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Effect of Mindfulness-Based Psychoeducation on Nursing Students' Beliefs, Social Distance, and Stigmatization Toward Mental Illness: A Quasi-Experimental Study

Hemşirelik Öğrencilerine Verilen Farkındalık Temelli Psikoeğitimin Ruhsal Hastalıklara Yönelik İnanç, Sosyal Mesafe ve Damgalamaya Etkisi: Yarı Deneysel Bir Çalışma

Can Karadeniz[1], Hülya Arslantaş[1]

[1]Aydın Adnan Menderes University, Aydın

ABSTRACT

Objective: This study aimed to evaluate the effects of mindfulness-based psychoeducation on nursing students' beliefs about mental illnesses, social distance, and stigma.

Methods: This quasi-experimental study was conducted with second-year nursing students at Aydın Adnan Menderes University. Initially, 280 students were screened using the Beliefs Toward Mental Illness Scale (BMIS). Based on inclusion criteria, 84 students with high BMIS scores were enrolled. After attrition, 49 participants (25 in the intervention group and 24 in the control group) completed the study and were included in the final analysis. Data were collected using the BMIS, the Social Distance Scale, and the Mental Illness: Clinicians' Attitudes Scale for Healthcare Providers.

Results: At baseline, no statistically significant differences were found between the intervention and control groups in the BMIS subscales-Dangerousness, Poor Interpersonal and Social Skills, and Incurability. Following psychoeducation, belief scores also showed no significant changes. In contrast, a significant reduction in social distance was observed in the intervention group, with the most pronounced improvement at the one month follow-up and sustained at three months. Stigmatization scores also declined significantly in the intervention group, with effects becoming more evident at the three month assessment. No significant changes were detected in the control group during any measurement period.

Conclusion: Mindfulness-based psychoeducation appears to produce gradual and sustained reductions in social distance and stigma perceptions, although it does not lead to significant short-term changes in beliefs about mental illness.

Keywords: Beliefs, mental illness, nursing, social distance, stigma, mindfulness-based psychoeducation

ÖZ

Amaç: Bu çalışma, hemşirelik öğrencilerine uygulanan farkındalık temelli psikoeğitimin ruhsal hastalıklara yönelik inançlar, sosyal mesafe ve damgalama tutumları üzerindeki etkilerini değerlendirmeyi amaçlamaktadır.

Yöntem: Yarı deneysel tasarımla yürütülen bu araştırmada, Aydın Adnan Menderes Üniversitesi Hemşirelik Fakültesi 2. sınıf öğrencilerinden 280 kişiye Ruhsal Hastalıklara Yönelik İnanç Ölçeği (RHYİÖ) uygulanmıştır. Araştırmada, RHYİÖ uygulanan 280 öğrenciden yüksek puan alan 84'ü çalışmaya uygun bulunmuş ve kura ile müdahale (n=42) ve kontrol (n=42) gruplarına ayrılmıştır. Ancak örneklem kaybı nedeniyle ön test verileri 25 müdahale, 24 kontrol öğrencisinden toplanabilmiştir. Zaman içinde katılım azalmış; son test, 1. ve 3. ay takipleri daha az sayıda öğrenciyle tamamlanmıştır. Veriler RHYİÖ, Sosyal Mesafe Ölçeği ve Sağlık Çalışanlarının Ruhsal Hastalıklara Yönelik Damgalama Ölçeği ile toplanmıştır.

Bulgular: Müdahale ve kontrol gruplarının ruhsal hastalıklara yönelik inanç alt ölçek puanları olan Tehlikeli Alt Ölçeği, Çaresizlik ve Kişilerarası İlişkilerde Bozulma Alt Ölçeği ve Utanma Alt Ölçeği arasında başlangıçta anlamlı fark görülmemiştir. Eğitim sonrası inanç puanlarında istatistiksel olarak anlamlı bir değişiklik saptanmamıştır. Sosyal mesafe puanlarında müdahale grubunda anlamlı bir azalma belirlenmiş olup, bu azalma özellikle 1. ayda ortaya çıkmış ve 3. ayda da sürdürülmüştür. Damgalama ölçeği puanları da müdahale grubunda anlamlı olarak azalmış, etkiler 3. ayda daha belirgin hale gelmiştir. Kontrol grubunda ise anlamlı değişiklikler gözlemlenmemiştir.

Sonuç: Farkındalık temelli psikoeğitimin, sosyal mesafe ve damgalama algısını azaltmada etkili olduğu ancak ruhsal hastalıklara yönelik inançlarda kısa vadede belirgin bir değişiklik yaratmadığı sonucuna ulaşılmıştır.

Anahtar sözcükler: Damgalama, hemşirelik, inanç, ruhsal hastalık, sosyal mesafe, farkındalık temelli psikoeğitim

Address for Correspondence: Can Karadeniz, Aydın Adnan Menderes University Institute of Health Sciences Department of Psychiatric Nursing, Aydın, Türkiye **E-mail:** cankaradeniz789@gmail.com

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Introduction

Mental well-being plays a central role in shaping individuals' productivity, social adaptation, and capacity to navigate life's challenges (Gautam et al. 2024). According to the World Health Organization (WHO 2022), mental health encompasses one's ability to realize personal potential, cope with daily stressors, engage in meaningful work, and contribute to the community. Mental disorders disrupt these functions by impairing emotional, cognitive, and behavioral processes (Paulus et al. 2021). Globally, nearly one billion people are affected by mental health conditions, making them a leading contributor to disability (WHO 2022). In Turkey, the prevalence of mental disorders is rising; however, negative societal attitudes continue to reinforce stigma and marginalization, creating significant barriers to treatment and full social participation (Ciydem et all. 2020, Nehir and Özmen 2021, Kartal 2024).

Public beliefs about mental illness substantially shape how individuals perceive and interact with those affected (Kube and Rozenkrantz 2021). Misconceptions about the causes, symptoms, and treatability of mental disorders often reinforce stigmatizing attitudes (Eboh 2023). For example, persistent assumptions that individuals with mental illness are violent or socially inadequate can hinder their quality of life and restrict their access to healthcare services (Ahad et al. 2023). Health belief models emphasize that people's utilization of health services is closely linked to their perceptions, beliefs, and values (Bekiroğlu 2021, Fekih-Romdhane 2023). Consequently, reshaping inaccurate beliefs is essential to promoting both individual and societal well-being (Kabak 2021, Solak Kapşığay 2021, Ünal 2021, Gürses 2022, Kayran 2023, Karakoç 2023, Kaya 2024).

Social distance reflects the degree to which individuals are willing to engage with people diagnosed with mental illness (Werremeyer et al. 2021). In social psychology, it refers to the emotional and physical space maintained toward certain groups, often shaped by underlying prejudices (Kite et al. 2022). Turkish studies consistently show a tendency to avoid close contact with individuals experiencing mental illness (Bulut 2021, Ünal 2021, Hoşgören 2024, Kara 2024). While empathy may increase with higher socioeconomic status, so does the desire to maintain distance—particularly when individuals are perceived as dangerous or unpredictable (Dinç 2020, Preiss et al. 2023). This duality further marginalizes those already struggling with mental health problems (Granerud et al. 2006).

Stigmatization remains one of the most pervasive challenges facing people with mental illness, significantly limiting their participation in social life (Thornicroft et al. 2022, Rayan 2024). Stigma involves labeling, stereotyping, exclusion, and discrimination, often extending to an individual's family and social network (Liamputtong et al. 2021). It not only hampers access to care but also contributes to internalized shame and diminished self-worth. Reducing stigma through structured interventions is therefore essential to fostering inclusion and supporting recovery (Özmen and Erdem 2018, Alkautsar 2020, Thornicroft et al. 2022, Zissi 2022).

This growing burden places considerable pressure on healthcare systems, particularly on nurses, who play a frontline role in providing care for individuals with mental health conditions. However, stigma among nurses remains a major barrier to effective care. Thornicroft (2006) stated that "in no country, society, or culture do people with a mental health condition receive the same acceptance and recognition as others." The specific manifestations of mental illness (Bathje and Pryor 2011) often lead to individuals being perceived as "different." Nurses may also hold discriminatory attitudes, viewing patients as incompetent, unpredictable, destructive, or violent (Brunero and Lamont 2016, Seeman et al. 2016). Such attitudes can reduce the quality of care, hinder recovery, and negatively impact nurses' professional identity and social interactions (CMHA 2021). These challenges also present significant barriers to nurses' involvement in psychiatric care (Fino et al. 2019) and impede the development of the discipline (Happell et al. 2013).

Most existing studies examine public discrimination against individuals with mental illness, with fewer focusing on exclusionary behaviors and social distancing among nurses. According to the Knowledge–Attitude–Practice model, knowledge plays a key role in reducing in-group bias toward out-group members (Pettigrew and Tropp 2008). Knowledge is also central to combating mental health stigma (Lopez et al. 2018, Alsahali 2021). Enhancing mental health literacy has been shown to reduce stigmatizing attitudes (Saito and Creedy 2021). A systematic review of 515 studies identified knowledge as a critical factor in reducing out-group bias (Fang et al. 2021). Although stigma research commonly focuses on individuals with mental illness or their families, research on nurses' stigmatization remains limited. Qualitative studies suggest that stigma among nurses stems from attitudinal, knowledge-based, and behavioral factors (Riffel and Chen 2019), yet quantitative evidence remains scarce. This study aims to examine the relationships among mental health knowledge, social distance, and stigma among nurses, investigate the current state of stigma and its influencing factors (WHO 2022), and explore the

mediating role of stigma between mental health knowledge and social distancing among clinical nurses (McGrath et al. 2023).

Previous studies show that stigma and negative beliefs are particularly pronounced in severe and chronic mental disorders such as schizophrenia and bipolar disorder, where individuals experience heightened prejudice, discrimination, and social distancing (Corrigan et al. 2014). Schizophrenia is characterized by disturbances in thought, perception, and behavior, often leading to significant functional impairment, while bipolar disorder involves recurring episodes of depression and mania or hypomania (APA 2013, WHO 2019). Both disorders are strongly associated with public stigma and negative beliefs, making them central examples in discussions of mental health stigma (Corrigan et al. 2014).

Nursing students, as future healthcare professionals, are expected to develop greater awareness and understanding of mental illness, including beliefs, stigma, and social distance. Understanding the foundational beliefs and attitudes held by healthcare providers is crucial, as these directly influence the quality of care delivered. Nurses' attitudes can significantly affect patients with whom they maintain close and prolonged contact, ultimately influencing the therapeutic environment (Dal et al. 2018, Arslantaş et al. 2019a, 2019b). The results of the present study were expected to contribute to a better understanding of mental illness and support the development of positive attitudes, while reducing negative prejudices, stigma, and discrimination. Nurses' beliefs and social distance also influence prevention, early diagnosis, and treatment—just as they do for other health issues (Dal et al. 2018, Arslantaş et al. 2019a, 2019b). For this reason, it is important to assess these beliefs and attitudes before graduation. The study was therefore conducted with first-year students (with no psychiatric nursing training) and fourth-year students (who had completed theoretical and practical psychiatric nursing education supported by films) to evaluate the effects of psychiatric nursing education on beliefs about mental illness and social distance.

Mindfulness-based psychoeducation has gained increasing attention for its potential to transform attitudes toward mental illness (Del Rosario et al. 2022). Mindfulness involves deliberately focusing on the present moment without judgment, fostering emotional awareness and self-regulation (Trainor 2024). Integrating mindfulness into nursing education may help reduce stigma, reshape beliefs, and improve empathy and openness toward individuals with mental disorders (Zissi 2022, Cho and Kim 2024, Shank et al. 2024). Mindfulness-based psychoeducation combines mindfulness practices—such as breathing exercises, body scans, and compassion meditation—with structured psychoeducational sessions. These approaches have been shown to enhance awareness of thoughts and emotions, reduce psychological distress, and promote more positive attitudes toward mental illness (Kabat-Zinn 2003, Baer 2003, Gu et al. 2015). In this study, the program was designed to integrate mindfulness techniques with mental health education to address stigma and improve students' understanding of psychiatric conditions. No previous research on this specific topic was identified in the literature, making the present study the first to address it. The aim of the study was to evaluate the effects of a mindfulness-based psychoeducation program on nursing students' beliefs toward mental illness, social distance, and stigma-related attitudes.

This study contributes to the literature by offering a comprehensive and longitudinal evaluation of mindfulness-based psychoeducation on nursing students' beliefs, social distance, and stigmatization—areas in which empirical evidence remains limited. Unlike studies assessing outcomes at a single time point, this study examines changes across pre-test, post-test, one-month, and three-month follow-ups, providing insight into both immediate and sustained intervention effects. By focusing on nursing students, the findings underscore the importance of early educational interventions for future healthcare professionals, who play a key role in shaping patient experiences and reducing mental health–related stigma. The multidimensional assessment and demonstration of reduced social distance and stigmatization offer meaningful implications for curriculum development and support the integration of mindfulness-based approaches into mental health education.

The study was guided by three primary hypotheses:

1. The intervention group will exhibit lower scores on the Beliefs Toward Mental Illness Scale at post-test, one-month, and three-month follow-ups than the control group.

2. The intervention group will show lower levels of social distance, as measured by the Social Distance Scale, across the same time points.

3. The intervention will result in lower stigmatization scores, as assessed by the Mental Illness Stigma Scale for Healthcare Providers, at post-test and subsequent follow-ups compared with the control group.

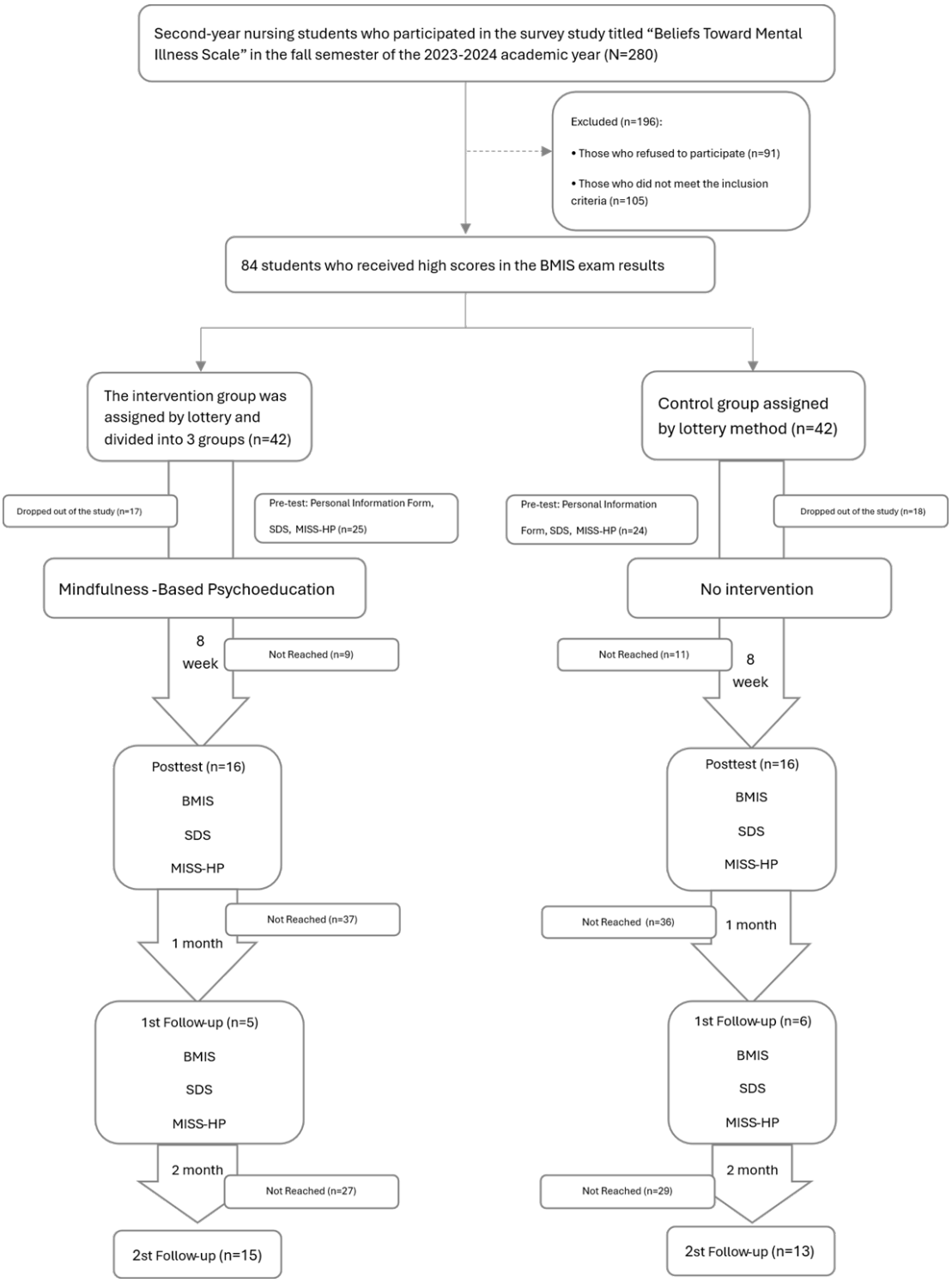

Figure 1. Flow chart of the study

Method

This research was designed as a quasi-experimental study in which an intervention (mindfulness-based psychoeducation) was administered to two distinct groups: an intervention group and a control group. Differences between the groups were examined using a pre-intervention pre-test, a post-intervention post-test, and retention tests conducted one month and three months after the intervention. The research model followed a quasi-experimental follow-up design with pre-test, post-test, and control groups (Figure 1).

The study population consisted of second-year nursing students (N=280) enrolled in the Faculty of Nursing at Aydın Adnan Menderes University. Second-year students were considered the most suitable group for evaluating

the effectiveness of the psychoeducation program, as they had already adapted to university life and coursework but had not yet taken the psychiatric nursing course. The sample size was calculated using the G*Power statistical power analysis program. Based on the study by Koyak Çalık and Arslantaş (2020), titled "The effect of education on mental illnesses provided to high school students on beliefs about mental illnesses and social distance," the effect size was set at 0.5, the significance level (α) at 0.05, and the statistical power at 95%. Accordingly, the required sample size was determined to be 34 participants per group (total n=68). Considering potential data loss, an additional 25% was added, resulting in a target sample size of 85 students. Because the number became fractional when divided equally, the final total sample size was set at 84.

A total of 280 students were screened using the Beliefs Toward Mental Illness Scale (BMIS). Of these, 91 declined participation and 105 did not meet the inclusion criteria, leaving 84 students with higher BMIS scores eligible for the study. These students were randomly and equally assigned to the intervention group (n=42) and the control group (n=42). In the intervention group, 17 students dropped out before the pre-test, and an additional 9 students could not be reached at the post-test, leaving 16 students who completed the immediate post-test assessment. In the control group, 18 students dropped out before the pre-test and 11 could not be reached at post-test, resulting in 16 students completing the post-test stage. Attrition continued during follow-up assessments; by the three-month follow-up, 15 students in the intervention group and 13 students in the control group had completed the study. The full participant flow is shown in Figure 1.

Inclusion criteria were: (a) being an undergraduate nursing student and (b) willingness to participate. Exclusion criteria included having a current psychiatric diagnosis or ongoing psychiatric treatment. The presence of a psychiatric disorder was assessed through self-report during the initial screening.

Students with relatively higher BMIS scores were prioritized for participation. Participants were selected based on score ranking and willingness to participate. If a student with a higher score declined participation, the next student on the list was invited until the required sample size was reached.

The mindfulness-based psychoeducation program was delivered by the principal researcher, who had received formal training in mindfulness practices prior to the study. Throughout the implementation, the researcher remained in continuous consultation with a certified professional experienced in delivering mindfulness-based interventions to ensure fidelity to the program protocol. Additionally, a second researcher—who had previously conducted studies on similar topics and had professional expertise in the field—contributed to the development and supervision of the intervention. These combined qualifications ensured that the program was administered competently and in accordance with evidence-based principles.

Procedure

This study employed a quasi-experimental pretest–posttest design with a non-equivalent control group. In such designs, groups are compared without random assignment, and participants are selected based on pre-existing characteristics or practical considerations (Shadish et al. 2002, Büyüköztürk et al. 2021). Participants were allocated to the intervention or control group in accordance with this design, and the participant flow is presented in Figure 1. This approach was deemed appropriate because random assignment was not feasible due to ethical and organizational constraints. No pilot application was conducted prior to the intervention.

The intervention group received an eight-session mindfulness-based psychoeducation program, delivered in three subgroups of 14 participants. Sessions were held in classrooms on Mondays, Wednesdays, and Fridays between 17:00 and 19:00.

Baseline data collection began on October 25, 2023. Follow-up measurements were scheduled for the immediate post-test (January 1, 2024), one-month follow-up (January 30), and three-month follow-up (March 30). However, due to student absences, the questionnaires were redistributed via Google Forms on dates shortly after the planned assessment times. After all data collection had been completed, a single psychoeducation session was offered to the control group on May 23, 2024

Participants comprised second-year nursing students enrolled in the 2023–2024 academic year who scored high on the Beliefs Toward Mental Illness Scale (BMIS). Students were excluded if they missed more than two psychoeducation sessions, submitted incomplete questionnaires, or had a previously diagnosed mental disorder such as schizophrenia, bipolar disorder, or major depression.

The study was conducted in accordance with the Declaration of Helsinki. Ethical approval was obtained from the Aydın Adnan Menderes University Institute of Health Sciences Non-Interventional Research Ethics Committee (Approval date: 22.08.2023; Decision Number: 2023/022), and institutional permission was secured. Prior to

data collection, students were informed about the study's purpose, procedures, and potential risks, and written informed consent was obtained. Confidentiality and privacy were ensured through secure data handling and restricted access to the research team. During the intervention, students who had difficulty performing the exercises were not pressured to continue, and in case of any potential negative psychological impact, arrangements were in place for consultation with the thesis advisor and mindfulness trainer; however, no such situation occurred. Results were presented objectively, without misleading interpretation, and following final assessments, the full mindfulness-based psychoeducation program was provided to the control group in a single session for ethical reasons.

Table 1. Mindfulness-based psychoeducation content

Sessions	**Content**	
1. Session	Topic: Introduction to Mindfulness	Practice Time: 90-120 min.
	Objective: To introduce the purpose of the training and the basic principles. To define mindfulness, emphasize its importance, address the concept of autopilot, and provide information about mindfulness attitudes (non-judgment, patience, beginner's spirit, trust, effortlessness, acceptance, letting go, compassion, gratitude, generosity).	
	Exercises: Breath Awareness, Raisin Exercise.	
2. Session	Topic: Providing Information About Mental Illness	Practice Time: 90-120 min.
	Objective: To convey accurate information about mental illnesses (biological, psychological, and environmental factors), correct misconceptions, raise awareness of stigma, and understand the root causes of attitudes.	
	Exercises: Body Scan Meditation, Breath Awareness.	
3. Session	Topic: Empathy and Perspective Shift	Practice Time: 90-120 min.
	Objective: Experiences of people living with mental illness: Developing empathy skills through case presentations and student sharing.	
	Exercises: Mindful awareness seeing exercise, Nine-point exercise.	
4. Session	Topic: Awareness of personal attitudes.	Practice Time: 90-120 min.
	Objetive: Gaining mindfulness practices for questioning and changing attitudes.	
	Exercises: Mindful walking exercise, breath awareness.	
5. Session	Topic: Communication skills	Practice Time: 90-120 min.
	Objective: Gaining practice in being an active listener and communicating with understanding and support.	
	Exercise: Communication exercise, breath awareness.	
6. Session	Topic: Achieving emotional balance	Practice Time: 90-120 min.
	Objective: Using the pleasant moments calendar, we understand that an experience doesn't have to be a big one to be pleasant. Very small moments are abundant throughout the day if we pay attention and intend to notice them. We realize that we focus more on unpleasant experiences. And we realize that this skill can be improved.	
	Exercise: Mindful movement/yoga exercises, sitting meditation.	
7. Session	Topic: Coping with challenges.	Practice Time: 90-120 min.
	Objective: Gaining emotional balance and resilience in the face of challenges, and being able to choose chosen responses instead of automatic reactions in life.	
	Exercise: Sitting meditation with breath and body awareness.	
8. Session (Day of Silence)	Topic: Integration into Daily Life	Practice Time: 90-120 min.
	Objective: To remind students of what they learned in the course, students will write a letter to themselves 3-6 months later. In that letter, they will set their life intentions related to mindfulness.	
	Exercise: Breath awareness, sitting meditation, yoga practices.	

The mindfulness-based psychoeducation program used in this study was developed by the researcher based on current literature, with the aim of reducing negative beliefs, social distance, and stigmatizing attitudes toward mental illness among nursing students. The program (Table 1) included a range of mindfulness practices, such as sensory awareness exercises, body–mind scanning techniques, focused attention activities, mindful movement, communication skills training, silent sitting meditations, and compassion-based approaches (Kabat-Zinn 2003). Following expert consultation with five professionals in the field, the educational content was revised, and the researcher completed an eight-week mindfulness training program prior to implementation (February 17–April 7, 2023).

Measures

Personal Information Form

This form was developed by the researcher and consists of 13 open- and closed-ended questions assessing

students' sociodemographic characteristics.

Beliefs Toward Mental Illness Scale (BMIS)

Originally developed by Hirai and Clum (2000), the Turkish validity and reliability study of the Beliefs Toward Mental Illness Scale (BMIS) was conducted by Bilge and Çam (2008). This scale uses a 6-point Likert-type format, with responses ranging from "Strongly Disagree (0)" to "Strongly Agree (5)." The scale consists of three subscales. Dangerousness Subscale: This subscale reflects beliefs that individuals with mental illness are dangerous. It includes items 1, 2, 3, 4, 5, 6, 7, and 13. Poor Interpersonal and Social Subscale: This subscale measures beliefs about the negative impact of mental illness on interpersonal relationships and feelings of helplessness. It reflects the assumption that emotional instability impairs social interactions. This subscale includes items 8, 9, 10, 11, 14, 16, 17, 18, 19, 20, and 21. Incurability Subscale: This subscale captures the individual's sense of shame associated with mental illness. It includes items 12 and 15. The total Cronbach's alpha of the original scale was reported as 0,82. Subscale reliabilities were 0.80 for the Poor Interpersonal and Social Subscale, 0.71 for Dangerousness, and 0.69 for Incurability. The scale can be scored from 0 to 105 points in total, with higher scores indicating negative beliefs. The dangerousness dimension, one of the scale's subscales, assesses beliefs that mental illnesses and individuals with these illnesses are dangerous, with scores ranging from 0 to 40. The helplessness and deterioration of interpersonal relationships dimension assesses the extent to which these illnesses affect interpersonal relationships and the resulting helplessness, with scores ranging from 0 to 55. The shame dimension assesses whether such illnesses cause shame, with scores ranging from 0 to 10. (Bilge and Çam 2008). In this study, the total Cronbach's alpha was calculated as 0.81; for subscales: 0.72 (Poor Interpersonal and Social Subscale), 0.64 (Dangerousness), and 0.88 (Incurability Subscale).

Social Distance Scale (SDS)

Developed by Arkar (1991), the Social Distance Scale includes two clinical vignettes (paranoid schizophrenia and anxiety disorder) followed by items measuring social distance toward individuals with psychiatric diagnoses. It uses a 7-point Likert-type scale ranging from "Definitely would not bother me (1)" to "Definitely would bother me (7)." The scale consists of 14 items, with higher scores indicating greater social distance. In the original study, Cronbach's alpha was 0.88. In the present study, Cronbach's alpha was 0.74 for the first section and 0.86 for the second section.

Healthcare Workers' Stigmatization Toward Mental Illness Scale (MISS-HP)

The MISS-HP was developed by Azazi (2021) as part of a master's thesis. The reported internal consistency for the total scale was 0.79. Subscale reliabilities were 0.80 (Social Distance), 0.73 (Attitudes), and 0.74 (Help-Seeking and Self-Disclosure). The scale contains 20 items scored on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). In this study, the total Cronbach's alpha was 0.79.

Use of Multiple Measures

This study assessed both general and disorder-specific beliefs and attitudes. The BMIS and MISS-HP measured overall beliefs and stigma toward mental illness, while the SDS—containing vignettes on schizophrenia and anxiety disorder—captured disorder-specific social distance. Although the MISS-HP includes a Social Distance Subscale, the SDS was additionally administered to obtain a more nuanced and dedicated assessment of social distance. The combined use of these instruments allowed for a comprehensive, multidimensional evaluation of students' beliefs, attitudes, and social distance. Higher BMIS and MISS-HP scores indicate more negative beliefs and greater stigma, whereas higher SDS scores reflect increased social distance.

Statistical Analysis

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 25.0. Descriptive statistics, including mean, standard deviation, minimum, maximum, and variance values, were calculated to characterize participants' demographics and baseline scale scores. Normality of the data was examined using the Shapiro–Wilk test. For variables that did not follow a normal distribution, the Mann–Whitney U test and Kruskal–Wallis test were employed. Categorical variables were analyzed with the chi-square test (Büyüköztürk 2013). Changes in BMIS, SDS, and MISS-HP scores across pretest, posttest, and 1- and 3-month follow-up assessments were analyzed using the Friedman test. A significance level of $p < 0.05$ was adopted for all statistical analyses. Within-group and between-group comparisons were performed to evaluate the effectiveness of the intervention, and relationships among variables were examined in accordance with scientific evidence.

Table 2. Comparison of mean scores on the Beliefs Towards Mental Illness Scale sub-dimension between the intervention and control groups

Time	Group	n	Mean Rank	Rank Sum	Mann-Whitney U	Z	P (one-tailed)	P (two-tailed)
Dangerousness Subscale (8 items)								
Pre-test	Intervention	25	22.84	571.00	246	-1.083	0,279	—
	Control	24	27.25	654.00				
Post-test	Intervention	16	16.97	254.50	60.5	-1.714	0,087	0.088
	Control	13	11.65	151.50				
1. Month	Intervention	5	5.60	28.00	13	-0.371	0,711	0.792
	Control	6	6.33	38.00				
3. Month	Intervention	15	17.80	267.00	48	-2.289	0.022	0.022
	Control	13	10.69	139.00				
Poor Interpersonal and Social Subscale (11 items)								
Pre-test	Intervention	25	21.76	544.00	219.000	-1.623	0.105	—
	Control	24	28.38	681.00				
Post-test	Intervention	16	16.63	249.50	65.500	-1.484	0.138	0.142
	Control	13	12.04	156.50				
1. Month	Intervention	5	6.70	33.50	11.500	-0.646	0.518	0.537
	Control	6	5.42	32.50				
3. Month	Intervention	15	18.93	284.00	31.000	-3.073	0.002	0.002
	Control	13	9.38	122.00				
Incurability Subscale (2 items)								
Pre-test	Intervention	25	23.72	593.00	268.000	-0.667	0.505	—
	Control	24	26.33	632.00				
Post-test	Intervention	16	13.50	202.50	82.500	-0.703	0.482	0.496
	Control	13	15.65	203.50				
1. Month	Intervention	5	5.60	28.00	13.000	-0.372	0.710	0.792
	Control	6	6.33	38.00				
3. Month	Intervention	15	17.63	264.50	50.500	-2.258	0.024	0.029
	Control	13	10.88	141.50				

$p<0.05$, Mean: Arithmetic mean, Rank: Average of ranks assigned in the Mann–Whitney U test, MWU: Mann-Whitney U, Z: Standardized test statistic of the Mann–Whitney U test.

Results

The mean age of participants was 20.0 years (SD = 1.02). Most were female (81.6%) and residing in dormitories (81.6%). A majority came from nuclear families (81.6%) and had 2–3 siblings (73.5%). Regarding family residence, 77.6% lived in urban areas and 22.4% in rural areas. In terms of socioeconomic status, 38.8% reported household income below their expenses, while 61.2% reported income equal to or above their expenses. Most parents were alive (91.8%); fathers were more often employed (65.3%), while most mothers were homemakers (89.8%). Fathers (65.3%) and mothers (73.5%) had predominantly middle-school–level education or below. No statistically significant differences were found between the intervention and control groups regarding these descriptive characteristics.

For the Dangerousness subscale of the Beliefs Toward Mental Illness Scale (BMIS), no significant group differences emerged at pre-test ($z = -1.083$, $p = 0.279$), post-test ($z = -1.714$, $p = 0.087$), or at one-month follow-up ($z = -0.371$, $p = 0.711$). However, at the three-month follow-up, the intervention group scored significantly higher than the control group ($z = -2.289$, $p = 0.022$) (Table 2). In the Poor Interpersonal and Social Skills subscale, no significant group differences were found at pre-test ($z = -1.623$, $p = 0.105$), post-test ($z = -1.484$, $p = 0.138$), or at one month ($z = -0.646$, $p = 0.518$). By the third month, the intervention group showed a significant decrease from baseline ($z = -3.073$, $p = 0.002$), indicating improved beliefs regarding interpersonal functioning (Table 2). For the Incurability subscale, no significant differences were detected at pre-test ($z = -0.667$, $p = 0.505$), post-test ($z = -0.703$, $p = 0.482$), or one-month follow-up ($z = -0.372$, $p = 0.710$). A significant reduction in perceived shame was observed in the intervention group at the three-month follow-up ($z = -2.258$, $p = 0.024$) (Table 2).

No statistically significant differences were observed between the intervention and control groups at pre-test ($z = -0.341$, $p = 0.733$), post-test ($z = -0.834$, $p = 0.404$), one-month ($z = -1.098$, $p = 0.272$), or three-month follow-up ($z = -1.200$, $p = 0.230$) (Table 3).

Table 3. Comparison of the first part of the Social Distance Scale mean scores of the intervention and control groups							
Time and Group	**n**	**Mean Rank**	**Rank Sum**	**Mann-Whitney U**	**Z**	**P (one-tailed)**	**P (two-tailed)**
SDS1 pre-test							
Intervention	25	24.32	608	283	-0.341	0.733	—
Control	24	25.71	617				
SDS1 post-test							
Intervention	16	13.81	221	85	-0.834	0.404	0.423
Control	13	16.46	214				
SDS1 1. Month							
Intervention	5	4.80	24	9	-1.098	0.272	0.329
Control	6	7	42				
SDS1 3. Month							
Intervention	15	16.23	243,5	71,5	-1.200	0.230	0.235
Control	13	12.50	162.5				

p<0.05, Mean: Arithmetic mean, Rank: Average of ranks assigned in the Mann–Whitney U test, MWU: Mann-Whitney U, Z: Standardized test statistic of the Mann–Whitney U test, SDS1: Social Distance Scale 1

Similarly, for SDS-2, no significant differences were found at pre-test (z = –0.540, p = 0.589), post-test (z = –0.300, p = 0.764), one-month (z = 0.000, p = 1.000), or three-month follow-up (z = –0.991, p = 0.322) (Table 4).

Table 4. Comparison of the second part of the Social Distance Scale mean scores of the intervention and control groups							
Time and Group	**n**	**Mean Rank**	**Rank Sum**	**Mann-Whitney U**	**Z**	**P (one-tailed)**	**P (two-tailed)**
SDS2 pre-test							
Intervention	25	26.08	652	273	-0.540	0.589	—
Control	24	23.88	573				
SDS2 post-test							
Intervention	16	14.07	211	91	-0.300	0.764	0.786
Control	13	15	195				
SDS2 1. Month							
Intervention	5	6	30	15	0.000	1.000	1.000
Control	6	6	36				
SDS2 3. Month							
Intervention	15	15.93	239	76	-0.991	0.322	0.339
Control	13	12.85	167				

p<0.05, Mean: Arithmetic mean, Rank: Average of ranks assigned in the Mann–Whitney U test, MWU: Mann-Whitney U, Z: Standardized test statistic of the Mann–Whitney U test, SDS2: Social Distance Scale 2

For the Social Distance subscale, no significant differences emerged between groups at any time point (pre-test: z = –1.274, p = 0.203; post-test: z = –1.113, p = 0.266; one-month: z = –0.369, p = 0.712; three-month: z = –0.671, p = 0.502). In the Attitudes subscale, significant group differences were present at pre-test (z = –6.009, p < 0.001) and post-test (z = –3.486, p < 0.001), favoring the intervention group. These differences were no longer present at one-month (z = –0.732, p = 0.464) or three-month (z = –0.070, p = 0.944) follow-ups. For the Help-Seeking and Self-Disclosure subscale, a significant difference emerged only at pre-test (z = –2.561, p = 0.010). No significant differences appeared at post-test (z = –1.132, p = 0.257), one-month (z = –0.377, p = 0.706), or three (Table 5).

Total BMIS scores did not differ significantly between groups over time (χ^2 = 7.395, p = 0.060). For SDS-1, no significant time-by-group differences were observed (χ^2 = 6.640, p = 0.084). For SDS-2, a significant change occurred over time across both groups (χ^2 = 8.557, p = 0.036). For the MISS-HP total score, significant changes over time were observed in both groups (χ^2 = 13.553, p = 0.004) (Table 6).

Table 5. Comparison of the mean scores of the intervention and control groups on the Healthcare Workers' Stigmatization Toward Mental Illness Scale

Time	Group	n	Mean Rank	Rank Sum	Mann-Whitney U	Z	P (one-tailed)	P (two-tailed)
Social Distance Subscale (7 items)								
Pre-test	Intervention	25	27.54	688.50	236.500	-1.274	0.203	—
	Control	24	22.35	536.50				
Post-test	Intervention	16	16.10	241.50	73.500	-1.113	0.266	0.274
	Control	13	12.65	164.50				
1. Month	Intervention	5	5.60	28.00	13.000	-0.369	0.712	0.792
	Control	6	6.33	38.00				
3. Month	Intervention	15	15.47	232.00	83.000	-0.671	0.502	0.525
	Control	13	13.38	174.00				
Attitude Subscale (7 items)								
Pre-test	Intervention	25	37.00	925.00	0.000	-6.009	0.000	—
	Control	24	12.50	300.00				
Post-test	Intervention	16	20.38	346.50	27.500	-3.486	0.000	0.000
	Control	13	9.12	118.50				
1. Month	Intervention	5	6.80	34.00	11.000	-0.732	0.464	0.537
	Control	6	5.33	32.00				
3. Month	Intervention	15	14.40	216.00	96.000	-0.070	0.944	0.964
	Control	13	14.62	190.00				
Help Seeking-Disclosure Subscale (6 items)								
Pre-test	Intervention	25	30.10	752.50	172.500	-2.561	0.010	—
	Control	24	19.69	472.50				
Post-test	Intervention	16	16.13	242.00	73.000	-1.132	0.257	0.274
	Control	13	12.62	164.00				
1. Month	Intervention	5	6.40	32.00	13.000	-0.377	0.706	0.792
	Control	6	5.67	34.00				
3. Month	Intervention	15	14.57	218.50	96.500	-0.046	0.963	0.964
	Control	13	14.42	187.50				

$p<0.05$, Mean: Arithmetic mean, Rank: Average of ranks assigned in the Mann–Whitney U test, MWU: Mann-Whitney U, Z: Standardized test statistic of the Mann–Whitney U test.

Table 6. Comparison of changes in various scale scores over time between intervention and control groups

Beliefs Toward Mental Illness Scale (BMIS)				
Group (X±SS)	Pre-test	Post-test	1. Month	3. Month
Intervention	50.72 ± 14.58	56.50 ± 9.06	47.40 ± 10.92	58.20 ± 10.23
Control	56.38 ± 9.13	49.92 ± 8.99	46.17 ± 2.64	48.08 ± 7.90
Friedman Testi	Mean rank= 3.24 n=9, χ^2=7.395, df=3, p=0.060			
Sosyal Mesafe Ölçeği (1. Kısım)				
Group (X±SS)	Pre-test	Post-test	1. Month	3. Month
Intervention	45.16 ± 12.83	42.06 ± 18.72	31.80 ± 11.61	47.87 ± 12.25
Control	48.04 ± 12.06	44.38 ± 13.23	40.83 ± 12.61	42.31 ± 10.18
Friedman Testi	Ortalama rank= 2.94 n=9, χ^2=6.640, df=3, p=0.084			
Sosyal Mesafe Ölçeği (2. Kısım)				
Group (X±SS)	Pre-test	Post-test	1. Month	3. Month
Intervention	51.56 ± 15.07	42.33 ± 22.89	36.36 ± 13.40	50.53 ± 13.74
Control	49.71 ± 15.21	44.38 ± 13.23	36.33 ± 14.58	45.6 ± 12.59
Friedman Testi	Ortalama rank= 3.06 n=9, χ^2=8.557, df=3, p=0.036			
Sağlık Çalışanlarının Ruhsal Hastalıklara Yönelik Damgalama Ölçeği (SÇ-RHYDÖ)				
Group (X±SS)	Pre-test	Post-test	1. Month	3. Month
Intervention	57.96 ± 8.66	58.13 ± 13.72	44.20 ± 5.81	48.27 ± 11.62
Control	51.38 ± 6.43	46.46 ± 6.85	41.67 ± 2.73	46.38 ± 10.17
Friedman Testi	Ortalama rank= 3.56 n=9, χ^2=13.553, df=3, p=0.004			

$p<0.05$, X±SS: Ortalama ± standart sapma , χ^2: Ki-kare test istatistiği.

Discussion

This study examined the effects of mindfulness-based psychoeducation on nursing students' beliefs about mental illness, social distance, and stigma. Findings demonstrated meaningful improvements in the intervention group—particularly at the three-month follow-up—while no significant changes occurred in the

control group. These results are consistent with previous literature showing that mental illness is frequently associated with prejudice and stigmatizing attitudes at both individual and societal levels (Link et al. 2020, Schomerus et al. 2023, Mann et al. 2024, Yang et al. 2025).

No significant sociodemographic differences emerged between the intervention and control groups. Variables such as age, gender, place of residence, family structure, income level, and parental education were comparable, reducing concerns regarding demographic confounding. Prior research similarly reports that sociodemographic characteristics alone do not fully explain differences in stigma among student populations (Patel et al. 2023, Li et al. 2024a, Zhang et al. 2025).

The results also showed that mindfulness-based psychoeducation positively influenced students' beliefs toward mental illness. BMIS and MISS-HP findings indicated improvements in the intervention group, especially at the three-month follow-up. This aligns with research demonstrating that structured psychoeducation incorporating mindfulness practices fosters more positive beliefs and reduces stigmatizing attitudes among healthcare students (Potts et al. 2022, Bacık Yaman 2023, Chen 2024, Gronholm et al. 2025). Components such as empathy-building exercises, guided reflection, and mindfulness techniques may have contributed to these outcomes.

Regarding social distance, SDS-1 and SDS-2 scores decreased in the intervention group, although only SDS-2 changes reached statistical significance. This suggests that the psychoeducation program was partially effective in reducing social distance, but that these attitudes may be deeply rooted and resistant to short-term change. The literature similarly highlights that sustainable reductions in social distance require repeated exposure, reinforcement, and prolonged engagement (Kılıç-Demir and Kızılpınar 2024, Li et al. 2024a, Mobashery et al. 2024).

Another significant finding concerns stigmatizing attitudes. Post-test MISS-HP scores were more favorable in the intervention group, consistent with studies showing that mindfulness-based approaches reduce stigma among healthcare students (Latifeh et al. 2021, Fernandes et al. 2022, Burguet and Girard 2024, Abo Shereda et al. 2025). However, the lack of significant differences at the one- and three-month follow-ups raises questions about the sustainability of these improvements. This pattern suggests that booster sessions or longer-term interventions may be necessary to maintain these gains.

The observed changes in students' perceptions of mental illness—including beliefs about causes and stigma associated with specific disorders—underscore the complex interplay between stigma, social distance, and help-seeking behavior. Consistent with prior research, stigma may discourage help-seeking and act as a barrier to effective mental health care (Arslantaş et al. 2010, Arslantaş et al. 2011, Boğahan 2019, Patel et al. 2023, Subica and Link 2024, Yoo et al. 2025). These findings reinforce the importance of integrating mental health literacy and anti-stigma strategies into nursing curricula.

Taken together, the findings indicate that mindfulness-based psychoeducation can enhance nursing students' beliefs and attitudes toward mental illness and reduce stigma in the short term; however, more deeply ingrained attitudes—particularly social distance—may require longer or more intensive interventions to change. Continued reinforcement may therefore be essential for achieving long-term transformation.

This study's high attrition rate represents an important limitation that may have affected internal validity. Participant loss was primarily due to academic scheduling conflicts and voluntary withdrawal. Although attrition is common in educational and behavioral intervention studies, it likely reduced statistical power and may limit the generalizability of the findings. Nonetheless, the consistency of effects among the remaining participants supports the robustness of the main results. Additionally, the study sample was limited to second-year nursing students from a single institution in the 2023–2024 academic year. The findings may also be shaped by the specific instruments used (BMIS, SDS, MISS-HP), the structure and duration of the intervention, and the statistical methods employed, thereby limiting generalizability beyond similar educational settings.

The researcher's personal experiences further illustrate how implicit biases toward individuals with mental illness may emerge even among health-related students. During undergraduate psychiatric training, the researcher initially failed to recognize that individuals attending a morning meeting were patients—an experience reflecting subconscious stigma. Similarly, during a graduate clinical internship, some nursing students expressed hesitancy toward interacting with psychiatric patients, often describing them as "unpredictable." These experiences emphasize that even healthcare students may hold stigmatizing beliefs and maintain social distance from individuals with mental illness, highlighting the need for structured educational interventions aimed at reducing stigma and promoting awareness.

Conclusion

The findings suggest that mindfulness-based psychoeducation can partially improve nursing students' beliefs about mental illness, reduce social distance, and diminish stigmatizing attitudes, supporting its incorporation into undergraduate nursing curricula. Future studies should utilize larger and more diverse samples, adopt mixed-method designs, and include longer follow-up periods to more fully evaluate the long-term effectiveness and broader applicability of such interventions. While mindfulness-based psychoeducation is effective in the short term, its long-term effects have been observed to be weak. Therefore, extending the training period and repeating it at regular intervals can increase the retention of learned information. Furthermore, the duration of mindfulness-based psychoeducation can be extended. More in-depth interventions can be implemented, particularly to change ingrained attitudes such as beliefs and social distancing. In this study, only education was used in mindfulness-based psychoeducation; it may be recommended to add interventions that involve contact with individuals diagnosed with mental illness. Methods that include intergroup interaction and one-on-one interaction may be more effective in changing such attitudes. It would be beneficial to make psychoeducation modules more comprehensive in terms of content, particularly by including more practical applications and real-life scenarios on topics such as social distancing and stigma

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