

Mindful self-compassion program based on Watson's theory of human caring in nursing students: A randomized controlled study

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ARTICLE INFO

Keywords:

Watson's human caring theory
Mindful self-compassion program
Nursing students
Physical and mental health

ABSTRACT

Aims and background: This study investigated the impact of the Mindful Self-Compassion Program, based on Watson's Theory of Human Caring Model, on the physical and mental health of nursing students. The essence of nursing is care and compassion. While there are studies on compassion in nursing care, nurses' self-compassion is an underrecognized concept in the literature.

Methods: The study employed a randomized controlled design and involved 80 second-grade nursing students from a university in Turkey between December 2021 and June 2022. The intervention group received an online program consisting of six weekly sessions, while the control group did not receive any intervention. The data were collected using the Promotive and Protective Health Behaviors Scale, Watson Caritas Self-Rating Score, Brief Resilience Scale, and Self-Compassion Scale before, at the end of, and 5 months after the program.

Results: In both the post-test and follow-up test, the intervention group exhibited an increase in health-promoting and protective behaviors, self-care perception, psychological resilience, and self-compassion compared to the control group.

Conclusion: Therefore, it is recommended to use the program to improve the physical and mental health of individuals in nursing practice areas. Additionally, it would be beneficial to include the program in the nursing education curriculum. Our findings provide evidence supporting the use of the program for nursing students and nurses.

Introduction

The use of models that reveal the essence of nursing is crucial in the development of nursing science and art (Akin Korhan, 2019). Watson's Theory of Human Caring is a nursing model that focuses on health promotion, disease prevention, and the restoration of health by achieving mind-body-spirit harmony. The theory emphasizes the importance of identifying both strengths and weaknesses and observing behaviors to provide comprehensive care (Akin Korhan, 2019; Vujančić et al., 2020; Watson, 2008; Watson, 2012; Watson & Foster, 2003). The ten caritas processes, which make up the compassionate approach, are presented as the essence of nursing (Vujančić et al., 2020; Watson, 2003; Watson, 2007; Watson, 2008; Watson, 2012). The caritas processes in this theory are based on approaching individuals with compassion, care, and sensitivity to support their holistic well-being, including mental, physical, spiritual, and social aspects (Akin Korhan, 2019; Watson, 2003). The model, which evaluates the individual in the context of

family, society and culture, focuses on compassion-love in care and caritas processes (Akin Korhan, 2019; Vujančić et al., 2020; Watson, 2003). In this context, nurses who care for both their patients and themselves develop an ethical awareness that acknowledges the responsibility they hold for someone else's life during care. This involves fostering trust, love, compassion, honesty, forgiveness, and gratitude in interpersonal relationships, while recognizing the interdependence that exists among all individuals (Vujančić et al., 2020; Watson, 2003; Watson, 2012).

Care is the essence of the nursing profession, and compassion is a fundamental component of it (Mills et al., 2015; Watson, 2003). Nurses, who encounter the pain and distress of individuals during the care process, must prioritize self-compassion to effectively attend to the patients' needs and provide compassionate care (Heffernan et al., 2010; Şahin Altun et al., 2020; Watson, 2012). It is suggested that developing a compassionate ego and the ability to be non-judgmental towards oneself can contribute to a compassionate approach towards others (Akin

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<https://doi.org/10.1016/j.apnu.2024.04.003>

Received 19 March 2023; Received in revised form 2 March 2024; Accepted 22 April 2024

Available online 27 April 2024

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Korhan, 2019; Watson, 2012; Wiklund Gustin & Wagner, 2013).

Compassion, which involves caring for others, can be a powerful motivator for personal growth and development. Additionally, practicing self-compassion can encourage individuals to make positive changes in their behavior and improve their overall health (Neff, 2003a; Watson, 2012). In this way, nurses fulfill their role in improving health by caring for and modeling appropriate behavior (Blake & Harrison, 2013; Watson, 2012).

When nursing students are in their youth, it is important for them to develop health-promoting and protective behaviors. This will prepare them for their important roles upon graduation (Karaca & Aslan, 2019; Ulaş Karaahmetoğlu, 2014). Therefore, it is crucial to develop educational programs for nursing students. They will serve as role models in healthcare and must comprehend the significance of health protection and improvement behaviors. It is essential that they translate their knowledge into actions that prioritize the protection and improvement of their own health (Gafey, 2019; Ulaş Karaahmetoğlu, 2014).

Nursing students are exposed to various stressors, including changes in university life and painful experiences such as infectious diseases and death in the clinical environment (Sitzman, 2017b; Stephens, 2013). Psychological resilience is a crucial concept in nursing education and the nursing profession. It helps nursing students to cope with various difficulties encountered in academic and clinical settings (Stephens, 2013). Studies suggest that integrating self-compassion and self-care into the school curriculum can promote the psychological resilience and well-being of healthcare professionals (Hooper & Horton-Deutsch, 2023). Self-compassion can provide nurses with the necessary psychological resilience to care for individuals with health problems (Şahin Altun et al., 2020).

Research has demonstrated that practicing self-compassion can positively impact emotional intelligence and lead to increased job satisfaction. Additionally, it can help prevent burnout and mitigate the harmful effects of perfectionism in the nursing profession, which is particularly susceptible to stress and emotional exhaustion (Hiçdurmaz & Aydın, 2017; İkiz & Totan, 2012; Şahin Altun et al., 2020; Sitzman, 2017b; Vaillancourt & Wasylkiw, 2019). However, the studies conducted indicate that there is a lack of research on stress and emotional self-compassion in nursing (Hiçdurmaz & Aydın, 2017; Mills et al., 2015; Şahin Altun et al., 2020). While there has been an increase in studies on the importance of compassion in nursing care, the concept of self-compassion in nursing has remained underrecognized in the literature (Mills et al., 2015; Şahin Altun et al., 2020).

Studies based on the Human Caring Theory in nursing primarily focus on patient care. A study found that providing mindfulness meditation education to nurses, using the model's conceptual framework, reduced their self-reported stress levels (Akin Korhan, 2019; Sitzman, 2017b). Watson's Human Caring Theory emphasizes the significance of self-care in caring for others (Hooper & Horton-Deutsch, 2023; Sitzman, 2017b). However, this theory is not used effectively and actively in Turkey (Akin Korhan, 2019). Furthermore, additional research is required to promote compassionate care and enhance the quality of nursing care by encouraging nurses to be compassionate towards themselves. Additionally, it is important to investigate the impact of self-compassion, a concept that has been underrecognized in the nursing literature, on nursing education and practice (Şahin Altun et al., 2020). Therefore, this study aimed to determine the effect of the Mindful Self-Compassion Program applied online based on the Watson's Theory of Human Caring Model on the physical and mental well-being of nursing students. Studies have proven the fluent applicability of the core of human caring theory, which is caring and love, in face-to-face, digital, and other environments (Sitzman, 2017a). Consultancy was received from Dr. Watson via email during the creation of the program. Online meetings were also attended, organized by Dr. Watson, to gain a better understanding of the model.

Aim of study

This study investigated the impact of the Mindful Self-Compassion Program, based on Watson's Theory of Human Caring Model, on the physical and mental health of nursing students.

Hypotheses

H1. In the post-test, students who participated in the Watson's Theory Human Caring Model-Based Mindful Self-Compassion Program are expected to have significantly higher mean scores on the Promotive and Protective Health Behaviors Scale (PPHBS), Watson Caritas Self-Rating Score (WCSRS), Brief Resilience Scale (BRS), and Self-Compassion Scale (SCS) compared to those who did not participate in the program.

H2. Students who participated in the Watson's Theory Human Caring Model-Based Mindful Self-Compassion Program are expected to have significantly higher mean scores on the Promotive and Protective Health Behaviors Scale (PPHBS), Watson Caritas Self-Rating Score (WCSRS), Brief Resilience Scale (BRS) and Self-Compassion Scale (SCS) in the follow-up test compared to those who did not participate in the program.

Method

Research design and setting

The study was conducted as an experimental design with a randomized controlled follow-up test. It was carried out online between December 2021 and June 2022 with 2nd grade nursing students of a state university in Istanbul. The university offers a 4-year nursing program that provides students with theoretical and practical nursing education from the first year. During their education period, students care for individuals diagnosed with different diseases in different clinics and interact with patients.

Randomization and sample size

The study universe comprised 226 nursing students in the 2nd grade, whose psychological resilience scores were reported to be lower than those of students in other grades in the literature (Erogul et al., 2014). The study's sample size was determined through a power analysis conducted using the PS version 3.0 package program. For this purpose, the standard deviation values in the studies in the literature (Erogul et al., 2014) in which self-compassion and psychological resilience scores were examined were taken as basis and the sample size was determined as at least 23 people for each group at 0.05 alpha (type I error probability) and 0.95 beta (type II error probability) levels, expecting a standard deviation of 0.8 points and an increase of 4 points for the self-understanding scale and the sample size was determined as at least 36 people for each group at 0.05 alpha (type I error probability) and 0.90 beta (type II error probability) levels, expecting a standard deviation of 12 points and an increase of 4 points for psychological resilience scores. The study sample consisted of 80 students. To account for the possibility of students dropping out due to voluntary participation, the sample size was increased to 40 students per group, which is approximately 10 % more than the calculated value. The study included a determined sample size of students who met the criteria and volunteered to participate. Random selection was used to assign students to either the intervention or control group, with the process being conducted by an independent person in a computerized environment. Fig. 1 displays the CONSORT Flow Diagram.

Inclusion and exclusion criteria

The study participants were individuals who met the inclusion criteria and agreed to participate. The inclusion criteria were defined as

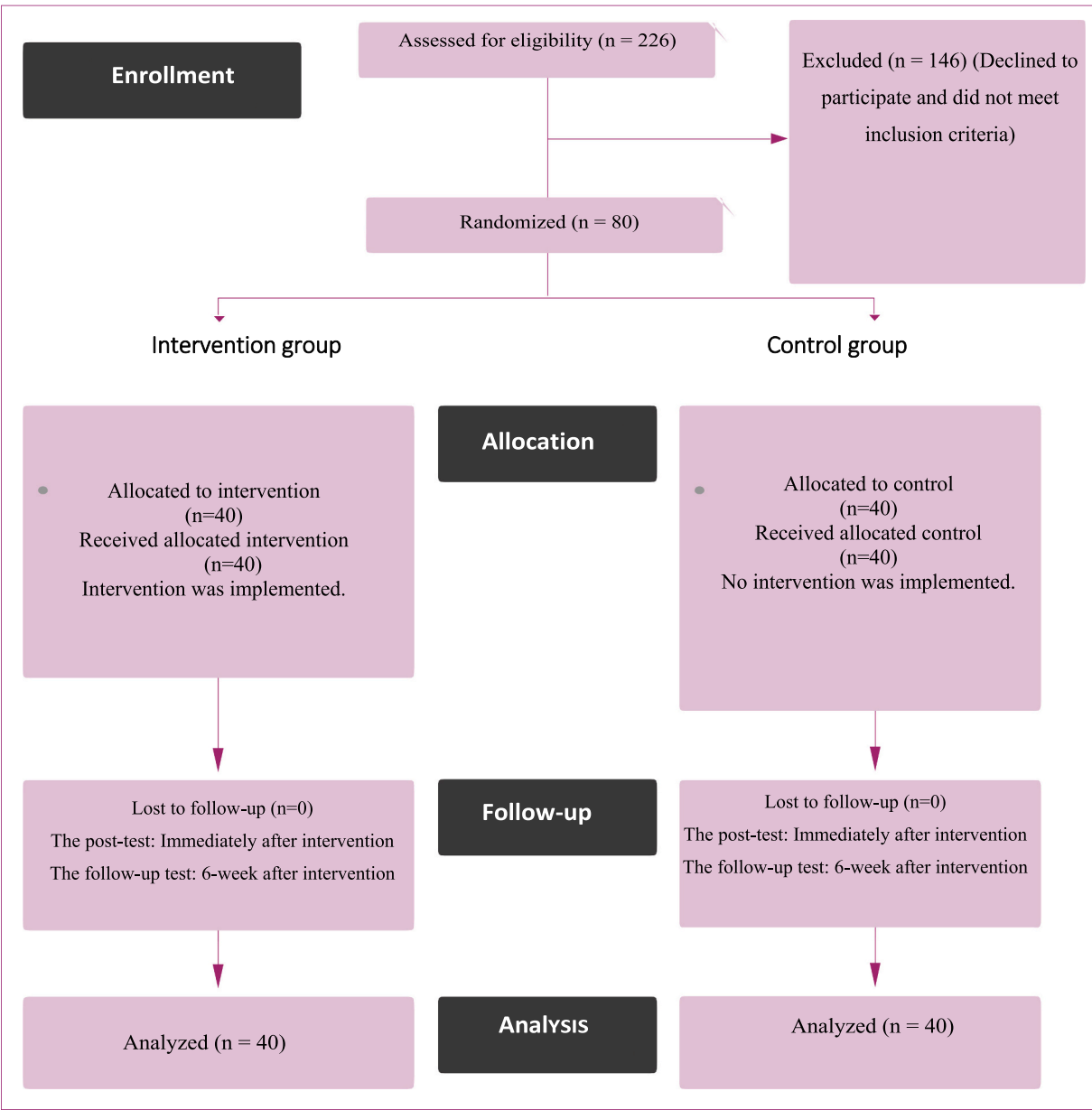


Fig. 1. Consort flow diagram.

not having previously received mindfulness and self-compassion education, being an active enrolled nursing student, attending sessions regularly, not being in mental distress, not having vision, hearing, or comprehension problems, and being 18 years of age or older.

Study intervention

Prior to commencing the program, the researchers received education on the Mindful Self-Compassion approach to be implemented. The program integrated Mindful Self-Compassion practices into the caritas processes of the Human Caring Theory, and was developed accordingly. Consultation was sought from Dr. Watson via email during the creation of the Mindful Self-Compassion Program within the framework of the Human Caring Theory.

Prior to applying the program to the intervention group, a pilot program was administered to five individuals who were not part of the intervention group. The purpose of this was to identify any potential issues with the program. The program was finalized after the pilot

program. Pre-test measurements were taken from both groups before the program was applied.

The online program consisted of six 90-min sessions conducted via the Zoom platform with the intervention group. At the start of each session, participants were reminded to create a comfortable environment, taking into account the ‘Creating a Healing Environment’ caritas process from the Human Caring Model (Table 1). After each session, participants were sent the meditation and audio recordings from that week as a home practice to reinforce what they learned (see Table 1). Additionally, the Self-Compassionate Mindfulness Practice Guide (Germer & Neff, 2020) was recommended to provide theoretical knowledge and additional practices.

The post-test and follow-up test were administered to both the intervention and control groups. Participants in the intervention group received a certificate of participation. The control group did not receive any education program and was sent a session of meditation and audio recordings to practice at home.

Table 1
Program Content.

Sessions	Caritas Processes (1–10)	Meditation-Exercises
Session 1	Maintaining humanistic and altruistic values through the practice of loving-kindness. (1)	Self-compassion break, soothing touch and keeping a self-compassion diary
Session 2	Reverentially assisting with basic needs as sacred acts, touching mindbodyspirit of spirit of other, sustaining human dignity (9)	Compassionate breathing, mindfulness in daily life, recognizing resistance, compassionate body scan and self-compassion in daily life
Session 3	Being sensitive to self and others (3)	The practice of loving kindness towards oneself and others, self-compassionate letter writing.
Session 4	Allowing for the expression of positive and negative feelings and truly listening to another person's story are important aspects of caring-healing practices (5). Additionally, creativity and artistry are also essential components (6).	Living with commitment and showing compassion through listening are important aspects of interpersonal relationships.
Session 5	Developing and sustaining loving, trusting, and caring relationships (4) and transpersonal teaching and learning (7).	The compassionate friend, forgiving others and oneself and compassion with calmness
Session 6	Enabling the faith/hope/belief system; honoring subjective inner, life-world of oneself/others. (2), Opening to unknowns-allowing for miracles (10)	Enjoying the sensation of walking and eating, expressing gratitude for both big and small things, and practicing self-appreciation.
All sessions	Creating a healing environment at all levels (8)	

Brewer et al., 2020; Germer & Neff, 2007; Watson, 2007; Watson, 2018

Collection of data

The study employed data collection tools to gather information from both the intervention and control groups. The tools were applied through self-report surveys administered before the program (pre-test), at the end of the program (post-test), and 5 months after the program (follow-up test) using an online method via Google Form. Data were collected between December 2021 and June 2022.

Introductory information form

The study utilized a form with 14 questions to gather information on the characteristics of the participants, including gender, age, class, height, weight, and sleep duration.

Promotive and Protective Health Behaviors Scale (PPHBS)

The Promotive and Protective Health Behaviors Scale (PPHBS) comprises 24 items developed by Bostan et al. (2016). The total score ranges from 24 to 120, with a high score indicating an increase in health-promoting and protective behaviors. The scale comprises three sub-dimensions: physical, psychosocial, and protection. The Cronbach's alpha value of the scale ranges from 0.61 to 0.76 in the sub-factors, and the Cronbach's alpha value of the total scale is 0.83. In this study, the Cronbach's alpha value of the scale was 0.77.

Watson Caritas Self-Rating Score (WCSRS)

The Watson Caritas Self-Rating Score, developed by Watson et al. (2012), consists of a single dimension with five items. The total score ranges from 5 to 35. The scale measures the perception of self-care based on caritas behaviors, such as loving kindness, meeting basic needs, establishing relationships based on cooperation and trust, an environment that helps development, and beliefs that encourage success (Brewer et al., 2020). According to Brewer et al. (2020) and Watson et al. (2012), a high score on the scale indicates an increase in self-care perception. Bidik and Sisman (2022) conducted a Turkish validity and reliability study on the scale and confirmed its 5-item unidimensional structure. The scale has a Cronbach's alpha coefficient of 0.84.

Brief Resilience Scale (BRS)

The Brief Resilience Scale (BRS) was developed by Smith et al. (2008) and has a single dimension with six items. Doğan (2015) conducted a Turkish validity and reliability study, reporting a Cronbach's alpha coefficient of 0.83, which was also found in this study. The total score ranges from 6 to 30, with a higher score indicating greater psychological resilience.

Self-Compassion Scale (SCS)

The Self-Compassion Scale (SCS) was developed by Neff (2003b) and consists of 26 items and 6 sub-dimensions: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. It was adapted into Turkish by Deniz et al. (2008) with 24 items and one sub-dimension. The total score ranges from 24 to 120, with a high score indicating an increase in self-understanding. The scale has a high internal consistency coefficient of 0.89, and in this study, Cronbach's alpha coefficient was 0.94.

Analysis of the data

Statistical analysis of the data was conducted using the SPSS 25 package program. Demographic characteristics were analyzed using descriptive tests, while comparative analysis was performed using the chi-square test. The homogeneity of the groups in terms of

sociodemographic characteristics was evaluated using the Shapiro-Wilco test. The study employed the Mann-Whitney *U* Test to compare the pre, post, and follow-up test scores between the groups. Additionally, the Friedman and Wilcoxon Signed Rank tests were used to compare the pre, post, and follow-up test scores within the groups. The significance level was set at 0.005.

Ethical approval

Prior to commencing the study, we obtained ethical approval (Approval no: 19.04.2021–68) from the University ethics committee. We also obtained written informed consent and permission to use the scale from the students. The study was conducted in accordance with the Declaration of Helsinki.

Findings

Demographic characteristics

There were no significant differences between the intervention and control groups in terms of sociodemographic characteristics and scale scores prior to program application ($p > 0.005$). The mean age of the intervention group was 19.80 ± 1.06 years, while the mean age of the control group was 19.72 ± 0.87 years. Table 2 presents a comparison of the sociodemographic characteristics of the participants.

Effectiveness of the applied program

When comparing the pre-program PPHBS, WCSRS, BRS, and SCS scores of the intervention and control groups, it was found that the groups were similar (respectively: $Z = -0.371$; $p = 0.711$; $Z = -0.203$; $p = 0.839$; $Z = -0.797$; $p = 0.426$; $Z = -0.168$; $p = 0.866$) as shown in Table 3.

The posttest and follow-up test scores of the intervention group for the PPHBS were significantly higher than the pretest values ($X^2 = 21.294$, $p = 0.000$) (Table 3). Additionally, the posttest and follow-up test scores of the intervention group were significantly higher than those of the control group (respectively: $Z = -3.818$; $p = 0.000$; $Z = -2.942$; $p = 0.003$) (Table 3).

The posttest and follow-up test scores of the intervention group for

the WCSRS were significantly higher than the pretest values ($X^2 = 18.766$, $p = 0.000$) (Table 3). Additionally, the posttest and follow-up test scores of the intervention group were significantly higher than those of the control group ($Z = -2.461$, $p = 0.014$; $Z = -2.301$; $p = 0.021$, respectively) (Table 3).

The posttest and follow-up test scores of the intervention group on the BRS were significantly higher than the pretest values ($X^2 = 7.945$, $p = 0.019$) (Table 3). Additionally, the posttest and follow-up test scores of the intervention group were significantly higher than those of the control group (respectively: $Z = -2.140$, $p = 0.032$; $Z = -1.971$; $p = 0.049$) (Table 3).

The posttest and follow-up test scores of the intervention group for the SCS were significantly higher than the pretest values ($X^2 = 21.381$, $p = 0.000$) (Table 3). Additionally, the posttest and follow-up test scores of the intervention group were significantly higher than those of the control group ($Z = -2.489$; $p = 0.013$; $Z = -2.667$; $p = 0.008$, respectively) (Table 3).

Discussion

The study results indicate that the self-compassion program contributes to the development of physical health by enhancing nursing students' health-promoting protective behaviors and self-care perceptions. Additionally, it supports the improvement of mental health by enhancing their psychological resilience and self-compassion levels. The results are thought to be a result of combining the Human Caring Theory with Mindful Self-Compassion. The program's conceptual framework includes Watson's 10 caritas processes, and the interventions applied in these processes consist of Mindful Self-Compassion practices.

The literature suggests that individuals with high self-compassion are more likely to engage in health-protective and enhancing behaviors to improve their physical health (Phillips & Hine, 2021; Sirois & Hirsch, 2018). Self-compassion, which involves adopting a kind, accepting, and non-judgmental perspective towards oneself, is an effective way to promote healthy behavioral changes (Sirois et al., 2015; Sirois & Hirsch, 2018). Soriano-Ayala et al. (2020) found that mindfulness interventions promote a healthy lifestyle. As a result, university students improved their nutrition and resting habits, while reducing unhealthy behaviors such as smoking and alcohol consumption. In line

Table 2
Individual Characteristics of Participants ($N = 80$).

Variables		Total (n:80)		Between groups					
				Intervention (n:40)		Control (n:40)		Statistics	
		Number (n)	%	Number (n)	%	Number (n)	%	X ²	p
Gender	Female	61	76.3	32	80	29	72.5	0.621	0.431
	Male	19	23.8	8	20	11	27.5		
BMI	Thin	16	20	9	22.5	7	17.5	0.650	0.723
	Normal	54	67.5	27	67.5	27	67.5		
	Overweight	10	12.5	4	10	6	15		
Socioeconomic status	Medium	64	80	29	72.5	35	87.5	2.813	0.094
	Good	16	20	11	27.5	5	12.5		
With whom he/she lives	Family	44	55	27	67.5	17	42.5	5.073	0.079
	Friend	20	25	7	17.5	13	32.5		
	Alone	16	20	6	15.0	10	25		
Where he/she lived the longest	Rural	17	21.3	7	17.5	10	25.0	0.672	0.412
	Urban	63	78.8	33	82.5	30	75.0		
Mother's Education	Primary School	65	81.3	31	77.5	34	85	0.738	0.390
	High school and above	15	18.8	9	22.5	6	15		
Father's Education	Primary School	33	41.3	15	37.5	18	45	1.455	0.483
	Secondary School	22	27.5	10	25	12	30		
	High School	25	31.3	15	37.5	10	25		
Number of Siblings	2	17	21.3	8	20	9	22.5	0.524	0.769
	3	25	31.3	14	35	11	27.5		
	4 and above	38	47.5	18	45	20	50		

Z = Mann-Whitney *U* Test; X^2 = Chi-square Test; Value is significant at $*P \leq 0.05$.
BMI = Body Mass Index.

Table 3

Comparison of PPHBS, WCSRS, BRS and SCS Pre-test, Post-test and Follow-up Test Scores of the Participants in the Intervention and Control Groups.

Scale	Group	Pre-test ^a	Post-test ^b	Follow-up Test ^c	Statistics	
		Mean ± Sd	Mean ± Sd	Mean ± Sd	X ²	p
PPHBS	Intervention	80.98 ± 10.18	90.68 ± 11.46	89.20 ± 11.20	21.294	0.000
						*b > a
						a; c > a
	Control	80.18 ± 11.81	80.18 ± 10.81	81.07 ± 12.12	0.503	0.778
		Z = -0.371;	Z = -3.818;	Z = -2.942;		
		p = 0.711	p = 0.000	p = 0.003		
WCSRS	Intervention	28.48 ± 3.92	30.80 ± 3.66	30.25 ± 4.14	18.766	0.000
						*b > a
						a; c > a
	Control	27.98 ± 6.11	28.60 ± 4.36	28.43 ± 6.04	0.304	0.853
		Z = -0.203;	Z = -2.461;	Z = -2.301;		
		p = 0.839	p = 0.014	p = 0.021		
BRS	Intervention	17.35 ± 4.61	20.23 ± 4.21	20.25 ± 4.19	7.945	0.019
						*b > a
						a; c > a
	Control	18.25 ± 4.74	16.78 ± 4.42	17.90 ± 5.15	5.180	0.075
		Z = -0.797;	Z = -2.140;	Z = -1.971;		
		p = 0.426	p = 0.032	p = 0.049		
SCS	Intervention	73.87 ± 17.49	84.90 ± 17.11	86.80 ± 15.77	21.381	0.000
						*b > a
						a; c > a
	Control	72.67 ± 18.29	74.47 ± 18.41	75.45 ± 17.83	1.302	0.522
		Z = -0.168;	Z = -2.489;	Z = -2.667;		
		p = 0.866	p = 0.013	p = 0.008		

X² = Friedman Test; Z = Mann-Whitney U Test; * Wilcoxon Signed Ranks Test; Sd = Standard deviation; bold numbers indicate $p < 0.05$. Value is significant at * $P \leq 0.05$. PPHBS = Promotive and Protective Health Behaviors Scale; WCSRS = Watson Caritas Self-Rating Score; BRS = Brief Resilience Scale; SCS = Self-Compassion Scale.

with the literature, this study suggests that practices such as compassionate breathing, compassionate body scanning, mindfulness in daily life, mindful walking, and eating can be effective in promoting health-protective and health-promoting behaviors. These practices were implemented in the second and sixth sessions with a focus on improving body health.

According to a study utilizing the Watson Human Caring Theory, nurses who participated in a program aimed at providing compassionate care to patients with chronic pain reported an increase in self-compassion at the program's conclusion (Hubert, 2018). This program not only aims to provide compassionate care to patients, but also increases caregivers' awareness of the importance of self-compassion. Our study shows that nursing students' perception of self-care improved in WCSRS outputs, which include items for Watson's 10 caritas processes. This improvement is thought to be due to the fact that each session of the program is based on caritas processes and self-compassion. Additionally, since the caritas processes are interrelated, a positive effect in one will affect the others (Hubert, 2018).

Psychological resilience is considered a significant predictor of self-

compassion, which may play a protective role in psychological health (Kotera et al., 2021; Olson & Kemper, 2014; Yelpeze, 2020). When protecting and developing psychological resilience, it is crucial to be kind and understanding towards oneself. It is important to perceive experiences as part of the common human experience and to raise awareness, rather than harshly self-criticizing experiences of pain or failure. These are components of self-compassion (Clift, 2015; Germer & Neff, 2020; Neff et al., 2007). The fundamental role of nursing is to alleviate suffering in those who are in need of care (Ferrell & Coyle, 2008; Hagerman et al., 2020). Nurses are advised to actively apply compassion practices to develop a compassionate attitude towards themselves, which can improve their psychological resilience (Barratt, 2017; Farber et al., 2020; Watson, 2018). The increase in resilience scores of the students in the intervention group after the program is attributed to the inclusion of practices on three components of self-compassion: self-kindness, common sense of humanity, and awareness. The conclusion is supported by the use of various self-compassion practices, including self-compassion break, realizing resistance, soothing touch, compassionate breathing, compassionate body scanning, self-compassionate letter, compassionate listening, receiving and giving compassion, and forgiving others and oneself through meditation. These practices were introduced in the first session.

Mistretta et al. (2018) provide evidence for the benefits of smartphone-based online programs. They conducted a 6-week psychological resilience program with healthcare professionals, comparing two face-to-face and smartphone-based applications. This study supports the effectiveness of our online program.

Meanwhile, a separate study comparing the efficacy of standard and online programs in literature found that utilizing a mobile application-based program was equally as effective as traditional awareness programs in reducing anxiety scores, increasing self-compassion and awareness levels, and improving the psychological well-being of health department students (Orosa-Duarte et al., 2021). It has been shown that online self-compassion awareness programs are preferable in situations where face-to-face programs are not possible.

However, it has been noted in other studies that individuals' psychological resilience levels are not constant. Developing psychological resilience takes time and depends on personal characteristics, environmental factors, and other factors (Guo et al., 2017; Lin et al., 2019). This information helps to explain why there was no significant difference between the post-test and follow-up test results of the students who participated in the program. Therefore, it is necessary to develop programs that address multiple factors to achieve a lasting impact in future studies. Additionally, further research is required to assess the efficacy of abbreviated education programs when comparing the effectiveness of long-term and short-term programs to improve self-compassion in addition to improving psychological resilience (Pérula-de Torres et al., 2021).

When examining studies on Mindful Self-Compassion education in the literature, it is noted that self-compassion interventions can improve self-compassion and compassion in nurses. Additionally, nurses who receive this education can improve the quality of care by providing compassionate care (Biber, 2022). The program under study suggests that the meditations performed by the intervention group increased the self-compassion levels of the students. This is due to the overlap of Watson's 10 caritas processes, such as the first caritas process of loving kindness towards oneself and others, with compassion practices like self-compassion break, receiving compassion-giving compassion, etc. Additionally, the standard Mindful Self-Compassion education focuses on compassion. The study is a short-term structured program that integrates Watson's 10 caritas processes and the practices inherent in self-compassion to develop self-compassion.

One possible reason for the program's effectiveness is that participants were reminded to practice the exercises and meditations at home during the week. Additionally, the sessions may have begun with a discussion of home practice, which could have increased participants'

awareness by reinforcing the importance of the practices.

Limitations

As the study employed self-administered subjective measurement assessment tools, the potential risk of response skewness was acknowledged as a limitation. Additionally, it is important to consider the potential limitation of the students' willingness to develop self-compassion due to their voluntary participation in the study, which may impact the results. No data on the mental health status of the participants were collected before the study. They were only informed that the study could affect their mental health and participation in the study was left to their self-assessment. In addition, no participant experienced any mental problems during the study. However, in future studies, participants may be asked whether they had any mental health problems before the study in a simple yes/no way. Another limitation of this study may be the lack of evaluation of the practices given as home practices.

Conclusion

The program was deemed effective in improving both physical and mental health. This was evidenced by an increase in health-promoting and protective behaviors, as well as positive changes in self-care perceptions, psychological resilience, and self-compassion among the students in the intervention group.

This study presents the first model-based approach to mindful self-compassion in nursing students. The following section provides suggestions based on the study results:

- Using the program to enhance the physical and mental well-being of individuals in nursing practice areas,
- Including the program in the nursing education curriculum would be beneficial,
- Increasing the number of such online programs,
- Sending reminder messages at regular intervals can encourage and reinforce the practices outlined in the program for daily life,
- Evaluation of the practices given as home practice,
- Testing the longer-term effectiveness of the program,
- Testing the program's effectiveness in individuals with mental distress and different populations,
- Planning new studies to improve spiritual health and prevent empathy fatigue and burnout using the program.

CRediT authorship contribution statement

Gizem Bidik: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Fatma Nevin Sisman:** Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

No conflict of interest has been declared by the author(s).

Acknowledgment

The authors would like to thank Distinguished Professor of Nursing Jean Watson and the Watson Caring Science Institute team for their support. In addition, the authors acknowledge the cooperation of the students who participated in this study.

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