması. 8, 16 ve 24. Haftalarda analiz yapıldı.	(n=25) Rutin tedavi ve bakım alan hastalar.	16. haftada yapılan değerlendirmede haftada bir seans 60 dakikalık yapılan tüm vücut masajının 50 fit yürüme süresini (P<0,05), hareket açıklığını (P<0,05) ve WOMAC Global skorlarını iyileştirdiği (P<0,05) ve bunun optimal doz olduğu belirlendi.	Masaj Terapisti
Rheumatoid Arthritis in upper Limbs Benefits from Moderate Pressure Massage Therapy (Field ve ark.[25], 2013) ABD	18 yaş ve üzeri, romatoid artrit tanısı konulan hastalar	-Ağrı şiddeti -Hareket açıklığı	-VAS -STAI -The Profile of Mood States/Duygudurum Profili -Uyku bozuklukları skalası -Konuşan bir dijital egzersiz cihazı (MaxiAids) tarafından ölçülen kavrama gücü.	(n=20) 4 hafta boyunca, hafta da 1 kez 15 dakika el ve omuz masajı uygulandı.	(n=20) Rutin tedavi ve bakım alan hastalardır.	Masajın ağrıyı azalttığı (P<0,05), depresif duygu durumunda azalma (p<0,05), kaygıda azalma (P<0,05), hareket açıklığını arttırdığı (P<0,05) belirlendi. *Bu çalışmada uyku bozukluklarının azalmadığı saptandı (ilk puan: 42.9, masajdan sonra alınan puan: 41.9).	Masaj Terapisti
Massage Therapy Plus Topical Analgesic is More Effective Than Massage Alone for Hand Arthritis Pain (Field ve ark.[26], 2014) ABD	18 yaş ve üzeri, el artrit tanısı konulan hastalar	-El kavrama gücü -El ağrısı -Depresyon -Uyku bozukluğu	-VAS -Uyku bozuklukları skalası -Profile of Mood States -Konuşan bir dijital egzersiz cihazı (MaxiAids) tarafından ölçülen kavrama gücü.	(n= 11) Bir seansta elden dirseğe kadar 15 dakika masaj uygulandı. 4 hafta boyunca haftada 1 kez masaj terapisti tarafından diğer günlerden birinde 1 kez hastaların kendisi tarafından seanslar yürütüldü.	(n= 11) Bir seansta elden dirseğe kadar 15 dakika masaj uygulandı. 4 hafta boyunca haftada 1 kez masaj terapisti tarafından diğer günlerden birinde 1 kez hastaların kendisi tarafından seanslar yürütüldü. Bu uygulamaya ek olarak hastalara masaj sonrası %4 mentol içeren topikal analjezik jel (Biofreeze, Akron, Ohio) uygulandı.	Lokal analjezikle birlikte yapılan masajın sadece masaja göre bireylerde el kavrama gücünü artırdığı (P<0,05), ağrıyı azalttığı (P<0,05), depresif duygu durumu (P<0,01) ve uyku bozukluğunu (P<0,05) iyileştirdiği saptandı.	Masaj Terapisti

Tablo 5. Devamı

Araştırmanın Adı (Yazar, Yıl) Ülke	Örneklem Özellikleri ve Sayısı	Değerlendirilen semptom, fonksiyonel durum	Değerlendirme aracı	Örnekleme Ait Özellikler		Sonuç	Masaj Uygulayıcısı
				Uygulama grubu	Kontrol grubu		
Thai Massage, and Thai Herbal Compress Versus Oral İbuprofen in Symptomatic Treatment of Osteoarthritis of the Knee: A Randomized Controlled Trial (Chiranthanut ve ark.[27], 2014) Tayland	18 yaş ve üzeri, diz osteoartrit tanısı konulan hastalar	-Ağrı şiddeti -Sabah tutukluğu -Fonksiyonel kapasite -On basamağı çıkma süresi	-VAS -Lequesne's functional index/Diz Osteoartriti Şiddet İndeksi	Grup 1 (n=20): Thai masajı, Grup 2 (n=20): Thai masajı ve bitkisel top kompress uygulandı (bitkisel kompres topu 225 g ve Zingiber cassumunar Roxb. dahil olmak üzere kurutulmuş otlar içerir). Her iki gruba yapılan girişim, hastaların her iki alt ve üst bacakta bulunan akupresür noktalarına basitçe 10 saniye dokunularak yapıldı. Her iki gruba girişimler üç hafta süresince, haftada 3 seans ve her seans 1 saat uygulandı.	(n=18) 3 hafta süresince yemekten sonra günde 3 kez oral ibuprofen (400 mg tek tablet) verildi.	Thai masajı ve Thai bitkisel top kompresi üç haftalık tedaviden sonra (ağrı şideti ve sabah tutukluğunun azaldığı, fonksiyonel kapasitenin arttığı ve basamak çıkma süresinin azaldığı saptanmıştır) oral ibuprofen ile karşılaştırılabilir klinik etkinlik sağladı (P<0,05). Uygulama gruplarında ise en etkili yöntemin Thai bitkisel top kompressin olduğu belirlendi (P<0,05).	Profesyonel uygulayıcı
Comparison of Deep Tissue Massage and Therapeutic Massage for Lower Back Pain, Disease Activity, and Functional Capacity of Ankylosing Spondylitis Patients: A Randomized Clinical Pilot Study (Romanowski ve ark.[28], 2017) Polonya	18 yaş ve üzeri, ankilozan spondilit tanısı konulan hastalar	-Ağrı şiddeti -Hastalık aktivitesi -Fonksiyonel kapasite	- BASDAI (Bath Ankilozan Spondilit Hastalığı Aktivite İndeksi) - BASFI (Bath Ankilozan Spondilit Fonksiyonel İndeksi) -Modifiye Schober Testi -Parmaktan Yere Testi -VAS	(n=14) Derin doku masajı 2 hafta boyunca (toplam 10 seans) günde 30 dakika lokal olarak sırt bölgesine uygulandı.	(n=13) Terapötik masaj 2 hafta boyunca (toplam 10 seans) günde 30 dakika lokal olarak sırt bölgesine uygulandı.	Derin doku masajı ve terapötik masaj kullanımının Ankilozan spondilit hastasında ağrı (P<0,05), hastalık aktivitesi (P<0,05) gibi semptomların yönetiminde kullanılabileceği görülmüştür. Derin doku masajı yapılan hasta grubunda ağrı şiddeti (VAS) terapötik masaja göre daha çok düştüğü gözlenmiştir (P=0,003).	Masaj terapisti
Effect of Continuous Compression Stimulation on Pressure-Pain Threshold and Muscle Spasms in Older Adults with Knee Osteoarthritis: A Randomized Trial (Tanaka ve ark.[29], 2018) Japonya	50 yaş ve üzeri, diz osteoartrit tanısı konulan hastalar	-Ağrı şiddeti -Hareket açıklığı -Kas spazmı	-AGFI (Adjusted Goodness-of-fit Index/Düzeltilmiş iyilik uyum indeksi -CFI (comparative fit index/Karşılaştırmalı uyum indeksi) -GFI (goodness-of-fit index/İyi uyum indeksi) -RMSEA (root-mean-square error of approximation) -VAS	(n = 16) Tek seansta (5 dakika) sürekli lokal kompresyon (basınç, sıkıştırma) uygulanarak masaj yapıldı. El dinamometresi (Microfet2) ile uygulanan kompresyon (5-60N) ölçüldü.	(n = 16) Tek seans (5 dakika) sahte masaj terapisi lokal (basınç uygulamadan dokunma) uygulandı. El dinamometresi (Microfet2) ile uygulanan kompresyon ölçüldü (neredeyse 0).	Uygulama grubunda hem istirahat halinde hem de yürürken basınç-ağrı eşiğinin ağrı üzerine etkisi olduğu ve önemli ölçüde iyileştiği saptandı (P<0,01). Hareket açıklığı ve kas spazmı için gruplar arasında fark yoktu (P>0,05).	Masaj terapisti
Efficacy and Safety of Massage for Osteoarthritis of the Knee: A Randomized Clinical Trial (Perlman ve ark.[30], 2019) ABD	50 yaş ve üzeri, diz osteoartrit tanısı konulan hastalar	-Ağrı şiddeti -Hareket açıklığı	-WOMAC global skorları -VAS -PROMIS Pain Interference Questionnaire	Grup 1 (n=74): 52 hafta boyunca, haftada 1 seans (1 saat) tüm vücuda İsveç masajı yapıldı. Grup 2 (n=73): 52 hafta boyunca, haftada 1 seans (1 saat) hafif dokunuş yapıldı. 8, 16, 24, 36 ve 52. haftalarda değerlendirme yapıldı.	(n=75) Rutin tedavi ve bakım alan hastalar.	8 hafta boyunca uygulanan 60 dakikalık İsveç masajının ağrı şiddetini azaltma (P<0,05), hareket açıklığını arttırma (P<0,05) ve WOMAC global skorlarını iyileştirmede (P<0,05) etkin olduğu görüldü. Ancak 8 haftalık uygulamadan sonra olağan bakımın ötesinde ek fayda sağlamadığı sonucuna ulaşıldı (P>0,05).	Masaj terapisti

Tablo 5. Devamı

Araştırmanın Adı (Yazar, Yıl) Ülke	Örneklem Özellikleri ve Sayısı	Değerlendirilen semptom, fonksiyonel durum	Değerlendirme aracı	Örnekleme Ait Özellikler Uygulama grubu	Kontrol grubu	Sonuç	Masaj Uygulayıcısı
Effects of Manual Therapy on Fatigue, Pain, and Psychological Aspects in Women with Fibromyalgia (Nadal ve ark.[31], 2020) İspanya	18 yaş ve üzeri, kadın, fibromiyalji hastası	-Ağrı şiddeti -Kas yorgunluğu ve gerginliği -Uyku kalitesi	-FSS (Fatigue severity scale/ Yorgunluk şiddeti ölçeği), -VAS - PSQI (Pittsburgh Sleep Quality Index/ Pittsburgh uyku kalitesi indeksi), -POMS-29	(n=14) 4 hafta boyunca, 8 seans, her seansta 15 dakika posterior servikal kasa orta seviyede basınç uygulanarak masaj yapıldı.	(n=10) Rutin tedavi ve bakım alan hastalar.	Fibromiyalji tanısı olan kadınlarda posterior servikal kaslara 15 dakika boyunca orta basınçla yapılan manuel masajın ağrı şiddetini (P<0,05), kas yorgunluğu (P<0,05) ve gerginliğini azalttığını (P<0,05), uyku kalitesini azalttığı saptandı (P<0,05). Bu sonuçlara göre masajın fibromiyalji hastalarında farmakolojik tedavilere ek alternatif olarak değerlendirilebileceği belirtilmektedir.	Fiziksel terapist
Effects of Swedish Massage on Gait Spatiotemporal Parameters in Adult Women with Medial Knee Osteoarthritis: A randomized Controlled Trial (Sabet ve ark.[32], 2021) İran	18 yaş ve üzeri, diz osteoartrit tanısı konulan hastalar	-Ağrı şiddeti -Yürüyüşün uzamsal-zamansal parametreleri de çıplak ayakla yürüyüş sırasında hareket analiz sistemi tarafından yakalanmıştır.	-WOMAC global skor	(n=15) Her seansta (12 seans) 20-30 dakika boyunca hastaların kuadriseps kasına İsveç masajı uygulandı.	(n=15) Rutin tedavi ve bakım alan hastalar.	Diz osteoartrit hastalarında İsveç masajının ağrının giderilmesine (P<0,05) ve fonksiyonel kapasitenin geliştirilmesine olumlu etkisi olduğu (P<0,05) ve hastalarda uzay-zamansal parametreleri iyileştirdiği (P<0,05) sonucuna ulaşıldı.	Masaj terapisti
Comparing the Effects of Massage Therapy and Aromatherapy on Knee Pain, Morning Stiffness, Daily Life Function, and Quality of Life in Patients with Knee Osteoarthritis. (Hasanpour-Dehkordi, Kabiri[33], 2021) İran	18 yaş ve üzeri, diz osteoartrit tanısı konulan hastalar.	-Ağrı şiddeti -Sabah tutukluğu -Yaşam kalitesi -Günlük yaşam fonksiyonlarını yerine getirme	-Osteoarthritis Outcome Score (KOOS- : Knee injury and osteoarthritis outcome score/ Diz incinme ve osteoartrit sonuç skoru) questionnaire	Grup 1 (n=31): Masaj uygulaması Tatlı badem yağı ile diz bölgesine (Haftada 3 seans, her bir seans 20 dakika olacak şekilde toplamda 10 seans) uygulandı. Grup 2 (n=31): İnhaler aromaterapide (Haftada 3 gece pamuklu bir giysinin yaka kısmına 2 damla (3 mL)) lavanta yağı damlatıldı ve tüm gece hastanın bu giysi ile uyuması sağlandı.	(n=31) Rutin tedavi ve bakım alan hastalar.	Aromaterapi ve masaj terapisi kontrol grubuyla karşılaştırıldığında ortalama puanlarda anlamlı derecede farklıdır (P<0.05), ancak aromaterapi ve masaj terapi grupları arasında anlamlı bir fark yoktur (P>0.05). Müdahalelerin hastalar üzerinde etkilerinin görülmesi için en az 6 ay uzatılmalıdır.	Fizyoterapist
The effects of Reiki and hand massage on pain and fatigue in patients with rheumatoid arthritis (Ünal Aslan ve Çetinkaya[34], 2022) Türkiye	18 yaş ve üzeri, romatoid artrit tanısı konulan hastalar.	-Ağrı şiddeti -Yorgunluk.	-VAS -Piper yorgunluk ölçeği	Grup 1 (n=35): Hastalara baş, göz, boyun, göğüs, karın, kasık bölgesi ve bacak gibi diğer bölgelerine 6 seans (her bir seans 30 dakika) reiki uygulandı. Grup 2 (n=37): 6 seans (her bir seans 30 dakika) her iki ele el masajı uygulaması yapıldı.	(n=33) Rutin tedavi ve bakım alan hastalar.	Ağrı ve yorgunluk skorları açısından reiki ve el masajı grupları arasında istatistiksel olarak anlamlı fark yoktu (P>0,05). Reiki terapisinin ve el masajının ağrı ve yorgunluk puanlarını azaltmada etkili olduğu sonucuna ulaşıldı (P<0,05).	Hemşire
The effect of Swedish massage on pain in rheumatoid arthritis patients: A randomized controlled trial (Sahraei ve ark.[35], 2022) İran	18 yaş ve üzeri, romatoid artrit tanılı hastalar.	-Ağrı şiddeti -Analjezik kullanımı	-VAS	(n=30) İlk 4 hafta haftada 2 kez, sonraki 4 hafta haftada 3 kez 30 dakika lokal (her bir kolun eklemleri, omuz, dirsek, bilek ve parmaklar) İsveç masajı uygulandı.	(n=30) Rutin tedavi ve bakım alan hastalar.	İsveç masajının son seanstan sonra ve bir ay sonra kontrol grubuna göre ağrı şiddeti (P<0,05) ve ağrı kesici kullanma ihtiyacını azaltmada etkili olduğu saptandı (P<0,05).	Hemşire

TARTIŞMA

Bu sistematik derlemede romatizmal hastalığı olan bireylere uygulanan masajın semptomlar üzerine etkisini inceleyen 16 araştırmanın sonucu özetlendi. Bu araştırmalara göre romatizmal hastalıklarda görülen birden fazla semptomun kontrolünde masaj etkilidir. Masaj, invaziv olmayan ve yan etkisiz, ucuz, kolay uygulanabilir integratif girişimler arasındadır. Masaj, kan dolaşımını arttırarak ya da duyu reseptörlerinin stimülasyonunu sağlayarak etki göstermektedir.[12]

Araştırma kapsamında incelenen çalışmaların sonuçlarına göre farklı sürelerde ve farklı tekniklerde uygulanan masajın ağrı[20], yorgunluk[34], depresif duygu durumu, kaygı durumu[23], uyku sorunları[26,31], fonksiyonel kapasite[28], sabah sertliği[21,24,27,33], eklem hareket açıklığı[21], kas spazmı[27] üzerine iyileştirici etkisi olduğu bildirilmiştir. İki araştırmada ise masajın uzun vadede semptom yönetiminde fayda sağlamadığı belirtilmektedir.[24,30] Literatürde bir seans masaj uygulama süresi; tüm vücutta 45-60 dakika, sadece üst ekstremite de 10-15 dakika, sadece alt ekstremitede 15-20 dakikadır.[11] Çalışmamıza dahil edilen araştırmalarda masaj uygulama sürelerinin literatürle uyumlu olduğu görülmekle birlikte iki çalışma[24,30] dışında optimal masaj süresinin ne kadar olması gerektiği konusunda bir kanıtın olmadığı görülmektedir.

Masajın, sistemler üzerine etkisi göz önünde bulundurulduğunda optimal düzeyde fizyolojik ve psikolojik rahatlık sağlamakta ve hastalık tanısına göre uygulanan masaj tekniği farklılaşmaktadır.[20,21,22] Derlemeye dahil edilen araştırmalarda fibromiyalji hastalarında daha çok tüm vücut İsveç masajı[20] ya da ağrılı hassas noktaları içeren geniş bölgeye masaj uygulandığı saptanırken[22,23,31]; osteoartrit hastalarında diz eklemi[33] ve quadriseps kas bölgesine[32] tüm vücut İsveç masajı[21,24,30] ya da thai masajı[27]; el artriti ya da romatoid artrit nedeniyle el tutulumu olan hastalarda el, kol, omuz bölgesi gibi lokal alanlara masaj[26]; ankilozan spondilit hastalarında sırt bölgesine lokal masaj[28] yapılmıştır. Ayrıca osteoartritli hastalarda genel vücut masajı[21,24,27,30], fibromiyalji hastalarında da sadece posterior servikal kasa lokal masaj[31] uygulanmıştır. Derlemeye dahil edilen araştırmalarda fibromiyalji hastaları için uygulanan masaj; ağrı şiddetini düşürmüş[20,22,23,31], hassas nokta sayısını azaltmış[23], uyku süresi, etkinliği[20] ve kalitesini[23,31] artırmış, anksiyete, kaygı ve depresif duygu durumunu iyileştirmiş[20,23], yaşam kalitesini artırmış[23], kas yorgunluğu ve gerginliğini azaltmıştır.[31] Osteoartrit hastalarında ise masaj; ağrı şiddetini[21,24,27,29,30,32,33] ve sabah tutukluğunu azaltmış[21,24,27,33], fonksiyonel kapasitelerini artırmış[21,27], WOMAC global skorlarını iyileştirmiş[21,24,30,32], günlük yaşam aktivitelerini yerine getirmeyi ve yaşam kalitesini artırmıştır.[33] El artriti olan hastalarda masaj; el kavrama gücünü artırmış, el ağrısını azaltmış, depresif duygu durumunu ve uyku bozukluğunu azaltmıştır.[26] Ankilozan spondilit hastalarına uygulanan masajın ağrı ve hastalık aktivitesini azalttığı, fonksiyonel kapasiteyi arttırdığı[28]; romatoid artrit hastalarında masajın ağrı[34,35] ve yorgunluğu azalttığı[34], analjezik kullanımını azalttığı[35] belirlenmiştir. Bütün bu kanıtlar değerlendirildiğinde hangi romatolojik hastalıkta ya da semptomda hangi masaj tekniğinin optimal olduğuna ilişkin bir kanıta ulaşılamamakla birlikte masaj genel olarak pozitif etkilidir. Bu nedenle hemşire araştırmacıların belirli bir semptoma yönelik hangi masaj tekniğinin (masaj tekniği, süre ve sıklık) optimal olduğunu belirlemesi için gelecekte masaj tekniklerini karşılaştıran randomize kontrollü çalışmaların yapılmasını öneriyoruz.

Araştırmalarda masaj müdahalesini uygulayan kişiler, masaj terapisti[20,21,24,25,26,28,29,30,32], fizyoterapist[22,23,31,33], hemşire[34,35] ve profesyonel uygulayıcıdan[27] oluşmaktadır. Araştırmalarda masaj uygulayanların, uyguladıkları masajla ilişkili sertifika sahibi oldukları görülmektedir. Romatoloji hastalarının semptom kontrolünde ve hemşirelerin bağımsız bakım uygulamaları arasında değerlendirilen masaj[8] uygulaması ile ilgili hemşirelik araştırmalarının azlığı dikkat çekicidir. Bunun yanı sıra araştırma kapsamında değerlendirilen 16 çalışmanın yalnızca ikisinin ülkemizde yapıldığı ve iki tanesinin ise hemşireler tarafından yapıldığı belirlenmiştir. Romatoloji hemşireliği alanına katkı sağlamak amacıyla hemşire araştırmacıların masaj uygulamaları ile ilgili çalışmalar yapması ve sonuçların klinik uygulamaya aktarılması gereklidir.

Derlemeye dahil edilen araştırmaların masaj uygulamalarının etkinliğinin kısa vadede değerlendirildiği, masajın kısa vadede semptom kontrolünü sağladığı görülmüş, uzun vadeli sağlık sonuçlarına ilişkin kanıtlar ise sınırlıdır.[24,30] Bir araştırmada 52. haftada bir değerlendirmenin yapıldığı ve masajın 8 haftalık uygulamadan sonra olağan bakımın ötesinde ek fayda sağlamadığı bildirilmiştir.[30] Bu sonuçlardan yola çıkılarak masaj uygulamasının sağlık sonuçlarına etkinliğini uzun vadeli değerlendiren çalışmalara ve kanıtlara ihtiyaç duyulmaktadır.

Araştırmalarda masaj uygulamasının etkinliği diğer girişimlerle karşılaştırılarak değerlendirildiği de görülmektedir. Fibromiyalji hastalarında yapılan tüm vücut İsveç masajının, gevşeme egzersizine göre[20], manuel lenf drenajın bağ doku masajına göre[22], masajın magnetoterapiye göre daha etkindir.[23] Yine ankilozan spondilit hastalarında derin bağ doku masajı terapötik masaja göre daha etkindir.[28] Bu sonuçlara göre romatoloji hastalarında uygulanan masaj tekniğinin hangisinin daha

üstün ve hangi durumlarda üstün olduğu belirsizdir. Araştırma örnek gruplarının sayısının da düşük olması bu etkinliği değerlendirmemizi engellemektedir.

Romatoloji hastalarının yaşadıkları ağrı, tutukluk gibi semptomlar karşısında daha sonra psikolojik olarak etkilendikleri literatürde vurgulanmaktadır.[26] Derlemeye dahil edilen araştırmalarda romatoloji hastalarının fizyolojik semptomları için uygulanan masajın bu semptomları yöneterek depresif duygu durumu, yorgunluk, anksiyete ve uykusuzluk semptomlarını iyileştirmektedir.[20,23,26,31] Bu semptomlar yönetildiğinde hastaların yaşam kaliteleri de yükselmektedir.[22,33]

Araştırmamızda incelenen randomize kontrollü araştırmalarda masajın romatolojik hastalıkların semptom yönetiminde maliyet etkinliği veya etkililiği üzerine kanıtın sağlanmadığı görülmektedir. Bu nedenle gelecekte masajın romatolojik hastalık semptom yönetimine etkisi incelenirken, maliyet etkinliğine ilişkin kanıtlarında sunulması için araştırma tasarımlarının oluşturulmasını önermekteyiz.

Elde edilen kanıtlar değerlendirildiğinde romatoloji hemşireliği alanında masaj uygulamalarının standardize edilmeli ve bakım planlarında rutin bir uygulama olarak kullanılmalıdır. Ek olarak lisans düzeyinde hemşirelik eğitimi müfredatlarında romatoloji alanında semptom kontrolünü sağlamada masaj uygulamasının önemi, lisans sonrasında ise romatoloji hemşirelerine masaj uygulamaları eğitim sertifikası ve hizmet içi eğitimler verilerek hemşirelerin konu hakkında bilgileri güncellenmelidir.

Araştırmanın Sınırlılıkları

Bu sistematik derleme çalışması taranan veri tabanları ve 2000-2023 yılı içinde yapılmış, tam metnine ulaşılabilen ve yalnızca Türkçe ve İngilizce dillerinde yapılmış çalışmalarla sınırlıdır. Randomize kontrollü çalışmalar dışındaki yayınların inceleme kapsamına alınmamış olması bir diğer sınırlılıktır. Çalışmalarda kullanılan formlar ve ölçekler, örneklem sayısı ve kimlerden oluştuğu, ilgili değişkenlerin türü ve yorumlanması gibi metodolojik farklılıklar önemli bir kısıtlılıktır.

Romatolojik hastalıkların semptom kontrolünde hemşireler, mahremiyeti sağlayarak ve hastaları bilgilendirerek masaj uygulamasına karar verebilir, bakım planlarına masaj uygulamasını dahil edebilir, hastanın fizyolojik ve psikolojik sağlık sonuçlarını olumlu yönde değişmesine katkı sağlayabilir.

Etik Komite Onayı: Bu çalışmada, örneklem kapsamına alınan araştırma makaleleri erişime açık olan arama motoru ve elektronik veri tabanlarından alındığı için etik izin gerektirmemektedir. Ayrıca incelenen makaleler kaynakçada gösterilmiştir.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkısı: Fikir- FA, AÖ; Tasarım- FA, AÖ; Denetleme- FA, AÖ; Kaynaklar- FA, AÖ; Veri Toplanması ve/veya İşlenmesi- FA, AÖ; Analiz ve/veya Yorum- FA, AÖ; Literatür Taraması- FA, AÖ; Yazıyı Yazan- FA, AÖ; Eleştirel inceleme- FA, AÖ
Çıkar çatışması: Yazarlar arasında herhangi bir çıkar çatışması bulunmamaktadır.
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Ethics Committee Approval: This study does not require ethical approval as the research articles included in the sample were obtained from search engines and electronic databases that are open to access. In addition, the articles analyzed are shown in the bibliography.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept - FA, AÖ; Design - FA, AÖ; Supervision - FA, AÖ; Resources - FA, AÖ; Data Collection and/or Processing - FA, AÖ; Analysis and/or Interpretation - FA, AÖ; Literature Search - FA, AÖ; Writing Manuscript - FA, AÖ; Critical Review - FA, AÖ.
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The Effectiveness of Spiritual Interventions in Improving the Mental Health of Patients Receiving Hemodialysis Treatment in Nursing Care: A Meta-Analysis Study

Hemşirelik Bakımında Hemodiyaliz Tedavisi Alan Hastaların Ruh Sağlığını Geliştirmede Manevi Müdahalelerin Etkinliği: Bir Meta Analiz Çalışması

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ABSTRACT

Objective: The aim of this study is to investigate the relationship between spiritual well-being and anxiety and depression in patients receiving hemodialysis treatment through meta-analysis method.

Methods: Pubmed, the Cochrane Central Register of Controlled Trials (CENTRAL), Web of Science, EBSCOhost, and ProQuest databases were used to gather the data. All databases were reviewed for the last time on April 5, 2022, and a total of 5 studies were included in this meta-analysis. Effect size was evaluated according to Cohen's r correlation coefficient effect width classification. I2 tests were calculated to test heterogeneity.

Results: It was found that the effect of spirituality on reducing depression was negative and at a large effect level. Moreover, it was investigated that the effect of spiritual well-being on reducing anxiety was negative and moderate. Since $I^2 > 50$ in both analyses, random effects model was used for carrying out the process of analysis.

Conclusion: It was found that spiritual well-being had a great effect on depression and moderate effect on anxiety in patients receiving hemodialysis treatment. High levels of spiritual well-being can reduce the incidence of anxiety and depression in hemodialysis patients. In addition, it can be indicated that spiritual care offered to patients receiving hemodialysis treatment would reduce the level of anxiety and depression.

Keywords: Anxiety; Depression; Meta-analysis; Nursing; Spirituality

ÖZ

Amaç: Bu çalışmada hemodiyaliz tedavisi alan hastalarda ruhsal iyi oluş ile anksiyete ve depresyon arasındaki ilişkiyi meta-analiz yöntemiyle araştırma amacıyla yapılmıştır.

Yöntemler: Verilerin toplanmasında Pubmed, Cochrane Central Register of Controlled Trials (CENTRAL), Web of Science, EBSCOhost ve ProQuest veritabanları kullanıldı. 5 Nisan 2022'de tüm veritabanları son kez incelendi ve toplam 5 çalışma bu meta analize dahil edildi. Etki büyüklüğü Cohen'in r korelasyon katsayısı etki genişliği sınıflandırmasına göre değerlendirilmiştir. Heterojenliği test etmek için I^2 testleri hesaplandı.

Bulgular: Bu çalışmada ruhsal iyi oluşun depresyonu azaltmadaki etkisinin negatif ve geniş etki düzeyinde olduğu bulunmuştur. Ayrıca manevi iyi oluşun kaygıyı azaltma üzerindeki etkisinin negatif ve orta düzeyde olduğu araştırılmıştır. Her iki analizde de $I^2 > 50$ olduğundan analiz sürecinin yürütülmesinde rastgele etkiler modeli kullanılmıştır.

Sonuç: Bu meta-analizde, hemodiyaliz tedavisi alan hastalarda ruhsal iyi oluşun depresyon üzerinde büyük, anksiyete üzerinde ise orta düzeyde etkisinin olduğu bulunmuştur. Yüksek düzeyde manevi iyilik, hemodiyaliz hastalarında anksiyete ve depresyon görülme sıklığını azaltabilir. Ayrıca hemodiyaliz tedavisi gören hastalara verilecek manevi bakımın anksiyete ve depresyon düzeylerini azaltacağı söylenebilir.

Anahtar Kelimeler: Kaygı; Depresyon; Meta-analiz; Hemşirelik; Maneviyat

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INTRODUCTION

Chronic kidney disease (CKD) affects numerous systems and it is a chronic condition. 10-15% of adults have CKD around the world.[1] Medical institutions globally report 242 cases of CKD for every one million people. This statistics increase approximately %8 every year.[2] Moreover, approximately 26.3 million people worldwide experience chronic renal failure.[3] Hemodialysis (HD) patients' reliance on a dialysis machine, medical staff, and family for an average of four hours a day and three days a week has an impact on their personal lives.[4,5] Patients receiving HD treatment may exhibit psychological issues such worry, fear of dying, anxiety, wrath, hopelessness , brought on by machine alarms.[6] Some studies reported that people receiving HD therapy experience anxiety at a rate that ranges from 3 to 46%. [7-9] The most crucial elements in the development of depression are the patients' fears of the loss of their health, their autonomy, their physical strength and their ability to work.[10]

After the acute phase, depression is the most prevalent psychiatric condition in people getting therapy for HD.[11,12] Researchers reported that persons with HD who are undergoing therapy for depression have depression rates that range from 25 to 60%.[7,8,10,13] In patients getting HD treatment, high spiritual well-being is linked to lower levels of stress, anxiety, and depression.[14]

Health and mental well-being have a lot to do with spiritual well-being. It was stressed that spirituality is one of the fundamental characteristics that define humans.[15] The need of highlighting patients' spiritual needs was underlined in some studies.[16] It has been stressed in various research that spiritual well-being is crucial for enhancing mental health and is useful in lowering anxiety and sadness.[17-19] Studies have shown that spiritual well-being lowers the amount of fear and anxiety associated with chronic conditions, is crucial in the battle against the condition, aids in patient adaptation, improvement and development of mental health and quality of life.[20-23]

Spirituality makes it easier to deal with existential symptoms like meaninglessness in life and mental illnesses like anxiety and depression. Additionally, one of the most effective strategies for navigating significant life changes and creating a coping strategy for traumatic situations is spiritual well-being.[24,25] It is indicated that employing spiritual coping mechanisms that can deepen spirituality helps people's symptoms of depression.[26] Research has shown that spiritual therapy is an effective intervention for improving mental health and self-efficacy in hemodialysis patients.[27]

Studies investigating the impact of spirituality in anxiety and depression in patients undergoing HD treatment have found that spiritual therapies lower patients' levels of anxiety and sadness.[28-30] Spiritual care is valued as a life-enriching component that helps patients cope with hardships more effectively.[31]

AIM

The review found no meta-analysis studies in the literature examining the relationship between spiritual well-being and anxiety and depression in HD patients. The aim of this study is to investigate the relationship between spiritual well-being and anxiety and depression in patients receiving HD treatment using meta-analysis method.

METHODS

Study Design

This is a meta-analysis study. This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis 2020 (PRISMA) guidelines and no protocol was registered for the study.[32]

Inclusion and Exclusion Criteria

Inclusion criteria: (a) patients receiving hemodialysis treatment, (b) studies on the relationship between spiritual well-being and anxiety or depression, and (c) studies published in English.

Exclusion criteria: (a) studies on different subjects, (b) case reports, letters, reviews, and (c) studies with missing data for analysis.

Search Strategy

Data were collected using the databases PubMed, The Cochrane Central Register of Controlled Trials (CENTRAL), Web of Science, EBSCOhost, and ProQuest. In addition to these databases, a thesis from the Turkish National Thesis Center was added in the meta-analysis. The review's findings were presented using the PRISMA Flowchart (Figure 1). EndNote X7 was used for the duplication procedure.

A preliminary study was conducted in March 2022. Following the confirmation that the study met the criteria for a meta-analysis, databases were immediately initiated. The search process across all databases was finalized on April 5, 2022. The databases were conducted via the Muş Alparslan University data network.

Boolean Operators were used as well as MeSH (Medical Subjects Headings) content while creating search words. The review was done in English. All databases were reviewed as “(spiritual* OR spirituality OR spiritualities OR spiritual therapies) AND (renal dialysis OR hemodialysis)

AND (anxiety OR depressive disorder OR depression)". There was no chronological restriction in the review; all research prior to the date of the final review were included. The final scan of all databases was performed on April 5, 2022.

Data Extraction

Data extraction was completed independently by the four reviewers (DM, TÖ, OA, EM) and the reviews were then compared. Conflicts encountered were resolved through discussion. Data extraction included the following variables: the surname of the first author, the year of publication, country, scales used, mean age, sample size, r values, and quality assessment.

Quality Assessment

All included articles/dissertations were assessed for methodological quality using the published 'Quality Assessment and Validity Tool for Correlation Studies', adapted from previous systematic reviews. [33-36]

This evaluation device consists of 13 questions for chording and assessing the project, sample, dimension and statistical dissection of each study (Table 1). tallying to this device, the grand grudges of the publications were distributed as low (0 - 4), medium (5 - 9) or high (10 - 14). Two coders familiar with the work - blood discordance and development literature - coded the queries using an Excel distance. The rendering details of all inquiries comprehended in this meta-analysis are offered in Table 1. Four independent reviewers carried out the evaluation (DM, TÖ, OA, EM). Conflicts that arose were resolved by deliberation.

Data Analysis

Effect size is categorized in many ways by different researchers, but Cohen's is the most important.[37] According to Cohen's effect width classification, the correlation coefficient r is 0.1: small effect, 0.25: medium effect, 0.4: large effect.[38] The effect size was calculated accordingly in the present study. Heterogeneity was determined to be significant at I^2 > 50% or p < 0.1. The following is a guide to interpret I^2 of heterogeneity: 0%-40%: might not be important; 30%-60%: moderate; 50%-90%: substantial; 75%-100%: considerable.[39] Since I^2 > 50% was found in the analysis, the random effect model was employed.

Kepes et al.[40] They published a user guide for assessing publication bias in 2022. According to this guideline, it is recommended to use three or more methods with different statistical assumptions and to use visual graphics to reliably assess publication bias. Five different methods were employed to evaluate publication bias in the present study: "Funnel plot", "Classic Fail-safe N", "Begg and Mazumdar", "Egger" and "Duval and Tweedie's trim and fill". The Comprehensive Meta-Analysis V2 (CMA) program was used in the meta-analysis. Because the number of studies was small, moderator analysis was not performed.

Ethical Considerations

Since there is no need to obtain an ethics committee report in studies conducted as meta-analysis, an ethics committee report was not obtained for this study.

RESULTS

There were 5 study and 811 people included in the study as a result of reivew.[41-45] Detailed review results are shown in the PRISMA 2020 flowchart (Figure 1). One study (30) had missing data, this study were not included in the analysis.

Characteristics of the Study

Of the five included studies, three were conducted in Jordan, one in Iran and one in Türkiye. Four of the five studies examined the relationship between spirituality and anxiety and depression, while one study only examined the relationship between spirituality and depression.

The included studies used the Spiritual Well-Being Scale (SWBS), the Functional Assessment for Chronic Illness Therapy- Spiritual well-being (FACIT-SP-12), the Depression, Anxiety and Stress Scales 21 (DASS-21), the Patient Health Questionnaire (PHQ9), the Depression was assessed using the Patients Reported Outcomes Measurement Information System (PROMIS), the Beck Anxiety Inventory (BAI), the Beck Depression Inventory (BDI), and the Generalized Anxiety Disorder Scale (GAD-7). Detailed information about the studies is presented in Table 2.

The results show that the effect of spiritual well-being on reducing depression is statistically significant. The estimated effect size was calculated as -0.46, revealing that spiritual well-being greatly influences depression. Random effect model was used because I^2 > 50 was found in the analysis (Table 3).

In case of any publication bias, the funnel plot is expected to be significantly asymmetrical.[35] According to Funnel plot (Figure 2) and Egger test result (0.086, *P*> .05), there is no publication bias. Based on Duval and Tweedie's trim and fill test, observed and adjusted values are the same. Both tests report that there is no publication bias.

Table 1. Quality Assessment Scores

	Criteria	Alradaydeh et al.[41]	Alshraifeen et al.[43]	Durmus[44]	Musa et al.[42]	Senmar et al.[45]
	DESIGN					
1	Was the study prospective?	0	0	1	0	0
	SAMPLE					
2	Was probability sampling used?	0	0	1	1	1
3	Was sample size justified?	1	1	1	1	1
4	Was the sample drawn from more than one site?	1	1	0	1	0
5	Was anonymity ensured?	0	1	0	0	0
6	Was the response rate more than 60%?	0	1	1	1	0
	MEASUREMENT					
	Independent variable (Spiritual Well-Being)					
7	Was the outcome measured reliably?	1	1	1	1	1
8	Was the outcome measured using a valid instrument?	1	1	1	1	1
	Dependent variable (Depression and Anxiety)					
9	Was the dependent variable measured using a valid instrument?	1	1	1	1	1
10	If a scale was used for measuring the dependent variable, was the internal consistency ≥.70?	2	2	2	2	0
11	Was a theoretical framework used for guidance?	1	1	1	1	1
	STATISTICAL ANALYSIS					
12	If multiple outcomes were studied, were the correlations analyzed?	1	1	1	1	1
13	Were outliers managed?	0	1	0	0	0
	TOTAL	9	11	11	11	7
	Overall Study Validity Rating (circle one) (0–4 = LO; 5–9 = MED; 10–14 = HI)	2	3	3	3	2

LO, Low; MED, Medium; HI, High

Table 2. Characteristics of Included Studies

Author, year	Sample size	Mean Age	Scales used	Country	r (depression)	r (anxiety)	Quality rating	Type of study	Main outcomes
Alshraifeen et al.[43]	202	47.7±15.1	SWBS, PHQ9, GAD-7	Jordan	.028	.018	High	A cross-sectional (descriptive and correlational)	Depression and anxiety were found to be common among participants. Spirituality was found to be moderately significant for patients, while there was no significant relationship with depression and anxiety.
Alradaydeh et al.[41]	158	50.7±13.9	FACIT-SP-12, PROMIS	Jordan	-.64	-	Medium	A cross-sectional (descriptive and correlational)	A significant negative correlation was discovered between spiritual well-being and depression. It is recommended to implement interventions aimed at increasing the level of spiritual well-being to reduce patients' depression.
Durmus[44]	83	48.1±14.9	FACIT-SP-12, BAI, BDI	Türkiye	-.79	-.57	High	A cross-sectional (descriptive and correlational)	A significant negative relationship was found between spiritual well-being levels and anxiety and depression. The results indicate that as individuals' spirituality increases, their levels of anxiety and depression decrease.
Musa et al.[42]	218	-	SWBS, DASS-21	Jordan	-0.39	-0.26	High	A cross-sectional (descriptive and correlational)	A significant correlation exists between levels of spiritual well-being and anxiety and depression. These patients utilize spiritual beliefs and practices as coping mechanisms to conquer depression and anxiety.
Senmar et al.[45]	150	44.6±18.1	SWBS, DASS-21	Iranian	-0.28	-0.24	Medium	A cross-sectional (descriptive and correlational)	A significant relationship exists between levels of spiritual well-being and anxiety and depression. Patients with higher levels of spiritual well-being exhibit fewer psychological symptoms.

SWBS, Spiritual Well-Being Scale; PHQ9, Patient Health Questionnaire; GAD-7, Generalized Anxiety Disorder Scale; FACIT-SP-12, Functional Assessment for Chronic Illness Therapy- Spiritual well-being; PROMIS, Patients Reported Outcomes Measurement Information System; BAI, Beck Anxiety Inventory; BDI, Beck Depression Inventory; DASS-21, Depression, Anxiety and Stress Scales 21

Table 3. Results of Spiritual Well-being-depression Forest Plot

Study	N	r	95%CI		Weight
			LL	UL	
Alradaydeh et al.[41]	158	-0.64	-0.72	-0.53	20.08
Alshraifeen et al.[43]	202	0.02	-0.11	0.16	20.27
Durmus[44]	83	-0.79	-0.86	-0.69	19.31
Musa et al.[42]	218	-0.39	-0.49	-0.27	20.32
Senmar et al.[45]	150	-0.28	-0.42	-0.12	20.03
Random effect	811	-0.46*	-0.68	-0.15	100
Heterogeneity: Q: 95.261 *P*< .001 I^2: 95,801					

CI, confdence interval; LL, lower limit; UL, upper limit

The results show that the effect of spiritual well-being on reducing anxiety is statistically significant. The estimated effect size was calculated as -0.27, which reveals that spiritual well-being moderately affects reducing anxiety levels.[38] Random effect model was used because $I^2 > 50$ was found in the analysis (Table 4.).

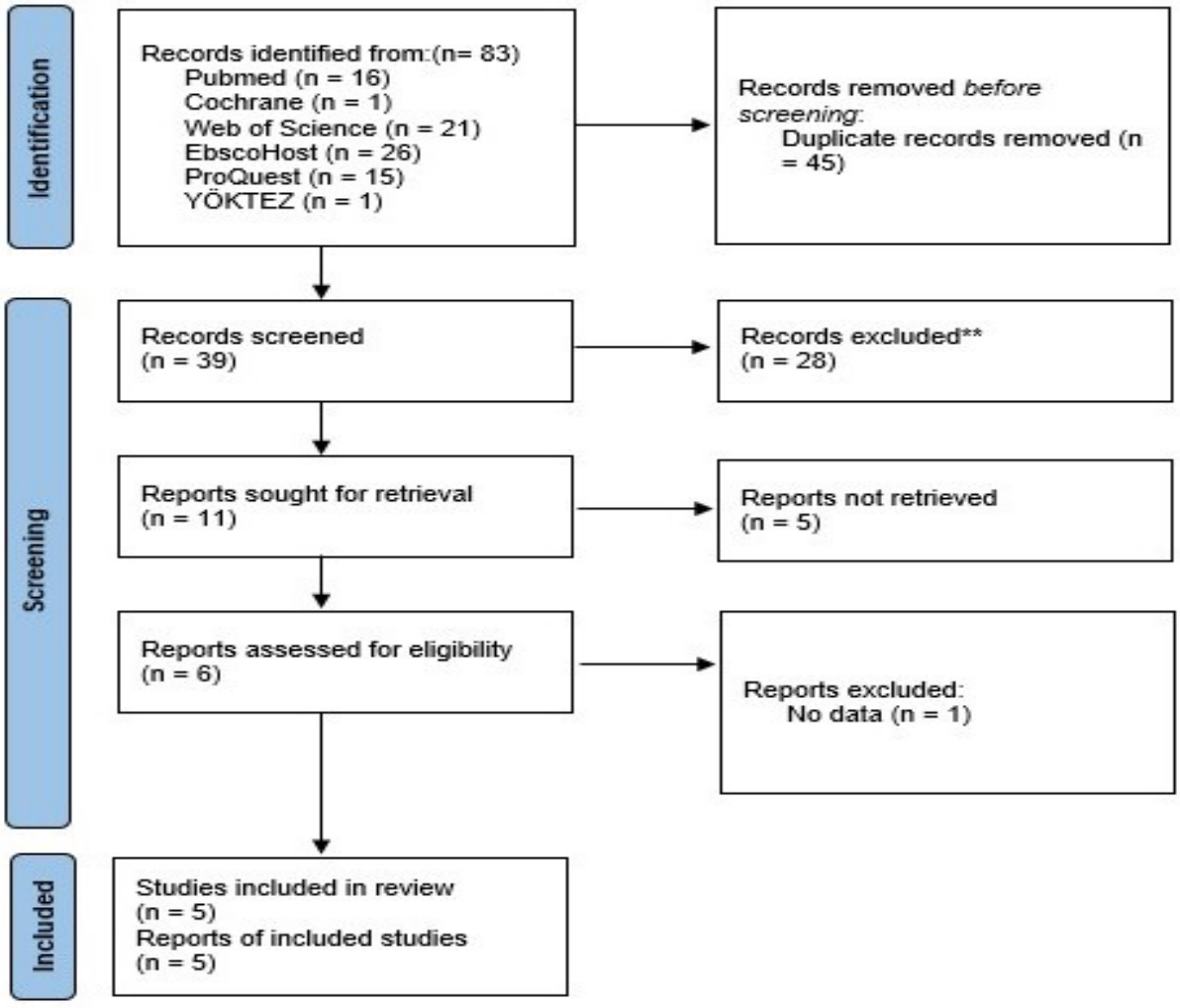

Figure 1. PRISMA Flowchart

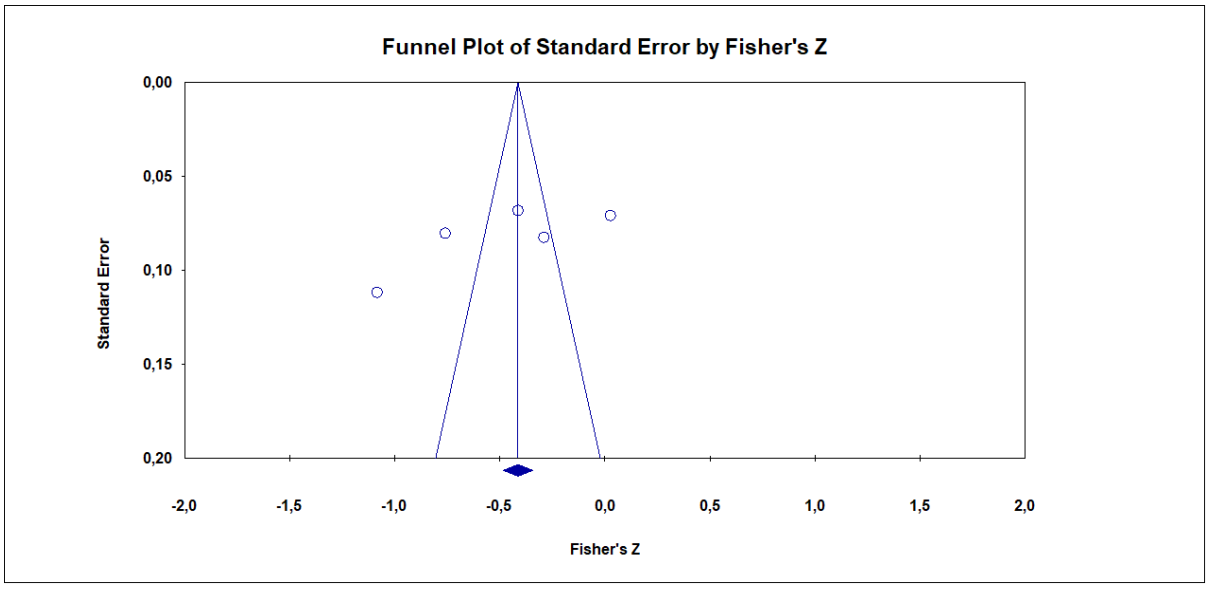

Figure 2. Funnel Plot of the Sample (spiritual well-being-depression)

Table 4. Results of Spiritual Well-Being- Anxiety Forest Plot

Study	N	r	95%CI		Weight
			LL	UL	
Alshraifeen et al.[43]	202	0.01	-0.12	0.15	25.91
Durmus[44]	83	-0.57	-0.70	-0.40	22.89
Musa et al.[42]	218	-0.26	-0.38	-0.13	26.08
Senmar et al.[45]	150	-0.24	-0.38	-0.08	25.12
Random	653	-0.27*	-0.47	-0.03	100
Heterogeneity: Q: 26.283 *P*< .001 I^2: 88.836					

CI, confidence interval; LL, lower limit; UL, upper limit; *P<.05

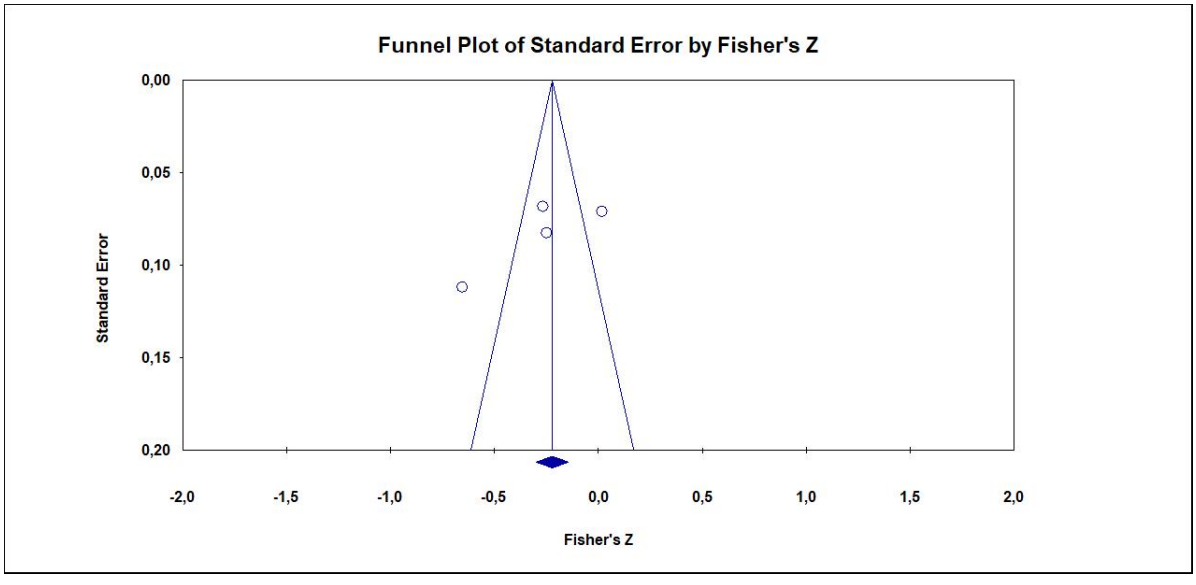

Figure-3. Funnel Plot of the Sample (spiritual well-being- anxiety)

Table 5. Result of Trim-and-fill Test for the Random Method

	Studies trimmed	Point estimate	Confidence Interval (CI)		Q value
			Lower limit	Upper limit	
Observed values		-0.27	-0.47	-0.03	26.28
Adjusted values	1	-0.36	-0.58	-0.08	71.96

According to Funnel plot (Figure 3) and Egger test result (0.109, *P*> .05), there is no publication bias. According to Duval and Tweedie's trim and fill test, it is suggested to add a study to the left side of the effect size (Table 5). Even if the suggested correction is made, the result obtained is within the same effect level.

DISCUSSION

The relationship between spiritual well-being and anxiety and depression levels in patients receiving hemodialysis treatment was evaluated through a meta-analysis method in the present study. Interesting results were obtained after the analysis process. Spiritual care programs can significantly reduce anxiety in patients with chronic illnesses. Thus, while the frequence of cerebral problems in patients with chronic conditions draws attention, the positive goods of spiritual care on quality of life and the positive goods of conditions on the treatment and mending process are vastly significant.[46,47]

The present meta-analysis study revealed that the effect of spiritual well-being on reducing depression is statistically significant. It was indicated that spiritual well-being affects depression negatively at a large level. This result is thought to be considerable for hemodialysis patients who are greatly affected by mental problems.

Spiritual practices are recognized as one of the most important ways to adapt to difficult or stressful circumstances.[45] In recent years, many observational studies suggest that spiritual well-being is an important element in coping with a chronic or fatal illness.[48] Spirituality may be a protective factor for HD patients' mental health. Studies show that patients receiving HD treatment use spiritual well-being as a stress management strategy to cope with emotional needs and various limitations caused by end-stage renal disease.[49]

Similar results were reported by different researchers. It was reported that there is a strong link between depression prevalence and spiritual wellbeing.[41] It was indicated that there was a negative and low-significant relationship between depression and spiritual well-being. In other studies, it was investigated that higher levels of spiritual well-being were associated with lower levels of depression.[48,50,51]

Alshraifeen et al.[43] found that depression and anxiety were common among patients receiving hemodialysis treatment.[43] Spirituality was moderately important for patients in this study, but it was reported not to be significantly associated with depression and anxiety.[43] In the study conducted by Loureiro et al.[30], it was stated that spiritual well-being had positive effects on the mental health of patients receiving hemodialysis treatment and spirituality had a significant role in reducing the depression levels of patients receiving hemodialysis treatment.[30]

It was found in the present meta-analysis study that the effect of spiritual well-being on reducing anxiety was statistically significant. Moreover, spiritual well-being had a medium effect size and negative effect on anxiety. Senmar et al.[45] emphasized that there was a low significant relationship between spiritual well-being and anxiety.[45] Alshraifeen et al.[43] stated that there is a negative relationship between anxiety and spiritual well-being.[43]

Huang et al.[52] emphasized that the prevalence of anxiety disorders and increased anxiety symptoms in patients receiving hemodialysis treatment were high, with 19% and 43%, respectively.[52] In another study, it was stated that the prevalence of increased anxiety symptoms in hemodialysis and peritoneal dialysis patients is two times higher than in healthy patients.[53] Like these results, Zhang et al.[54] emphasized that increased anxiety symptoms affect 43% of hemodialysis patients. [54] It was stated in different studies that patients receiving hemodialysis treatment generally use spirituality as a way of coping with the disease. Spiritual therapy has been shown to reduce depression, anxiety and stress among haemodialysis patients. [42, 49,55] The meta-analysis results obtained in the present study also support the existing studies in the literature. It has been determined that hemodialysis patients experience many mental problems such as anxiety and depression, and spiritual well-being has considerable effects on the anxiety and depression levels of the patients. For this reason, it can be indicated that it is necessary to include more spiritual care in the care of hemodialysis patients. Considering the

low cost of the spiritual care to be applied to the patients and its positive effects on the psychological dimensions of the patients, it turns out to be a considerably significant issue.

Limitations of Study

This meta-analysis has some limitations. First, only published quantitative studies were included in the meta-analysis. Second, we may have missed other relevant studies, even though we collected data from five different databases. Third, heterogeneity was high in the analysis. Although we wanted to perform a moderator analysis to find the cause of the heterogeneity, it was not possible due to the small number of studies included. Fourth, the literature review was done in English. However, the limitations mentioned above do not affect the significance of the present study because it may be the first meta-analysis on this subject, and the included studies were published in respected journals. Moreover, the results of the study are thought to contain significant data regarding the quality of care offered to hemodialysis patients.

In conclusion, it was found in this meta-analysis study that spiritual well-being had a great effect on depression and moderate effect on anxiety in patients receiving hemodialysis treatment. The high level of spiritual well-being of the patients who receive haemodialysis treatment may reduce the incidence of anxiety and depression in patients. In addition, it can be said that spiritual care for patients with high levels of anxiety and depression would reduce the level of anxiety and depression. These results suggest that spiritual care is an effective non-pharmacological method for overcoming anxiety and depression in patients with chronic renal failure receiving hemodialysis treatment. In the present meta-analysis study, it is thought that spiritual care, which is included in psychosocial interventions, is a promising intervention for reducing anxiety and depression and improving quality of life in haemodialysis patients. It is recommended to consider the spiritual dimensions of patients receiving hemodialysis treatment in the treatment of anxiety or depression. This study will make significant contributions to the literature in terms of guiding future studies.

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