

Original Article

Effect of Mindfulness-Based Relaxation and Breathing Exercises on Health, Coping, and Success: A Qualitative Study

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Abstract

Background: Online mindfulness-based intervention can improve the mental health of undergraduate nursing students during the COVID-19 pandemic.

Aim: This study evaluated the effect of the mindfulness-based progressive muscle relaxation and breathing exercises program on physical and mental health, coping, and academic success.

Methodology: A qualitative evaluation design with a purposive criterion sample (n = 97) was used to investigate the effect of mindfulness-based progressive muscle relaxation and breathing exercises on physical and mental health, coping, and academic success.

Results: The mean age of the students was 22.15±1.14 (min=21, max=26), and 81.4% were female. Thematic analysis of students' experiences resulted in the identification of five categories: (a) dealing with negative emotions, (b) coping with physical symptoms, (c) building positive relationships, (d) managing stress, and (e) increasing academic success.

Conclusion: The program increased nursing students' mental and physical health, improved their interpersonal relationships and coping strategies with stress and increased their learning and academic success.

Keywords: Nursing students; Mindfulness; Relaxation exercise; Breathing; Qualitative study

Introduction

Relaxation training refers to diverse strategies designed to help people voluntarily release tension and relax the mind and body. Through deep breathing, biofeedback, progressive muscle relaxation, and visualization, people learn to control fear and anxiety and improve stress and pain management (Segal et al., 2011). Progressive muscle relaxation exercise, also known as progressive muscle relaxation, is a relaxation therapy in which the muscles of one part of the body are tightened and relaxed at once to gain control over the anxiety that stimulates the mind and muscle tension (Purnomo et al., 2021). Deep breathing exercises, which are relaxation exercises, are also widely used to reduce stress-related pressure and improve mental

state. It is used with various relaxation techniques and is also included in progressive muscle relaxation exercises (Perciavalle et al., 2017).

Mindfulness is an experiential process in which attention is directed purposefully and consciously to what is happening in the body and mind at that moment, and the content that emerges as a result of these observations is accepted without judgment, analysis, reaction, curiosity, understanding, and compassion (Aktepe and Tolan, 2020). Stress reduction, cognitive therapy, and relapse prevention programs are based on mindfulness (Alpay et al., 2018). Mindfulness-based stress reduction was developed by Jon Kabat-Zinn in 1979 and is formerly known as the stress reduction and

relaxation program. It was initially designed to relieve the suffering of patients with chronic pain and facilitate their adaptation to medical illness. It later took part in mindfulness meditation as a self-regulation approach to stress reduction and emotion management (Nehra et al., 2013).

Progressive muscle relaxation therapy can be used to manage stress (Purnomo et al., 2021). There are studies conducted with nursing students. A study using progressive muscle relaxation exercises and music therapy aimed to reduce the stress of nursing students and increase academic performance before the exam. A significant difference was found in the blood pressure, heart rate, cortisol, glucose values, and academic achievement levels of the students who participated and did not participate in the program. (Gallego Gomez et al., 2020). Another study investigated the effect of progressive muscle relaxation exercises on intern nurses' clinical stress and burnout levels. After the intervention, students' burnout levels and socio-behavioral, emotional, and physical symptoms in response to clinical stress decreased (Pelit Aksu et al., 2021). In another study, nature sounds and progressive muscle relaxation exercises were applied to nursing students, and it investigated their effects on blood pressure measurement skills, anxiety level, and vital signs. After the intervention, the blood pressure measurement skills of the students increased, their anxiety levels and heart rate decreased (Korkut et al., 2021).

During the COVID-19 pandemic, nursing students felt negative emotions such as anxiety, fear, uneasiness, sleep disturbances, and severe concern (Collado-Boira et al., 2020; Lovric et al., 2020; Mulyadi et al., 2021). They experienced anxiety and stressful situations due to distance learning, clinical training, assignments, and academic workloads (Majrashi et al., 2021). Aslan and Pekince (2021) suggested that nursing students should bring the ability to cope with stress in cases of the pandemic. Online mindfulness-based intervention can improve the mental health of undergraduate nursing students (Dai et al., 2022). For this reason, the Mindfulness-Based Progressive Muscle Relaxation and Breathing Exercises Program was applied to senior nursing students

participating in this study. This study aimed to evaluate the effect of the mindfulness-based progressive muscle relaxation and breathing exercises program on nursing students' physical and mental health, coping, and academic success.

Methodology

A qualitative evaluation design was used to evaluate the experiences and opinions of the students who participated in the Mindfulness-Based Progressive Muscle Relaxation and Breathing Exercises Program.

The sample consisted of 97 senior students who agreed to participate in the study and filled out the questionnaires completely. The mean age of the students was 22.15 ± 1.14 (min=21, max=26), and 81.4% were female (Table 1). Before starting the study, written permissions were obtained from the Dean of the Faculty of Health Sciences and the University Human Research Ethics Committee (date: 18.12.2020 no: 2020/13-80). The principles of the Declaration of Helsinki were taken into account in all research processes.

A Semi-Structured Interview Form was used in the data collection. Semi-Structured Interview Form consists of five open-ended questions: 1) Can you explain the effects of this program on your mental health? 2) Could you explain the effects of this program on your physical health? 3) Could you explain the effects of this program on your interpersonal relationships, social life, and family life? 4) Could you explain the effects of this program on your coping with stress? 5) Could you explain the effects of this program on your learning and course success? A 10-week Mindfulness-Based Progressive Muscle Relaxation and Breathing Exercises Program was applied to the students (Table 2). Sessions were carried out once a week, and each session lasted approximately 60 minutes. Due to the quarantine period, the program was implemented online through the University's Distance Education Application and Research Center. Then, students' opinions about this program were evaluated. Colaizzi's seven-stage model was used in evaluating the data: 1) Each transcript was read and reread until it was divided into introductory statements. 2) These statements were coded, and a code list was created. 3) The similarities and differences between the codes were

determined, and these expressions formed meanings. 4) The formulated meanings are divided into categories. 5) Each category is named according to its content. 6) Then, the themes were determined, and the researchers agreed on the themes. The structure of the phenomenon has been defined. 7) Finally, the

consent of the participants regarding the research results was obtained (Morrow et al., 2015). In addition, the suitability of the themes was evaluated by two academicians apart from the research. The participants' statements were directly quoted to increase the validity and reliability of the study.

Table 1: Students' sociodemographic characteristics (n=97)

Characteristics		$X \pm SD$	min.-max.
Age		22.15±1.14	21-26
		n	%
Gender	Female	79	81.4
	Male	18	18.6
Perceived socioeconomic status	Good	16	16.5
	Moderate	81	83.5
Family type	Nuclear	83	85.6
	Extended	14	14.4
People with whom the student lives	Family	89	91.8
	Friends	8	8.2
Place of residence	City	49	50.5
	Town	34	35.1
	Village	14	14.4
History of physical illness	Yes	5	5.2
	No	92	94.8
History of mental illness	Yes	4	4.1
	No	93	95.9
COVID-19 test status	No	81	83.6
	Yes, it is positive	8	8.2
	Yes, it is negative	8	8.2

Table 2: Mindfulness-Based Progressive Muscle Relaxation and Breathing Exercises Program

Sessions	Contents
Session 1	Acquaintance, giving information about the program, Explaining group rules
Session 2	Discussing anxiety and stress response and symptoms of anxiety, Teaching breathing and muscle relaxation exercises
Session 3	Recognition of the body's anxiety and stress responses, The practice of breathing and relaxation exercises, Discussion of changes after implementation
Session 4	Giving information about mindfulness, The practice of breathing and relaxation exercises, Discussion of scientific study findings on the topic
Session 5	Discussing mindfulness, Body scan and grape meditation
Session 6	Discussing mindfulness, The practice of breathing and relaxation exercises, Discussion of changes after implementation
Session 7	Talking about stressors in life, The practice of breathing and relaxation exercises, Meditation to get rid of negative emotions
Session 8	The practice of breathing and relaxation exercises, Seed planting meditation Discussion of meditation practice
Session 9	Silence day (using all techniques)
Session 10	Evaluation, filling out data collection forms

Table 3: Themes and subthemes generated from the findings

Themes	Subthemes
Theme 1: "Dealing with negative emotions"	<ul style="list-style-type: none"> • Coping • Managing emotions • Quality sleep
Theme 2: "Coping with physical symptoms"	<ul style="list-style-type: none"> • Pain control • Feeling fit • Easy breathing
Theme 3: "Building positive relationships"	<ul style="list-style-type: none"> • Positive relationship building

Theme 4: "Managing stress"

Theme 5: "Increasing academic success "

- Being understanding
- Effective communication
- Acting with thinking
- Trying to control oneself
- Knowing what to do
- Increased attention
- Increased Motivation
- Coping with exam anxiety

Results

Qualitative data analysis generated five categories: (a) dealing with negative emotions, (b) coping with physical symptoms, (c) building positive relationships, (d) managing stress, and (e) increasing academic success (Table 3).

Theme 1: Dealing with Negative Emotions

Students reported that they could cope with their problems better because they relaxed. They managed their anger, stress, and fear with these practices. They could calm down and relax with the exercises to fall asleep more comfortably.

"When I am overwhelmed or do not know how to deal with problems, I do the exercises and relax." (Student 29, Female)

"My sleep problems have decreased." (Student 84, Male)

Theme 2: Coping with Physical Symptoms

Students stated that their lower back, head, neck, and back muscles were loosened and relaxed, and the program significantly reduced their pain. The exercises made them feel more energetic and robust. They started to control their breathing and breathe more quickly because they participated in the program.

"My neck muscles contract when I am stressed. I feel my neck muscles relax after doing the exercises." (Student 9, Female)

"I was experiencing fatigue and exhaustion before the program. I feel that these symptoms are not present

now. I am calmer than before."
(Student 54, Female)

Theme 3: Building Positive Relationships

Students established more positive relationships because the program provided students to remain calm and understanding. The fact that the students could control themselves and their emotions, thanks to the program, helped them approach the people around them with more understanding. Students started communicating more effectively because they could control their emotions and stay calmer.

"There were times when I practiced the exercises with my family. It helped us to be calmer and understanding towards each other." (Student 8, Female)

"I controlled myself better when I was angry. This caused me to be calmer and more constructive in my relationships." (Student 64, Female)

"It allowed me to communicate with them more clearly and calmly."
(Student 58, Female)

Theme 4: Managing Stress

Keeping calm with the program caused the students to act by thought. Students learned they could control their bodies and started to control themselves in stressful situations. Breathing and relaxation exercises have been coping methods students can use in stressful times.

"It relaxed me and made me think better of what to do in times of stress." (Student 11, Female)

"I try to stay calmer about the events in my life." (Student 14, Female)

"When I was stressed, I did not know how to deal with it. Now I can relax using these exercises." (Student 15, Female)

Theme 5: Increasing Academic Success

The exercises allowed most students to focus better on their lessons as they raised their attention. As the students' focus increased with the exercises, their motivation toward the lessons also increased. The students managed their negative emotions and exam anxiety along with the exercises.

"As the exercises helped me to recover and adapt more quickly, my attention increased, and the lessons were more productive than before." (Student 5, Female)

"Exercises increased my motivation." (Student 39, Female)

"I took the exams more calmly. I was not excited." (Student 54, Female)

Discussion

After the program, nursing students mentioned feeling better, coping with problems, sleeping more comfortably, and managing negative emotions. Studies have shown that progressive muscle relaxation exercises improve students' psychological well-being and reduce mental problems (Bostani et al., 2018; Pelit-Aksu et al., 2021). In another study, progressive muscle relaxation exercises with music therapy reduced the state anxiety levels of students before clinical practice but did not affect their trait anxiety levels (Inangil et al., 2020). Mindfulness-based approaches enable students to become aware of their emotions and manage their feelings (Bamber & Schneider, 2021).

The students reported that they could control their pain in various parts of their bodies, felt more energetic during the day, and began to breathe more easily because they participated in the program. So they are physically relaxed. Mindfulness-based approaches have improved students' awareness and understanding of bodily sensations and their ability to control physiological reactions

(Bamber & Schneider, 2021). A study showed that progressive muscle relaxation exercises applied to students effectively improved students' physical symptoms, such as pain (Sis-Celik & Ejder-Apay, 2021). In another study, progressive muscle relaxation and breathing exercises caused physiological relaxation in students (Toussaint et al., 2021).

The students showed a more positive and calm approach because they participated in the program. They had fewer arguments within the family, more positive relationships, more understanding towards the people around them, and expressed themselves better. Similarly, mindfulness-based initiatives applied to students increase their self-esteem and reduce their social problems (Naseh, 2019). Mindfulness-based approaches enable students to understand the importance of social connections, relate to and empathize with people and increase their ability to participate in and enjoy activities (Bamber & Schneider, 2021). On the other hand, mindfulness-based practices in the school environment increased the participants' better adaptation to others and their compassion towards themselves and others (Norton & Griffith, 2020).

The students stated that their stress levels decreased because they participated in the program. Mindfulness-based exercises and relaxation techniques effectively reduce perceived stress and the adverse effects of stress on university students (Modrego-Alarcon et al., 2021; Wilczynska et al., 2019). Similarly, the mindfulness-based stress reduction program applied to medical students reduced their stress levels by regulating their emotional states (Polle & Gair, 2021). In a study involving nursing students, progressive muscle relaxation exercises reduced students' anxiety and stress levels (Gangadharan & Madani, 2018).

Students reported that the exercises increased their attention and motivation, enabled them to focus better, facilitated their learning, and increased their ability to cope with exam stress. Mindfulness-based approaches to nursing students have improved their academic success and clinical performance (McVeigh et al., 2021). Similarly, in a study, the mindfulness-based stress reduction approach decreased students' cognitive and

emotional exam anxiety (Dundas et al., 2021). In another study, the progressive muscle relaxation exercise that was applied to nursing students reduced their exam anxiety (Zargarzadeh & Shirazi, 2014).

The progressive muscle relaxation exercise used during clinical practice reduced the clinical stress and burnout of the students (Pelit-Aksu et al., 2021).

Limitations: This study has some limitations. First, the study was carried out only in a center; the study's findings can only be generalized to some students in Turkey. Second, this study was conducted online. Therefore, students were answered according to how they perceived the questions.

Conclusion: Five main themes were obtained regarding nursing students' experiences participating in the Mindfulness-Based Muscle Relaxation and Breathing Exercises Program. The themes were:

- (a) dealing with negative emotions,
- (b) coping with physical symptoms,
- (c) building positive relationships,
- (d) managing stress, and
- (e) increasing academic success.

In short, the students felt good mentally and physically, approached life and people positively, coped with stress more effectively, and increased their motivation for the lesson. The program should be applied to increase the academic success of nursing students, improve their ability to cope with stress, boost their mental and physical well-being, reduce their stress levels, and strengthen their social relations.

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