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Research Article

The Effect of Mindfulness-Based Practices Given to Nursing Students on Affection, Compasion and Nursing Care Behaviors: Randomized Controlled Trial

Hemşirelik Öğrencilerine Verilen Farkındalık Temelli Uygulamaların Merhamet, Şefkat ve Hemşirelik Bakım Davranışları Üzerine Etkisi: Randomize Kontrollü Çalışma

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ABSTRACT

Objective: This study was conducted as a randomized controlled trial to examine the effects of mindfulness-based practices on compassion, affection and nursing care behavior among nursing students.

Methods: The sample of the study included 43 students in the experimental group and 39 students in the control group. Loving-kindness and Compassion Scale and Caring Behaviors Scale were used as data collection forms. Students with odd student numbers were assigned to the control group and students with even student numbers were assigned to the experimental group. A three-week online psychoeducation practices based on mindfulness were given to the experimental group students. No training was provided to the control group during the three-week period. The scales were administered before the three-week training and again after the end of the training.

Results: According to the study findings, the post-test compassion scores of the students in the experimental group were significantly higher than those of the students in the control group ($p<0.05$). Furthermore, a statistically significant and weak positive association was observed between the pre-test scores of the care behaviors scale and the affection and compassion scale among both the experimental and control groups ($p<0.05$).

Conclusion: Based on the study findings, it is recommended to integrate courses on compassion and mindful awareness practices into the nursing education curriculum to carry out similar studies to enhance students' emotional nursing skills.

Keywords: Affection, Care Behaviours, Compassion, Mindfulness, Nursing Students

ÖZ

Amaç: Bu çalışma, hemşirelik öğrencileri arasında farkındalık temelli uygulamaların merhamet, şefkat ve hemşirelik bakımı üzerindeki etkilerini incelemek amacıyla randomize kontrollü olarak yapılmıştır.

Yöntem: Çalışmanın örneklemini deney grubunda 43 öğrenci ve kontrol grubunda 39 öğrenci oluşturmuştur. Veri toplama formu olarak Şefkat ve Merhamet Ölçeği ve Bakım Davranışları Ölçeği kullanılmıştır. Öğrenci numaraları tek olan öğrenciler kontrol grubuna, sayıları çift olan öğrenciler ise deney grubuna atanmıştır Deney grubu öğrencilerine farkındalık temelli üç haftalık çevrimiçi psikoeğitim uygulamaları verilmiştir. Kontrol grubuna üç haftalık süre boyunca herhangi bir eğitim verilmemiştir. Üç haftalık eğitim öncesinde ve eğitim bittikten sonra ölçekler tekrar uygulanmıştır.

Bulgular: Çalışma bulgularına göre, deney grubundaki öğrencilerin son test şefkat puanları kontrol grubundaki öğrencilere göre anlamlı derecede yüksek bulunmuştur ($p<0,05$). Ayrıca, hem deney hem de kontrol grupları arasında bakım davranışları ölçeğinin ön test puanları ile şefkat ve merhamet ölçeği arasında istatistiksel olarak anlamlı ve zayıf pozitif bir ilişki gözlenmiştir ($p<0,05$).

Sonuç: Çalışma bulgularına dayanarak, öğrencilerin duygusal hemşirelik becerilerini geliştirmek için benzer çalışmalar yürütmek amacıyla hemşirelik eğitim müfredatına şefkat ve bilinçli farkındalık uygulamaları üzerine derslerin entegre edilmesi önerilir.

Anahtar Kelimeler: Bakım Davranışları, Hemşirelik Öğrencileri, Farkındalık, Merhamet, Şefkat

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INTRODUCTION

Nurses, being the largest group of caregivers worldwide and in our country, play a crucial role in providing direct care and are expected to provide care to patients with a compassionate and merciful approach. It is considered important for nursing students to develop these skills during their clinical practice, as they actively engage in providing care (Conversano et al., 2020; Dos Santos et al., 2016; Jiménez-Gómez et al., 2022). A review of the literature reveals positive outcomes on nursing students' compassion and empathy through mindfulness-based practices (Conversano et al., 2020; Dos Santos et al., 2016; Jiménez-Gómez et al., 2022; Recabarren et al., 2019; Sulosaari et al., 2022). For nurses and nursing students to provide care with compassion and empathy, it is important for them to be highly mindful, focusing on the present moment. The mindfulness of healthcare providers engenders a strong sense of well-being in their personal and professional life and enhances the ability to use care strategies effectively (White, 2014).

Mindfulness, originating from ancient Buddhist practices, involves intentionally directing and sustaining attention to the present moment and present experience. It entails paying attention to what is happening in the present moment, noticing the quality of that attention, and directing it to all that is observed without judgment, with an accepting and open-hearted attitude (Zinn & Kabat, 2021). Developing mindfulness is known to enable individuals to focus on their tasks and cultivate a compassionate approach.

The fundamental nature of the nursing profession involves a motivation to provide assistance and establish compassionate human-to-human relationships with patients, which significantly influences the quality of care provided (Dewar et al., 2011). The commonly used definition of compassion in the healthcare field is "a mental orientation that recognizes the universality of pain in the human experience and the capacity to meet this pain with kindness, empathy, equality, and patience" (Feldman & Kuyken, 2011). Providing compassionate care entails understanding and experiencing the pain of patients, each of whom may experience pain in different ways. Therefore, the subjective understanding of the concept of compassion and the ways in which nursing students reflect it in their behaviors during their professional education process are crucial. This is because compassion in nursing students can influence the adoption of professional values and principles. Nurses, who bear witness to the sensitive and painful conditions of patients, plan and implement care to improve their health and enhance their quality of life (Price, 2013). At this point, it is a known fact that care provided by nurses who approach their patients with affection and compassion results in a more positive patient experience.

The concept of compassion, which is closely associated with the nursing profession, is defined by the Turkish Language Association as "the feeling of sadness and empathy towards another person or living being due to their encountering a difficult situation" (TDK). Compassion encompasses the motivation to alleviate the suffering of others, the cognitive processes involved in understanding the source of that suffering, and the behavioral processes associated with engaging in compassionate actions. Neff and Germer (2017) define compassion as the awareness of emotional distress resulting from challenging circumstances and taking action to help others. Based on these definitions, it can be understood that the concept of compassion encompasses emotional, cognitive, and behavioral processes. Individuals who possess a sense of compassion can provide various forms of support that benefit others based on their circumstances, resources, and actions. However, nurses may encounter challenges at times due to factors such as demanding working hours and the difficulties inherent in the profession, which can hinder their ability to demonstrate the necessary compassion and empathy towards patients. The demanding and strenuous nature of nursing, requiring long hours of work, exposure to various clinical situations, and communication issues with other healthcare professionals, can also pose challenges for nursing students in

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this regard. Considering these challenges, providing mindfulness-based skills during the student years as an investment for the future to enhance compassion and empathy levels before entering the professional field has been planned in this study.

Care is an independent function of the nurse and this role is based on the nursing. Caring behaviors can be defined as specific, recognizable and observable actions performed by the nurse that create an impression on patients and that patients rely on to assess whether they feel cared for (Clark, 2016). Presence, touch and listening are elements of care that help patients to express their emotions. These concepts show that care has a spiritual aspect as well as a physical aspect. Compassion and mindfulness practices to develop this aspect are current topics of discussion.

From this point of view, in our study, a ‘’mindfulness-based psychoeducation practices’’ will be implemented for nursing students engaged in clinical practice with the aim of increasing their levels of mindful awareness, affection, and compassion and examining the reflection of this awareness in their nursing care behaviors delivery. The evaluation of the impact of mindfulness-based psychoeducation practices interventions on nursing students is considered important for effective patient care. This study addresses gap of integrating mindfulness into nursing education, emphasizing the need for a deeper understanding of how these practices can be effectively incorporated.

From this point on, the planned study was conducted as a randomized controlled trial to examine the effects of mindfulness-based practices on compassion, affection and care behaviors among nursing students.

Research Hypotheses

H_{0-1}: Mindfulness-based psychoeducation practices provided to nursing students have no effect on their levels of affection and compassion.

H_{0-2}: Mindfulness-based psychoeducation practices provided to nursing students have no effect on their nursing care behavior.

H_a: Mindfulness-based psychoeducation practices provided to nursing students have an effect on their levels of affection.

H_b: Mindfulness-based psychoeducation practices provided to nursing students have an effect on their levels of compassion.

H_c: Mindfulness-based psychoeducation practices provided to nursing students have an effect on their nursing care behavior.

METHODS

Design

It is an experimental research conducted in a randomized controlled design with pre-test/post-test measurements.

Location and General Characteristics of the Research

The research was conducted online using Microsoft Teams. It lasted for a total of 3 weeks.

Population and Sample of the Study

The population of the study includes nursing students studying at the Nursing Department of Ankara Yıldırım Beyazıt University, Faculty of Health Sciences. The research population consists of 544 students. The sample of the study was created using the Power and Sample Size menu in the Minitab 15 software, based on the criteria for selecting nursing students. The sample size for the study was determined to be 80 individuals, with a minimum of 40 individuals in each group, considering a confidence level of 95% and a power of 80% for a medium effect size (f: 0.50). Considering the risk of data deficiency, a total of 85 individuals were included in the sample group (Figure-2 Consort Diagram).

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Randomization and Blinding

The participants were assigned to intervention and control groups. To prevent bias in the allocation of individuals to groups, random numbers were generated between 1 and 85 using the website https://randomizer.org/. Two groups were formed based on these random numbers, and the participants were assigned to their groups. To ensure that the researchers remain unaware of which of the randomly selected groups is the intervention group, a single blinding technique was employed by the statistician. Students with odd numbers were assigned to the control group and students with even numbers were assigned to the experimental group. A total of 3 sessions of psychoeducation were applied to the students in the experimental group once a week. The psychoeducator is a psychological counselor, MBRS trainer and holds a master's degree in psychological counseling and guidance. The content of the psychoeducation provided was prepared by PE, an expert in this field, and expert opinions were obtained from three people, two of whom were professors in psychology and one in nursing. The CONSORT 2010 application flow chart of the study is presented in Figure 2.

The clinical trials number of the study is NCT05872100.

Sampling Criteria

The following criteria were used for the inclusion of participants in the study:

- Individuals who willingly agreed to participate,
- Nursing students who have taken and successfully completed the internal medicine nursing course including their clinical practice, (These students were selected because in our school, the first clinical practice of the students is on basic nursing skills in the Fundamentals of Nursing course, and in the Internal Medicine nursing course, these students are selected because they have real contact with the patient and care practices, students in other classes were not included in the sample).
- Participants who own a smartphone and are capable of actively using it,
- Individuals who are 18 years old or older,
- Participants without any known psychiatric problems or conditions.

Data Collection Tools

Student Information Form: It is a form consisting of 12 questions prepared by the researcher to collect sociodemographic data of the students (age, gender, caregiving and compassion, affection, level of mindfulness).

The Affection and Compassion Scale: Sarıçam and Erdemir (2019) conducted the Turkish validity and reliability study of the scale developed by Cho et al. (2018) and originally named The Lovingkindness-Compassion Scale. It is a 15-item scale based on a 5-point Likert response format ((1) Not at all true of me, (2) Not true of me, (3) Neither true nor untrue of me, (4) True of me, (5) Very true of me). The scale consists of three subscales: self-centeredness, affection and compassion. Higher scores indicate higher levels of the respective construct. The scale has a range of scores from 15 to 75. Permission for the use of the scale in our study was obtained from the researcher who validated and established the reliability of the scale. In this study, the Cronbach's alpha coefficient for the scale was found to be 0.81.

Care Behaviors Inventory-24: It was created by Wu et al. (2006), is a shortened version of the "Care Behaviors Inventory-42," which is suitable for mutual assessment by patients and nurses and consists of 42 items. The current form of the scale comprises 24 questions designed in a 6-point Likert scale to measure healthcare professionals' care behaviors. The "Care

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Behaviors Inventory-24" (CBS-24) is used to compare nurses' self-evaluations with their perceptions of patients. The Turkish validity and reliability study of the scale was conducted by Kurşun and Kanan (2012). The Care Behaviors Inventory consists of four subgroups: Assurance (8 items: 16, 17, 18, 20, 21, 22, 23, 24), Knowledge-Skill (5 items: 9, 10, 11, 12, 15), Respectful Behavior (6 items: 1, 3, 5, 6, 13, 19), and Commitment (5 items: 2, 4, 7, 8, 14). It includes a 6-point Likert scale for responses (1=never, 2=rarely, 3=sometimes, 4=often, 5=most of the time, 6=always). Calculation of Scale Scores: To obtain the total scale score, the scores of the 24 items are summed and then divided by 24 to obtain a scale score ranging from 1 to 6. For the calculation of subscale scores, the scores of the items within each subscale are summed, divided by the number of items, and then converted into subscale scores ranging from 1 to 6. As the subscale and total scale scores increase, it indicates higher levels of perceived quality of care by patients or nurses. Therefore, a higher score on the scale indicates a more positive perception of nursing care behavior quality. The internal consistency test of the scale, as measured by Cronbach's alpha, is 0.96. Permission for the use of the scale in our study has been obtained from the researcher who developed the scale. In this study, the Cronbach's alpha coefficient of the scale was found to be 0.94.

Implementation of the Study

After obtaining ethical committee and institutional approvals, the intervention and control groups were determined.

Experimental Group: Pre-test was administered to the students included in the experimental group via Google Forms. After providing preliminary information to the students in the experimental group, a 3-week, 3-session psychoeducation practices based on mindfulness was implemented, with each session lasting 60 minutes. The sessions were conducted online with the students through Microsoft Teams. The researcher, who is a psychological counselor, and the instructor introduced themselves and the participants had a 10-minute interaction-talk with each other. This interaction was conducted for social purposes outside of the research topic. Then, the purpose of the research was explained, focusing on the goals and content of the three-week program (Figure 1). The sessions and discussions were conducted at the same day and time each week for three weeks. At the end of the three weeks, post-tests were administered for the second time through Google Forms. The training content was prepared by taking the opinions of two professors of the educator, who is a psychological counselor. There are different studies of similar duration (3-4 weeks) involving mindfulness practices (Alhamed et. Al, 2022, Ozturk, 2023).

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Figure 1. Session of Mindfulness- Based Psychoeducation Practices

SESSION	PURPOSE OF SESSION	TRAINING SUBJECTS
WEEK 1	It is aimed to ensure the interaction of the group members with each other, to inform the group members about the continuation of the sessions without judgment and respecting the principles of confidentiality, to develop awareness of the group members regarding the basics & philosophy of mindfulness practices and effectiveness studies in the field of health, and to develop mind and body awareness with breathing exercises. With mindfulness sitting meditation and body scanning, it is aimed to increase the attention of the group members towards body awareness, to make them realize the judgments about the thoughts that become automatic in daily life and to support the ability to monitor and manage thoughts and emotions.	• Ensuring group cohesion (meeting, interaction) • Determining group rules (individuals' attitudes towards confidentiality and privacy towards each other) • Mindfulness basics & philosophy • Effectiveness of mindfulness practices in health • Breathing exercise • Discussion and sharing about exercise • Introduction of informal and formal mindfulness practices • Mindful Sitting Exercise • The concept of autopilot • Communication exercise with mindfulness • Sounds and thoughts meditation • Homework: Record what you feel in your body in challenging situations for 1 week, do the breathing exercise 3 times
WEEK 2	It is aimed to develop compassion by experiencing mindfulness attitudes, to recognize the role of compassion in coping with challenging emotions, to develop self-compassion and to develop acceptance.	• Homework Check • 3-minute Breathing Space Exercise • The concept of compassion • The biological basis of compassion • Self-compassion • Barriers to compassion • Coping with challenging emotions • Coping with compassion intensity • Attitudes of compassionate mindfulness • Acceptance stages and improving acceptance • Compassion Meditation • Kindness Meditation • Homework: Implementing the self-criticism calendar activity and practicing the Tonglen meditation 1 time in 1 week.
WEEK 3	It is aimed to make self-assessment, to recognize and accept negative thoughts and emotions, to develop self-understanding and awareness skills, to model mindfulness attitudes in the perspective of life in order to be able to put mindfulness skills into practice.	• Homework Check • My common stakeholder event • Body Scan • Mindful Sitting Meditation • Receiving feedback on the development of mindfulness skills and the content of the training program • Integration of mindfulness exercises in daily life for the future

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***Control Group*:** The students in the control group were also administered a pre-test via Google Form. No training was provided to the control group during the three-week period. After the study was concluded, the mindfulness-based psychoeducation practices given to the experimental group was also applied to the control group.

Data Analysis

The data were analyzed using the statistical package program SPSS (IBM SPSS Statistics 27). Frequency tables and descriptive statistics were used for interpreting the findings. Parametric methods were used for measurement variables that follow a normal distribution. Accordingly, the "Independent Sample-t" test (t-table value) was employed for comparing measurement values between two independent groups, and the "Paired Sample-t" test method was used for comparing measurement values within two dependent groups. Non-parametric methods were used for measurement variables that did not follow a normal distribution. Accordingly, the "Mann-Whitney U" test (Z-table value) was used to compare measurement values between two independent groups, and the "Wilcoxon" test was used to compare measurement values within two dependent groups. For examining the relationship between two categorical variables, "Pearson's chi-square" cross-tabulation tables were used. For examining the relationship between two non-normally distributed quantitative variables, the "Spearman" correlation coefficient was used.

The Ethical Dimension of the Research

The permission of the ethics committee required for the conduct of the research was obtained from the Ethics Committee of Ankara Yıldırım Beyazıt University with the number 2022-699. The necessary permissions for the research were obtained from the Nursing Department where the research was conducted.

RESULTS

This study was conducted as a randomized controlled trial to examine the effects of mindfulness-based practices on compassion, affection and care behaviors among nursing students. The research results are presented with the findings in the tables.

Analysis of Relationships Between Student Groups and Descriptive Characteristics

There is no statistically significant relationship ($p>0.05$) between the experimental and control groups and the variables of age categories, gender, care-oriented work, being compassionate in care, patient-centered care duration, accepting the patient as they are, approaching with mindfulness, the impact of affection and compassion in care, fulfilling nursing duties, paying attention to sounds, and showing affection while listening to the patient. The groups are independent and homogeneous in terms of the mentioned characteristic (Table 1).

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Table 1. Analysis of Relationships Between Student Groups and Descriptive Characteristics

Variable	Experimental Group(n=43)		Control Group (n=39)		"Statistical Analysis* Probability"
	n	%	n	%	
Age categories					
≤21	30	69.8	29	74.4	χ^2=0.214
>21	13	30.2	10	25.6	p=0.644
Gender					
Female	39	90.7	32	82.1	χ^2=1.316
Male	4	9.3	7	17.9	p=0.251
Care-oriented work					
Yes	18	41.9	19	48.7	χ^2=2.149
No	10	23.2	12	30.8	p=0.341
Occasionaly	15	34.9	8	20.5	
Patient-centered care					
≥5-<15 min.	8	18.6	12	30.8	χ^2=2.527
15-30 min.	13	30.2	8	20.5	p=0.470
Until care is completed	8	18.6	9	23.1	
Less than 5 min.	14	32.6	10	25.6	
Accepting the patience as they are					
Yes	34	79.1	30	76.9	χ^2=2.553
No	1	2.3	4	10.3	p=0.279
Occasionally	8	18.6	5	12.8	
Approaching with mindfulness					
Yes	30	69.8	26	66.7	χ^2=4.990
No	1	2.3	6	15.4	p=0.083
Occasionally	12	27.9	7	17.9	
The impact of affection and compassion in care					
Positive effects	42	97.7	38	97.4	χ^2=0.005
Neutral effects	1	2.3	1	2.6	p=0.944
Fulfilling nursing duties					
In an automatic manner	4	9.3	4	10.3	χ^2=0.021
With awareness	39	90.7	35	89.7	p=0.884
Paying attention to sounds					
Yes	35	81.4	28	71.8	χ^2=1.059
Partially	8	18.6	11	28.2	p=0.303
Showing affection while listening to the patient					
Yes	40	93.0	32	82.1	χ^2=2.700
No	-	-	1	2.6	p=0.259
Partially	3	7.0	6	15.3	

*Pearson-χ2 crosstabs were used to analyze the relationships between two qualitative variables.

Comparison of Affection and Compassion Scale Scores by Groups

There is no statistically significant difference in the pre-test compassion scores between the groups (p>0.05).

There is a statistically significant difference in the post-test compassion scores between the groups (p<0.05). The post-test compassion scores of the experimental group were significantly higher than those of the control group.

A statistically significant difference was found in the pre-test to post-test compassion scores within the experimental group (p<0.05). The post-test compassion scores were significantly higher than the pre-test scores.

There was no statistically significant difference in the pre-test to post-test compassion scores within the control group (p>0.05).

There was no statistically significant difference in the pre-test self-centeredness scores between the groups (p>0.05).

A statistically significant difference was found in the post-test self-centeredness scores between the groups (p<0.05). The post-test self-centeredness scores of the experimental group were significantly lower than those of the control group.

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A statistically significant difference was observed in the pre-test to post-test self-centeredness scores among the experimental group ($p<0.05$). The post-test self-centeredness scores were significantly lower compared to the pre-test scores.

There was no statistically significant difference in the pre-test to post-test self-centeredness scores of the control group ($p>0.05$).

There was no statistically significant difference in the pre-test to post-test self-centeredness scores of the control group ($p>0.05$).

A statistically significant difference was detected in terms of affection and compassion scale scores between the groups at the post-test assessment ($p<0.05$). The post-test affection and compassion scale scores of the experimental group were found to be significantly lower compared to those of the control group.

A statistically significant difference was found in terms of affection and compassion scale scores between the pre-test and post-test assessments in the experimental group ($p<0.05$). The post-test affection and compassion scale scores were significantly lower compared to the pre-test scores.

There was no statistically significant difference in terms of affection and compassion scale scores between the pre-test and post-test assessments in the control group ($p>0.05$) (Table 2).

Table 2. Comparison of Affection and Compassion Scale Scores by Groups

Variable	**Experimental Group (n=43)**		**Control Group (n=39)**		**Statistical Analysis* Probability**
	$\bar{X} \pm S.S.$	**Median[IQR]**	$\bar{X} \pm S.S.$	**Median [IQR]**	
Compassion					
Pre-test	21.81±2.23	22.0 [4.0]	21.53±2.27	22.0 [3.0]	Z=-0.408 p=0.684
Post-test	23.74±2.18	25.0 [2.0]	21.10±2.86	22.0 [3.0]	Z=-5.052 **p<0.001**
Analysis Probability	Z=-4.371 **p<0.001**		Z=-0.053 p=0.958		
Selfcenteredness					
Pre-test	20.88±2.81	21.0 [3.0]	20.89±2.87	21.0 [5.0]	Z=-0.047 p=0.963
Post-test	6.48±3.34	5.0 [2.0]	19.71±4.51	21.0 [6.0]	Z=-7.500 **p<0.001**
Analysis Probability	Z=-5.588 **p<0.001**		Z=-1.481 p=0.139		
Affection					
Pre-test	19.00±2.48	19.0 [2.0]	19.69±2.74	20.0 [4.0]	Z=-1.491 p=0.136
Post-test	18.88±2.28	19.0 [4.0]	19.46±3.01	19.0 [3.0]	Z=-1.105 p=0.269
Analysis Probability	Z=-0.535 p=0.593		Z=-0.185 p=0.853		
Affection and compassion scale					
Pre-test	61.69±6.49	62.0 [8.0]	62.18±6.67	62.0 [10.0]	Z=-0.386 p=0.699
Post-test	49.11±4.24	50.0 [5.0]	60.28±8.74	62.0 [11.0]	Z=-5.523 **p<0.001**
Analysis Probability	Z=-5.542 **p<0.001**		Z=-0.566 p=0.571		

In the comparison of measurement values of two independent groups with non-normally distributed data, the 'Mann-Whitney U' test (Z-table value) was used; and in the comparison of measurement values of two dependent groups, the 'Wilcoxon' test (Z-table value) was used. Z=Mann-Whitney U testi, SS: Standart deviation.

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Comparison of Care Behavior Scale Scores by Groups

There is no statistically significant difference in terms of the total score and subscale scores of the Care Behaviors Scale between the pre-test and post-test measurements when compared across groups (p>0.05) (Table 3).

Table 3. Comparison of Care Behavior Scale Scores by Groups

Variable	Experimental group (n=43)		Control group (n=39)		Statistical Analysis* Probability
	$\bar{X} \pm S.S.$	Median [IQR]	$\bar{X} \pm S.S.$	Median [IQR]	
Assurance					
Pre-test	5.09±0.61	5.1 [0.6]	5.03±0.66	5.0 [0.9]	Z=-0.643 p=0.520
Post-test	5.04±0.63	5.0 [0.9]	5.16±0.56	5.1 [0.9]	t=-0.874 p=0.385
Analysis Probability	Z=-0.867 p=0.386		t=-1.317 p=0.196		
Knowledge-skills					
Pre-test	4.67±0.71	4.6 [1.0]	4.83±0.78	4.8 [1.2]	t=-0.947 p=0.346
Post-test	4.81±0.69	5.0 [3.0]	4.96±0.76	5.0 [1.4]	t=-0.931 p=0.354
Analysis Probability	t=-1.582 p=0.121		t=-1.285 p=0.206		
Being respectful					
Pre-test	5.09±0.59	5.2 [0.8]	4.98±0.75	5.2 [1.0]	t=0.713 p=0.478
Post-test	5.09±0.58	5.0 [0.8]	5.14±0.59	5.2 [08]	Z=-0.603 p=0.546
Analysis Probability	t=0.000 p=1.000		Z=-0.919 p=0.358		
Commitment					
Pre-test	4.87±0.66	4.8 [1.2]	4.95±0.68	5.0 [1.2]	t=-0.536 p=0.593
Post-test	4.83±0.63	4.8 [1.0]	5.04±0.69	5.0 [1.2]	Z=-1.398 p=0.162
Analysis Probability	Z=-0.195 p=0.845		Z=-0.262 p=0.793		
Care behavior scale					
Pre-test	4.96±0.56	5.0 [0.8]	4.96±0.66	4.9 [0.9]	t=-0.016 p=0.987
Post-test	4.96±0.54	5.0 [0.9]	5.09±0.58	5.0 [1.0]	t=-1.010 p=0.317
Analysis Probability	t=-1.387 p=0.283		t=-0.052 p=0.959		

*In the comparison of measurement values of two independent groups with normally distributed data, "Independent Sample-t" test (t-table value) was used; for the comparison of measurement values of two dependent groups with normally distributed data, "Paired-Sample" test (t-table value) was used. In the comparison of measurement values of two independent groups with non-normally distributed data, "Mann-Whitney U" test (Z-table value) was used; for the comparison of measurement values of two dependent groups with non-normally distributed data, "Wilcoxon" test (Z-table value) was used.

In the experimental group, a statistically significant weak positive correlation (p<0.05) was observed between the pre-test scores of the care behavior scale and the affection and compassion scale.

In the control group, a statistically significant weak positive correlation (p<0.05) was found between the pre-test scores of the care behavior scale and the affection and compassion scale. As the pre-test scores of affection and compassion increased, the pre-test scores of care behavior also increased.

Comparison of Pre-test and Post-test Scale Scores

There is no significant relationship (p>0.05) between the post-test scores (Table 4).

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Table 4. Comparison of Pre-test and Post-test Scale Scores

Correlation*	Affection and compassion scale			
	Experimental group (n=43)		Control group (n=39)	
	r	p	r	p
Care behavior scale				
Pre-test	0.444	**0.003**	0.629	**<0.001**
Post-test	0.094	0.545	0.292	0.071

*Spearman correlation coefficient.

DISCUSSION

In this study, mindfulness-based psychoeducation practices lasting for 3 weeks and consisting of 3 sessions was implemented to nursing students, and its impact on affection, compassion, and caregiving behaviors was examined.

According to the research findings, it was determined that the students in the experimental group had significantly higher scores in compassion in the post-test compared to the students in the control group. There was also a statistically significant difference between the pre-test and post-test results ($p<0.05$) (Table 2). Similarly, in a different study conducted by Erkin and Aykar Senuzun (2021), a 14-week yoga and mindfulness-based program provided to nursing students was found to increase self-compassion and compassion levels (Erkin and Aykar Senuzun, 2021; Teskereci et al., 2020). It was determined that the students' mindfulness scores increased from 60.51 (±11.35) to 63.7 (±8.75). Similarly, in a study conducted by Henrich (2022), it was found that mindfulness-based practices increased self-compassion levels among nursing students. Mindfulness-based practices have been shown to have a positive impact on the psychological well-being of healthcare students (Eraydın and Karagözoğlu, 2017; Mathad, 2017; Noble et al., 2019; Özpulat and Günaydın, 2018). In the study by Erkin and Aykar Senuzun (2021), it was found that nursing students had moderate to high levels of self-compassion. These findings from the literature support the results of our study.

In this case, it can be said that mindfulness-based educational interventions have led to an increase in the levels of compassion among nursing students and have had a positive impact.

According to our research findings, the experimental group showed a decrease in self-centeredness subscale scores in the post-test compared to the pre-test, and a significant difference was observed ($p<0.05$) (Table 2). These results indicate the effectiveness of the mindfulness-based intervention and suggest that the students moved away from self-centered behaviors after the intervention. Consequently, it can be inferred that the students will prioritize the patient in their nursing care behavior and provide higher quality care.

It was determined that the post-test scores of the experimental group on the compassion and empathy scale were significantly lower than the pre-test scores ($p<0.05$) (Table 2). Similarly, a study by Kinchen et al. found that yoga training did not have a significant effect on self-compassion. In a systematic review conducted by Sulosaari et al. (2022) to examine the impact of mindfulness-based interventions, it was noted that these interventions increased nurses' levels of stress, quality of life, self-compassion, and happiness. In different studies involving two groups, it has been reported that individuals in the experimental group showed a significant increase in self-compassion levels compared to the control group (Conversano et al., 2020; Dos Santos et al., 2016; Jiménez-Gómez et al., 2022; Recabarren et al., 2019). It is believed that the different outcome obtained may be attributed to the inability to conduct the planned mindfulness-based psychoeducation practices in face-to-face setting due to the earthquake in Turkey on February 6, 2023, which led to universities adopting online education. This circumstance is thought to have resulted in a decrease in the total scores of the compassion and empathy scale and influenced the research outcome.

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According to the findings of the study, there was no statistically significant difference in the scores of the total and subscale measurements of the caregiving behaviors scale between the groups in terms of pre-test and post-test ($p>0.05$) (Table 3). It is believed that there are different reasons for this finding. It can be speculated that factors such as potential distractions and the inability to fully engage in the present moment in online education may not have had an impact on caregiving behaviors. Additionally, the lack of existing research specifically examining the effect of mindfulness-based practices on caregiving behaviors poses another limitation for discussion. Zinn Kabat suggests that mindfulness practices should be a part of daily life, just like eating. In this context, it is believed that continuous engagement in mindfulness practices is necessary for them to manifest in behavior, and therefore, the differences in scores may not have been observed immediately in students' caregiving behaviors.

In addition, different studies have shown that mindfulness-based interventions reduce stress levels. For instance, an online mindfulness meditation practices implemented for nursing students for 8 weeks resulted in a significant decrease in their stress levels and depression scores, as well as an increase in cognitive attention and concentration (Spadaro and Hunker, 2016; Yüksel, 2020). In a study by Uysal et al. (2022), an 8-week mindfulness-based stress reduction training was found to decrease stress levels and increase mindfulness levels. Hilcove et al. (2021) also found that mindfulness meditation had a positive impact on the stress, vitality, and sleep quality levels of nursing students. Mindfulness practices have been shown to have positive effects in various domains.

Another finding of this study is a weak but statistically significant positive correlation between the pretest scores of the care behaviors scale and the affection and compassion scale in both the experimental and control groups ($p<0.05$) (Table 4). Similarly, Cura and Atay (2023) identified a positive relationship between mindfulness and compassion. This finding suggests that the sense of compassion develops among students due to their nursing education. The lower post-test compassion scores compared to the pre-test scores are believed to be a result of the short duration and online nature of the training.

This research concludes that mindfulness-based psychoeducation practices have an impact on levels of affection and compassion, and in order for these interventions to be effective in influencing care behavior, they need to be consistently practiced and the mind needs to develop habits in this regard.

Limitations of the Study

The limitation of the study is that the mindfulness-based practices could not be delivered in a face-to-face setting due to the circumstances (The research was conducted after the February 6 earthquake when schools were on vacation). Considering that the students would not be able to hold their attention for a long time, 3 weeks of implementation was carried out. It is thought that 6-8 weeks of face-to-face awareness programs will have a positive effect on compassion and care behaviors. Research suggests that mindfulness-based programmes can be abbreviated without reducing their effects on measures of physical and psychological health (Carmody and Baer, 2009; Cavanagh et al., 2013; Gilmartin et al., 2017).

CONCLUSIONS

The findings of the study indicate the following:

- The post-test scores of compassion in the experimental group were higher compared to the control group.
- A decrease in self-centeredness scores in the post-test was observed for the experimental group compared to the pre-test.
- The post-test scores of affection and compassion in the experimental group were lower compared to the pre-test.

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- There was a weak, positive, and statistically significant correlation between the pre-test scores of care behavior, affection and compassion in both the experimental and control groups.
- There was no statistically significant difference in the total and subscale scores of care behavior between the pre-test and post-test for both groups.

Based on these findings, the following recommendations are proposed:

- Integrating mindfulness into nursing practice may benefit future nurses' professional practice and patient outcomes.
- Conducting longer-term mindfulness-based practices with nursing students in different classes,
- Re-evaluating the results by implementing mindfulness interventions in a face-to-face setting.
- Conducting similar studies with clinical nurses who serve as role models for nursing students.

Araştırmanın Etik Yönü/Ethics Comittee: Approval for the study was obtained from the Ethics Comittee of Ankara Yildirim Beyazıt University (Ethical Approval Number: 2022-699). Necessary permission was obtained from the head of the department to conduct the study.

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