Clinical and Experimental Health Sciences

Investigation of the Effect of Mindfulness-Based Psychoeducation on Defense Mechanisms and Mindful Awareness in Nursing Students

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ABSTRACT

Objective: Today, there is a growing interest in mindfulness-based therapies. Such practices can be beneficial by contributing to the personal and professional development of nursing students. In this study, the effect of mindfulness-based psychoeducation applied to Turkish nursing students on defense mechanisms and mindfulness was evaluated.

Methods: The research was designed as a quasi-experimental study with a control group. Psychoeducation was delivered online between 08.03.2021 and 17.05.2021 in 16 sessions over 8 weeks. Data were collected using the Defense Style Questionnaire and the Awareness Scale. Percentage distributions, t-test, chi-square test, and paired samples t-test were used to analyze the data.

Results: It was found that the students' use of mature defenses and mindful awareness increased after the mindfulness-based psychoeducation, and the differences between the experimental-control groups and the mean scores of the pretest-posttest data were significant ($p<.05$).

Conclusions: If mindfulness-based psychoeducation can be integrated into the curriculum of nursing students, it may help them to better understand themselves and their environment and to cope with the difficulties they encounter in their professional practice by supporting their personal development.

Keywords: Mindfulness, psychoeducation, defense mechanisms, mindful-awareness, nursing

1. INTRODUCTION

The most basic function of the self is the use of defense mechanisms. These mechanisms are used in every age period by the developmental process. It is inevitable for an individual to constantly use defense mechanisms to protect the self in its development and adaptation to the environment (1). Defense mechanisms are unconscious strategies that mediate the individual's response to internal conflicts and challenging situations (2). Defense mechanisms are classified into three categories: mature (sublimation, humor, anticipation, and suppression), neurotic (reaction development, deconstruction, intellectualization), and primitive/immature (distortion, denial, splitting) (3). Healthy people generally tend to use neurotic and mature defense mechanisms to cope with adversity in their daily lives. However, they may also use immature defenses in response to traumatic events (4-6). When defense mechanisms are not used at the appropriate time, at a proper frequency, and in a measured condition, they can negatively affect mental health (6,7). They are defense mechanisms that make negative emotions such as anxiety, guilt, shame, sadness, and anger more acceptable. It is an automatic response that occurs outside of awareness (4,8). When it comes to the existence of defense mechanisms that the person uses unconsciously, it is crucial to gain self-awareness in order to prevent mental problems and support self-development (9).

Mindful awareness is a mind-body practice that involves paying attention to what is happening in the moment and accepting what is perceived without judgment. Mindfulness involves awareness and attention; Awareness is the mechanism that constantly monitors the background of the state of consciousness (9-11). Studies have found that people with mindful awareness use more positive coping methods and mature defense mechanisms, and less negative coping methods, neurotic, and immature defense mechanisms (12-14).

It has been noted that nurses and nursing students often encounter difficult situations in their professional journey and experience mental problems such as burnout, stress, anxiety, depression, and use more neurotic and immature defenses (14-17). Many psychological strategies and therapies have been used and proven to be effective in improving defense mechanisms and coping with mental problems (7,18-20). Many

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studies indicate the effectiveness of mindfulness practices in nursing students for both individual and patient benefit (21-27).

In this research, a structured psychoeducation on defense mechanisms was prepared to help students discover the defenses they use most, get to know defense mechanisms better, learn how to develop mature defense mechanisms, support their mental health development by increasing their awareness, and test the effectiveness of the psychoeducation.

Hypotheses

H1: Mindfulness-based psychoeducation program decreases the level of immature defense mechanisms levels and increases mature defense mechanisms of the nursing students.

H2: Mindfulness-based psychoeducation program increases mindful awareness levels of the nursing students.

2. METHODS

2.1. Design and Sample

The study was conducted to determine the effect of mindfulness-based psychoeducation program applied with distance education on defense mechanisms, mindful awareness of Turkish nursing students. This study was designed as a quasi-experimental study with a control group (Trial Registration: BLINDED).

It was conducted with 96 nursing students enrolled in the Faculty of Health Sciences of a state university in the east of Türkiye in the 2020-2021 academic year. 86 students who met the research criteria (being a first-year student, being over 18 years old, not having any psychiatric diagnosis, volunteering to participate in the study, not having received mindfulness training before, not a foreign national) were included in the study. It was considered appropriate to include in the study by first-year students who were at the beginning of their nursing education and had not yet taken a course related to personal development (such as introduction to psychology, interpersonal relations and communication). Among these students, the intervention and control groups were formed without randomization after detailed information about the research process was given to the students at their request. Those who wanted to receive training and believed that they could attend the training continuously were determined as the intervention group (45), and those who did not want to participate in the training and were unsure were determined as the control group (41). However, the research was completed with 33 students in the intervention group and 39 students in the control group. 12 students from the intervention group left the research because they could not attend the sessions regularly, while 2 students in the control group dropped out of the research without stating a reason for their request. In the power analysis of the 72 students who participated in the research, it was determined that the margin of error of the study was .05, the effect size was .5, and the power of to represent the universe was .80 (28). These values indicate that the sample is adequate.

2.2. Data Collection and Program Application

Due to the Covid-19 pandemic, nursing education in our institution was continued in the 2020-2021 academic year with a distance education called DEP (Distance Education Platform). This situation necessitated online psychoeducation to be given as part of the research. The Mindfulness-Based Psychoeducation program was conducted via DEP between 08.03.2021 and 17.05.2021 after obtaining the necessary permission and support from the institution. The scales created by the researcher through "Google Form" were shared with the students in the Mindfulness-Based Psychoeducation Program at DEP, and the pretest data were collected in the first session, while the posttest data were collected two weeks after the last session. On the first page of this form, the purpose of the research was explained, the confirmation icon indicated that they were voluntarily agreeing to participate in the research, why they had to provide name or code information, and the response time (30 minutes) for the forms was stated..

2.3. Data Collection Tools

In this study Personal Information Form, Defense Style Questionnaire (DSQ-40), and Mindful Attention Awareness Scale (MAAS) were used.

Personal Information Form: It consists of questions about the socio-demographic characteristics of the students (age, gender).

Defense Style Questionnaire (DSQ-40): The scale was developed by Andrews et al. (3) and adapted into Turkish by Yılmaz et al. (29). In the scale, which determines the occurrence of defense mechanisms at the level of consciousness and behavior, and consists of 40 items, 20 defenses, and 3 sub-dimensions (mature, neurotic, and immature), each item is rated between 1-9 (absolutely inappropriate – absolutely appropriate). Mature defenses are; repression, anticipation, sublimation, and humor. Neurotic defenses; subversion, counter-reaction, idealization, and artificial altruism. Immature defenses are; passive aggression, expression, projection, isolation, denial, division, devaluation, autistic fantasy, displacement, dissociation, rationalization, and somatization. The scale is scored on defenses or sub-dimensions, not on the total score. The total score or arithmetic mean is used in calculating each defense or sub-dimension. As the score increases, the use of the defense/sub-dimension also increases. In the Turkish adaptation study of the scale, the Cronbach's Alpha values were .70, .61, and .83, respectively, according to the mature, neurotic, and immature sub-dimensions (29), while in this study, it was .65, .71, and .82 respectively.

Mindful Attention Awareness Scale (MAAS): Developed by Brown and Ryan (30) and adapted to Turkish by Özyesil et al. (11). The scale has a 15-items and 6-point Likert scale that measures the differences in the ability to be aware of

what is happening in the moment and to pay attention to them. Scores on the scale range from 15 to 90 points. A high score indicates a high level of mindful awareness. While the Cronbach Alpha value of the scale in the Turkish adaptation study (11) was .80, in this study it was .82.

2.4. Mindfulness-based Psychoeducation Program

Mindfulness-based cognitive therapy is evidence-based psychoeducation. Psychoeducation was organized in 2 consecutive sessions once a week for 8 weeks, and each session lasted 60 minutes, for a total of 16 sessions. The content of the psychoeducation program was explained in detail, and techniques such as presentation and question-answer narrative techniques, video, audio recording, mindfulness assignments for the next session were used in the training. A WhatsApp group was created to remind and share materials with students participating in psychoeducation. It was stated that the students should be very careful, observant, and patient while doing the exercises in order to get to know themselves, be aware of their emotions, thoughts, physical sensations and focus. The applications were performed online-live in DEP and recorded by the system. The researcher's camera was turned on and the student's camera was left on as well. The privacy of all participants was emphasized and it was stated that the existing recordings would not be used elsewhere, that the participants would not be able to make recordings, and that the sharing in the sessions would be kept confidential. Students had access to the recordings at any time during the day the psychoeducation began and for 15 days after the psychoeducation ended. On the days when psychoeducation was not taking place, reminder messages were sent twice a week via DEP and WhatsApp applications for home applications. The content of Mindfulness-based psychoeducation program is shown in Table 1.

Table 1. *Content of mindfulness-based psychoeducation program*

Week 1 **Session 1** ***(First meeting)***	-Meeting, informing about how the group will work, expressing expectations and providing information about the concept of mindfulness, applying pretests.
Session 2 ***(Awareness and me)***	-Raisin exercise and body scan -Home practice: mindful eating and body scan -Talking about timing and barriers to home practice.
Week 2 **Session 3** ***(Devil, me and angel)***	-Concepts related to the defense mechanism (what is the self, its characteristics, and how it works, the functioning of defense mechanisms against obstacles and conflicts, giving examples from the conflicts we experience and the defenses we make), recognizing defenses, and thinking about other defenses,
Session 4 ***(Life begins with a breath)***	-3 minutes of breath awareness and body scanning -Sharing experiences about mindful eating and body scanning -Home practice: breath awareness, body scan, choosing an enjoyable routine in everyday life and doing it mindfully
Week 3 **Session 5** (***Awareness and autopilot)***	-What are our automatic thoughts? Gaining the ability to make connections between automatic thoughts and defense mechanisms, to understand the relationship between emotion, thought, and behavior, and to recognize cognitive errors
Session 6 ***(Awareness and everyday life)***	-3 minutes of breath awareness and body scanning without direction, noticing the automatisms in our lives, can this be an emotion, thought, behavior and sensation? -Sharing experiences of breathing awareness, body scanning, choosing an enjoyable routine in daily life, and doing it with mindfulness -Home practice: breath awareness, body scan, sitting meditation, choosing an unpleasant routine and doing it with mindfulness
Week 4 **Session 7** ***(Fight or run away)***	-Learning the importance, functions, types of defense mechanisms, and primitive defense mechanisms. -Explanation of the usage with examples -Sharing experiences observed or lived by the participants
Session 8 **(Living in our minds*)***	-30 minutes of sitting meditation with breathing, practicing thoughts and feelings, being in the moment, noticing the floating mind, gathering, seeing and hearing exercises -Sharing experiences with breathawareness, body scanning, seated meditation, choosing an uncomfortable routine, and mindful action -Home practice: breath awareness, body scan, sitting meditation, being in the moment, and recognizing obstacles to being in the moment
Week 5 **Session 9** ***(Ideal me)***	-To recognize *mature* defense mechanisms, to realize how much we use them, to see where we are by comparing our real selves with our ideal selves. Connecting dreams, reality and ideals
Session 10 ***(Tidying up the scattered mind)***	-Breath awareness, sitting meditation, body scanning, mindful movement, how to recover the dispersed mind, what are my supports when I have difficulty. -Sharing feedback about being present in the home practices, and those who prevent being present -Home practice: breath awareness, body scan, seated meditation, mindful movement, thoughts and feelings in response to a pleasant or unpleasant situation, recording body sensations

Week 6 **Session 11** ***(Healthy or Not?)*** **Session 12** ***(Noticing the stress)***	-Recognizing neurotic defense mechanisms, giving examples of their relationship to mental illness, questioning ourselves, reviewing the situations we have difficulty with, looking at how these situations affect our feelings, thoughts and behaviors, noticing physical sensations
	-Sitting meditation with breathing, 30 minutes of body scanning, coping with challenging situations, endurance, observing happening -Sharing feedback about thoughts, feelings and body sensations in the face of difficulties during the home practice -Home practice: 30-40 minutes of sitting meditation, breath-body awareness while doing this practice, body sensations, feelings, thoughts and reactions, noticing difficulties, thinking that all difficulties are temporary,
Week 7 **Session 13** ***(To allow)*** **Session 14** ***(Finding supports)***	-3 minutes of breath awareness, body scan, sitting meditation, what could be alternatives to strains, what could be different, what would you feel, what would you think, what would you do, what would you sense. -Sharing experiences of being able to stay with a difficult situation while doing the home practice, sharing a supportive emotion, thought, if any, thinking of being a guest -Home practice: 30-40 minutes of sitting meditation, breath-body awareness while doing this practice, noticing the difficulties, implementing the practice of noticing the alternative that will make you feel better, not what you always do
	-3-minute breath awareness, body scan, seated meditation, mindful movement, mindful eating -Sharing feedback on supports and alternatives for home practices -Home practice: breath awareness, body scan, seated meditation, mindful movement, mindful eating, and what are the practices that make you happy. Making any activity that makes you happy mindful, (compassion meditation) comparing these practices with previous experiences, seeing if there are any differences,
Week 8 **Session 15** ***(Start the change)*** **Session 16** ***(Closure)***	-Body scan, gracious compassion, closing meditation, -Reviewing home practices, recognizing how we feel, thinking, and responding to repeated challenges, sharing experiences about seeing the difference from the previous one -Home practice: What will sweeten you up or make you happy? Notice, think, feel and perform, a good word, writing, drawing, sharing, doing activity, breathing-body scanning, compassion meditation
	Evaluation, summarizing, receiving feedback from group members and applying posttests.
Operational plan of the sessions – Clarification of the session agenda – Assessment of home practices from the previous session – Sharing what can and cannot be done, obstacles, benefits, expectations, challenges and experiences. – Implementing the session agenda and sharing experiences afterwards – Indication of what is required to be implemented until the next session, sharing of training materials (presentation, audio, video),	

References (Frey and Totton, 2016; Atalay, 2019; Harris, 2019; Hayes and Smith, 2021).

2.5. Data Assessment

The coding and analysis of the data was done using the SPSS-23 package program, and the significance level was accepted as p<.05. Percentage distributions were used to analyze the data, t-test and chi-square test were used to compare the intervention and control groups, and paired samples t-test was used to compare the intervention and control groups within the group.

2.6. Ethical Considerations

The necessary institutional approval and support for the research was obtained from the Deanery of the Faculty of Health Sciences. In addition, ethical approval was obtained from the Ethics Committee of the Institute of Health Sciences of the University. (Decision dated 27.01.2021 and numbered 2021/18). Online with the informed consent sent on the DEP platform was obtained from the students participating in the research and the research was conducted according to the Principles of the Declaration of Helsinki.

3. RESULTS

The demographic information of the students who participated in the research is presented in Table 2. Looking at Table 2, there are 24 (61.5%) females and 15 (38.5%) males in the control group and 24 (72.7%) females and 9 (27.3%) males in the intervention group. The average age of the students in the intervention group is 20.46 years, while the average age of the students in the control group is 20 years. The study found that there was no statistically significant difference between the groups in terms of control variables, and the groups were similar to each other (p> .05, Table 2).

Table 2. *Comparison of control variables of intervention and control groups*

Characteristics	Intervention Groups		Control Groups		Test	p
Age ($\bar{x}$ ±SD)	20.46±2.349		20±2.716		t=-.773	P= .442
Gender	**n**	**%**	**n**	**%**		
Female	24	61.5	24	72.7	X^2=1.007	P=.316
Male	15	38.5	9	27.3		

n:number, %: percent, x̄: average, SD: Standard deviation, t: t test, X^2 : Chi square, p: significance

In Table 3, the pretest mean scores of the students' "Defense Style Questionnaire (DSQ-40)" sub-dimensions are presented. It was determined that the students in the pre-psychoeducational intervention group scored 9.81±2.443 from the 'Immature Defense' sub-dimension and 12.56±2.045 on the 'Mature Defense' sub-dimension. It is seen that the students in the control group got 9.01±1.775 and 12.18±2.278 points in the same order.

It was determined that there was no significant difference in the pretest mean scores between the groups (p> .05). It was determined that the students in the intervention group scored 11.62±2.403 points from the "Neurotic Defense" sub-dimension, and the students in the control group scored 10.26±2.076 points, and the difference between the pre-test mean scores between the groups was statistically significant (p< .05).

Table 3. *Comparison of students' defense style questionnaire and mindful attention awareness scale pretest mean scores between groups*

Scales		Pre-test			
		Intervention Groups (n:33)	Control Groups (n:39)	Test t	p
		x̄ ±SD	x̄ ±SD		
DSQ-40 Sub-dimensions	Immature	9.81±2.440	9.01±1.775	1.565	.123
	Neurotic	11.62±2.401	10.26±2.076	2.587	.012*
	Mature	12.56±2.045	12.18±2.278	.743	.460
MAAS		54.66±10.595	57.25±8.321	-1.161	.249

**p< .05, p: significance t: the paired-samples t testi, x̄: average, SD: standard deviation, DSQ-40: Defense Style Questionnaire, MAAS: Mindful Attention Awareness Scale*

When the pretest mean scores of the "Mindful Attention Awareness" scale of the students are evaluated in Table 3; It was determined that the total mean score of the Mindful Attention Awareness Scale in the intervention group students was 54.66±10.593 and 57.25±8.321 in the students of the control group, and the difference in the pretest mean scores between the groups was not statistically significant (p> .05).

When the posttest mean scores of the students in the "Defense Style Questionnaire (DSQ-40)" are examined in Table 4; It was found that the students in the "Immature Defense" sub-dimension scored 9.41±2.053, while the students in the control group who did not receive psychoeducation scored 8.95±1.774, and there was no significant difference between the posttest mean scores (p> .05). The students who received psychoeducation got 11.77±2.035, 13.40±1.781 points, respectively, from the sub-dimensions of "Neurotic Defense" and "Mature Defense" respectively, while the students who did not receive psychoeducation scored 10.02±2.099, 11.69±2.445 points, respaectively, and the difference between the posttest means scores of the intervention and control groups was statistically significant (p<.05).

Table 4. *Comparison of students' defense style questionnaire and mindful attention awareness scale posttest mean scores between groups*

Scales		Post-test			
		Intervention Groups (n:33)	Control Groups (n:39)	t	p
		x̄ ±SD	x̄ ±SD		
DSQ-40 Sub-dimensions	Immature	9.41±2.053	8.95±1.774	1.012	.315
	Neurotic	11.77±2.035	10.02±2.099	3.568	.001*
	Mature	13.40±1.781	11.69±2.445	3.349	.001*
MAAS		63.75±7.578	56.46±9.083	3.659	.000*

**p<.05, p: significance t: the paired-samples t testi, x̄: average, SD: standard deviation, DSQ-40: Defense Style Questionnaire, MAAS: Mindful Attention Awareness Scale*

When the students' "Mindful Attention Awareness" scale posttest mean scores are evaluated in Table 4; It was determined that the total mean score of the Mindful Attention Awareness scale of the students who received psychoeducation was 63.75±7.578, the students who did not receive psychoeducation was 56.46±9.083, and the difference between the posttest mean scores was statistically significant (p< .05).

When the pretest-posttest mean scores of the psychoeducation-receiving students' in the sub-dimensions of the "Defense Style Questionnaire (DSQ-40)" were examined; It was found that the students scored 9.81±2.440 points in the pretest and 9.41±2.053 points in the posttest from the "Immature Defense" sub-dimension, and the difference between the mean scores within the group was statistically significant (p< .05). It was determined that the students receiving psychoeducation who participated in the study scored 11.62±2.403 points in the pretest and 11.77±2.035 points in the posttest from the "Neurotic Defense" sub-dimension, and the difference between the mean scores of the group was not statistically significant (p> .05). It was determined that the students who received psychoeducation scored 12.56±2.045 points in the pretest and 13.40±1.781 points in the posttest from the "Mature Defense" sub-dimension, and there was a statistically significant difference between the mean scores of the group (Table 5, p< .05). When the pretest-posttest mean scores of the "Mindful attention awareness" scale of students receiving psychoeducation were evaluated; It was determined that the total mean score of the Mindful attention awareness scale was 54.66±10.593 in the pretest and 63.75±7.578 in the posttest, and the within-group difference was statistically significant (Table 5, p< .05).

Table 5. *Comparison of the pretest-posttest mean scores of the intervention group students' defense style questionnaire and Mindful attention awareness scale*

Scales		Intervention Groups (n:33)			
		Pre-test x̄ ±SD	Post-test x̄ ±SD	t	p
DSQ-40 Sub-dimensions	Immature	9.81±2.440	9.41±2.053	4.621	.000*
	Neurotic	11.62±2.403	11.77±2.035	-1.279	.210
	Mature	12.56±2.045	13.40±1.781	-7.032	.000*
MAAS		54.66±10.593	63.75±7.578	-11.819	.000*

**p<.05, p: significance t: Independent Samples t testi, x̄: average, SD: standard deviation, DSQ-40: Defense Style Questionnaire, MAAS: Mindful Attention Awareness Scale*

When the students in the control group were evaluated in the sub-dimensions of the "Defense Style Questionnaire (DSQ-40)" were evaluated; the scores of the students in the "Immature Defense" sub-dimension of the students were 9.01±1.775 in the pre-test, 8.95±1.774 in the post-test, from the ''Neurotic Defense'' sub-dimension 10.26±2.076 in the pre-test, 10.02±2.099 in the post-test and from the ''Mature Defense'' sub-dimension 12.18±2.278 in the pre-test, 11.69±2.445 in the post-test, and there was no statistically significant difference between in-group mean scores (Table

5, p> .05). Considering the pretest-posttest mean scores of the "Mindful Attention Awareness" scale of the control group students; The total mean score of the Mindful Attention Awareness scale was found to be 57.25±8.321 in the pretest and 56.46±9.083 in the posttest, and the within-group difference was not statistically significant (Table 6, p>.05).

Table 6. *Comparison of the pretest-posttest mean scores of the control group students' defense style questionnaire and mindful attention awareness scale*

Scales		Control Groups (n:39)			
		Pre-test	Post-test	t	p
		$\bar{x}$ ±SD	$\bar{x}$ ±SD		
DSQ-40 Sub-dimensions	Immature	9.01±1.775	8.95±1.774	0.229	.820
	Neurotic	10.26±2.076	10.02±2.099	1.028	.310
	Mature	12.18±2.278	11.69±2.445	1.574	.124
MAAS		57.25±8.321	56.46±9.083	1.363	.181

**p<.05, p: significance t: Independent Samples t testi, x̄: average, SD: standard deviation, DSQ-40: Defense Style Questionnaire, MAAS: Mindful Attention Awareness Scale*

4. DISCUSSION

This research was conducted to evaluate the effect of mindfulness-based psychoeducation on nursing students' use of defense mechanisms and mindfulness. Recognizing the defense mechanisms that people use increases their awareness (7, 13). Today, it is seen that there is a growing interest in mindfulness-based therapies (34). A review of the literature reveals studies of mindfulness practices with nursing students (9,34-37). However, mindfulness practices for defense mechanisms were not found. Studies showing that mindfulness practices used in different populations affect defense mechanisms are quite limited (13, 18). The results of this research were attempted to be discussed in line with the relevant literature with similar studies.

Pretest mean scores of immature and mature defense sub-dimensions of DSQ-40 of the students participating in the study were similar between the intervention and control groups, and the mean score of the neurotic defense subdimension was higher in the intervention group than in the control group. It is known that individuals who have psychological difficulties in coping with problems in daily life use more neurotic defenses (1, 4). Voluntary participation of students who wanted to receive psychoeducation in the study was crucial for the sustainability of the research.. It may be that these students use neurotic defenses more in the context of their willingness to find a solution to cope with the difficulties they encounter in daily life and their volunteer work.

The mindfulness pre-test mean scores of the students participating in the research were similar in the intervention and control groups. The literature indicates that the results obtained from studies examining mindfulness in health/nursing students are consistent with the results of the research (16, 35-37).

While the students' mean scores on the immature defense sub-dimension did not differ between the intervention and control groups on the post-test measures, the mean scores on the Neurotic and Mature Defense sub-dimensions were higher for the students who received psychoeducation. However, one should not be misled by the fact that the use of neurotic defenses seems to have increased in the intervention group in the post-test measures, since the use of neurotic defenses in pre-test measurements is significantly higher. In other words, this difference was already present when the intervention and control groups were compared before psychoeducation. The increase in the use of mature defense mechanisms in the students in the intervention group after psychoeducation is an expected result. It can be seen that the results of this research are supported by the results of the studies in the literature (7, 13, 18).

In the study, it was observed that after psychoeducation, students in the intervention group used immature defenses less, and mature defenses more. Studies have shown that immature defenses decrease and mature defenses increase in individuals after different practices such as mindfulness/cognitive behavioral therapy/psychotherapy (7, 13, 19). In Hersoug et al.'s (20-21) study of various occupational groups who were actively working, a non-directive meditation program was found to reduce immature defenses (13).

In this study, it was determined that mindfulness practices had no effect on the neurotic defenses used by students. The use of defense mechanisms is a necessity of life and operates automatically as it involves perceiving and processing information and responding to stressful situations (4). This makes it difficult for individuals to focus on immature defenses (20, 38). It is noted that individuals are patient, able to observe, and improved their attention with awareness practices (39-41). In this case, being careful and patient, being able to observe makes it easier to focus on immature and mature defenses (38). Recognizing and changing neurotic defenses is not easy, but it is stated that they can be changed with long-term psychotherapies (5, 19). Literature information supports the research findings.

Mindful awareness has been found to increase in students receiving psychoeducation. Similar studies with nursing students have found that different mindfulness practices at different times are effective in increasing awareness. In these studies, it is stated in addition to increasing awareness, improves the quality of life (42), decreases stress and anxiety (16, 42, 43), reduces stress, anxiety, and depression (37, 41, 44, 45), increases self-care and self-efficacy (46-48), decreases negative thoughts (39), influences ethical decision making (49), increases self-knowledge, insight development, internal coping mechanisms and self-care (34, 49), that the increase in student's self-awareness leads to the development of their skills and causes them to provide better care to patients (34, 47).

5. CONCLUSION

Mindfulness-based psychoeducation has influenced nursing students' mindfulness and use of defense mechanisms. Based on the results of this study, the following conclusions were reached:

- Mindfulness-based psychoeducation program may be beneficial in reducing perceived immature defense mechanisms levels and can contribute to increase the level of mature defense mechanisms.
- Mindfulness-based psychoeducation program can be effective in increasing the level of mindful awareness.

Nursing educators should consider implementing mindfulness interventions to improve the mental health of nursing students. Mindfulness practices can contribute to the personal, educational and professional development of nursing students. It is recommended that more research be conducted on the impact of mindfulness in educational and healthcare settings in our country, and that the long-term effects of these studies be examined. This research can be used as a method of mindfulness-based psychoeducation to increase the use of defense mechanisms and mindfulness in nursing students. If it can be integrated into nursing curricula, it can contribute to the personal development of students, to better understand themselves and their environment, and to cope with the difficulties they encounter in their professional practice. The results obtained from this study may contribute to future studies.

5.1. Strengths and Limitations of the Study

The implementation of online psychoeducation in the research contributes to the field. Nursing students may be reluctant to participate in such practices, because of the time commitment; therefore, online implementations may be preferable. There are studies showing that mindfulness practices are delivered online and are effective, and there are positive opinions about online training (21, 34, 48, 49).

The limited number of studies in the literature evaluating the effect of mindfulness practices on defense mechanisms limits the comparability of this study with similar studies. Another limitation is that the study was conducted through DEP, and repeated measurements could not be made in the long term, as the system would be shut down after a while when the practices were over. Therefore, it is unknown how long the effectiveness of the practices continues. In this study, the most common difficulties were the feedback in the sessions, the students' different expectations, getting bored with the sessions, having trouble maintaining, and thinking of inadequacy in practice. These problems caused some students to stop practicing. While the number of students participating in the sessions was 45 at the beginning of psychoeducation, this number gradually decreased, and the number of students participating in all sessions became 33. These students, on the other hand, stated that they were able to get used to and understand the sessions towards the end of the process. The research results can be generalized to the students who participated in the study.

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Design of the study:BDG
Acquisition of data for the study:BDG
Analysis of data for the study:BDG, MF
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