ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

DOI: 10.5336/nurses.2023-99541

The Effect of Stress Management Course on Resilience and Coping Styles of Nursing Students: A Quasi-Experimental Study

Stres Yönetimi Dersinin Hemşirelik Öğrencilerinin Psikolojik Dayanıklılık ve Stresle Başa Çıkma Tarzları Üzerindeki Etkisi: Yarı Deneysel Bir Çalışma

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This study was presented as an oral presentation at 7th International 11th National Psychiatric Nursing Congress, October 18-20, 2023, Ankara, Türkiye

ABSTRACT Objective: In the undergraduate nursing education, it is important to teach students techniques to cope with stress and to strengthen their resilience. The purpose of the study was to evaluate a stress management course's impact on nursing students' resilience and coping styles; and to investigate the relationship between coping styles and resilience. **Material and Methods:** This quasi-experimental and prospective study with pretest-posttest design was conducted with 67 nursing students. As an intervention, the stress management course took place two hours a week for 14 weeks. Data were collected before and after the intervention using the Stress Coping Styles Scale and the Connor-Davidson Resilience Scale Short Form. Data analyzed using frequency, percentage, the Wilcoxon signed-rank test, and correlation analysis. **Results:** After the stress management course, the mean optimistic style scores of students increased. There was no statistically significantly difference in the self-confident, social support-seeking, submissive, helpless style and resilience mean scores after the course. A positive correlation was found between self-confident coping style and resilience. There was a negative correlation between helpless coping style and resilience. **Conclusion:** This study found the stress management course had a positive effect on students' optimistic approach coping styles. The study concluded that an increase in resilience strengthened the self-confident coping style and weakened the helpless coping style. Increasing resilience positively affects coping styles. It is necessary to implement training programs to increase students' resilience in the nursing education curriculum. It is also recommended that stress management course should be added to the nursing education curriculum.

Keywords: Education; nursing; resilience; stress; students

ÖZET Amaç: Hemşirelik lisans eğitiminde öğrencilere stresle başa çıkma tekniklerinin öğretilmesi ve psikolojik dayanıklılıklarının güçlendirilmesi önemlidir. Bu çalışmanın amacı, stres yönetimi dersinin hemşirelik öğrencilerinin psikolojik dayanıklılık ve başa çıkma tarzları üzerindeki etkisini değerlendirmek ve başa çıkma tarzları ile psikolojik dayanıklılık arasındaki ilişkiyi incelemektir. **Gereç ve Yöntemler:** Ön-test ve son-test desenli yarı deneysel ve prospektif olan bu çalışma 67 hemşirelik öğrencisi ile yürütülmüştür. Müdahale olarak stres yönetimi kursu 14 hafta boyunca haftada iki saat olarak gerçekleştirilmiştir. Veriler, müdahaleden önce ve sonra Stresle Başa Çıkma Tarzları Ölçeği ve Connor-Davidson Dayanıklılık Ölçeği Kısa Formu kullanılarak toplanmıştır ve frekans, yüzde, Wilcoxon işaretli sıralar testi ve korelasyon analizi kullanılarak analiz edilmiştir. **Bulgular:** Stres yönetimi dersinden sonra öğrencilerin iyimser tarz puan ortalamaları artmıştır. Kurs sonrasında kendine güvenli, sosyal destek arayan, boyun eğici, çaresiz tarz ve psikolojik dayanıklılık puan ortalamalarında istatistiksel olarak anlamlı bir fark bulunmamıştır. Çaresiz başa çıkma tarzı ile psikolojik dayanıklılık arasında negatif, kendine güvenli başa çıkma tarzı ile psikolojik dayanıklılık arasında pozitif korelasyon bulunmuştur. **Sonuç:** Bu çalışma, stres yönetimi dersinin öğrencilerin iyimser yaklaşımlı başa çıkma tarzları üzerinde olumlu bir etkisi olduğunu ortaya koymuştur. Çalışma, dayanıklılıktaki artışın kendine güvenli başa çıkma tarzını güçlendirdiği ve çaresiz başa çıkma tarzını zayıflattığı sonucuna varmıştır. Psikolojik dayanıklılığın artırılması başa çıkma tarzlarını olumlu yönde etkilemektedir. Hemşirelik eğitimi müfredatında öğrencilerin psikolojik dayanıklılığını artırmaya yönelik eğitim programlarının uygulanması gereklidir. Ayrıca stres yönetimi dersinin hemşirelik eğitim müfredatına eklenmesi önerilmektedir.

Anahtar Kelimeler: Eğitim; hemşirelik; psikolojik dayanıklılık; stres; öğrenciler

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Peer review under responsibility of Turkiye Klinikleri Journal of Nursing Sciences.

Received: 14 Sep 2023 ***Received in revised form:*** 23 Feb 2024 ***Accepted:*** 03 Mar 2024 ***Available online:*** 16 Apr 2024

A process of adjusting to changes at the intersection of academic and social life, university life is an arena where students improve their coping skills and prepare for adulthood. While in university students are encountering new things in their academic, social, and personal lives, even things typically regarded as stressful and even traumatic.[1] Stress affects satisfaction, well-being, and performance in undergraduate students.[2] This is especially true for nursing students, who are stepping into a profession centered on clinical practice, which potentially increases stress.[3] Nursing students experience stress at various stages of their education and their stress is higher than students studying in other health departments.[4] Significant stressors specific to nursing students include exposure to patient suffering or death, coping with clinical emergencies, relationships with clinical staff, inadequate professional knowledge and practical skills, a gap between theory and practice, unfamiliarity with the hospital environment, negative attitudes of healthcare professionals, and fear of making mistakes during clinical practice.[4,5] Stress is also associated with the nursing education program, originating in the pressures of the academic workload, expectations of academic achievement, and interactions with staff and teachers. Students cannot avoid clinical and academic external stressors. Meanwhile prolonged or intense stress has the potential to have adverse effects on students' learning, clinical and academic performance, and physio-psycho-social health and well-being.[6,7]

Coping is the cognitive and behavioral confrontation of specific external and/or internal demands. Problem-focused coping is employed when a person thinks they are in charge of the circumstance and can deal with the problem's root cause. Emotion-focused coping controls one's emotional response to a situation rather than the problem itself. According to Sheu et al., efficient coping mechanisms facilitate return to a stable state and reduce the detrimental effects of stress.[8] Studies have associated the ability to maintain well-being with efficient coping styles.[9,10] It is important for nursing students to adopt effective coping strategies to overcome stress and maintain optimum health. The literature reports students mostly use a problem-focused strategy to manage their stress.[7,11] Problem-solving, praying, relaxation, deep breathing exercises and listening to music are the most commonly used coping strategies among nursing students.[12,13]

Resilience, which serves as a person's "buffer" against stress, is primarily influenced by a person's social and personal circumstances.[14] The concept of resilience developed at the end of effective coping is also necessary for coping with stressful events.[15] According to Thomas and Asselin, effective coping techniques were associated with resilience.[15] People with low resilience may use negative coping mechanisms while under stress, whereas people with high resilience are more likely to use positive coping mechanisms like problem-solving and social support.[1,15] It is known that resilience can also play an important role in allowing nursing students to overcome difficulties.[16]

In the undergraduate nursing education, it is important to teach students techniques to cope with stress and to strengthen their resilience. However, there is few studies on how stress management course has changed students' coping styles. In addition, Öztürk suggested that experimental studies should be conducted to increase resilience for nursing students; and Onan et al. suggested identifying the relationship between effective stress coping skills and resilience.[3,6] This study investigated the effect of stress management course on nursing students' resilience and coping styles, examining the relationship between coping styles and resilience.

Study Hypotheses

1. H1: There will be a statistically significant difference in the resilience mean scores of nursing students after the stress management course.

2. H1: There will be a statistically significant difference in the self-confident style subscales mean scores of nursing students after the stress management course.

3. H1: There will be a statistically significant difference in the seeking of social support style subscales mean scores of nursing students after the stress management course.

4. H1: There will be a statistically significant difference in the optimistic style subscales mean scores

of nursing students after the stress management course.

5. H1: There will be a statistically significant difference in the helpless style subscales mean scores of nursing students after the stress management course.

6. H1: There will be a statistically significant difference in the submissive style subscales mean scores of nursing students after the stress management course.

7. H1: There will be a statistically significant difference in the relationship between the resilience and coping styles of nursing students after the stress management course.

Aims

The purpose of the study was to evaluate a stress management course's impact on nursing students' resilience and coping styles; and to investigate the relationship between coping styles and resilience.

MATERIAL AND METHODS

STUDY DESIGN

This quasi-experimental and prospective research with a pretest-posttest design evaluates a stress management course given to a single group of first and second-year nursing students. In the curriculum of the university where the study was conducted, the stress management course is an elective course for first- and second-year students. Therefore, the study included 1st and 2nd year nursing students. Mean copings styles and resilience scores were compared. The randomized control trial design could not be used in the study as the students have also chosen different courses. The research was implemented following the "Transparent Reporting of Evaluations with Nonrandomized Designs Statement Checklist".[17]

SETTING AND PARTICIPANTS

Purposive sampling was used in the study, which was carried out in the faculty of health sciences' nursing department at a private institution in İstanbul. Eighty-two first and second-year students chose a "stress management" course during the 2022-23 fall semester. The sample size was determined using the G*Power (3.1.9.7) computer application. In the sample calculation, this study attempted to recruit 52 students in order to achieve a medium effect size with d=0.40, error=5%, and power (1-β)=80%. The sample size was expanded by 30% in order to account for the dropout and was intended to include 67 nursing students.[18,19] Five out of 82 students dropped out of the course after the second week. Ten students did not attend at least ten sessions of the course. Thus, 67 students who agreed to participate in the study, chose and completed the stress management course.

INCLUSION AND EXCLUSION CRITERIA

First and second-year nursing students were eligible for the study if they took the stress management course as an elective, volunteered to participate in the research, and attended at least ten sessions of the course. Students were ineligible for the study if they missed ten or more sessions.

INSTRUMENTS

Participants completed 3 questionnaires. Validity and reliability tests have been done on the included scales for a variety of contexts and nations. The principles of the Declaration of Helsinki were followed at every stage of the research.

Personal information form: Developed based on a review of the literature. Fourteen questions in total.[3,4,6,7,11]

Stress Coping Styles Scale: Developed by Folkman and Lazarus and adapted to Turkish by Şahin and Durak.[20,21] It consists of thirty items and 5 sub-factors. Scores range from 0 to 3. Measures two main ways of coping with stress: problem-oriented/active style and emotion-oriented/passive style. Active subscales include seeking social support, optimistic and self-confident styles; passive subscales include helpless and submissive styles. It was discovered that those who can handle stress well choose the optimistic style and the self-confident style, whereas those who struggle do so by adopting the helpless and submissive styles. Scores for each factor are calculated separately, and a total score is not calculated. High scores show a propensity for a specific style.[21]

Connor-Davidson Resilience Scale Short Form: Developed to determine the resilience of in-

dividuals, which enables them to return to their former state after negative events. The 10-item short form of the scale was studied by Campbell-Sills and Stein.[22] The scale, which was adapted into Turkish by Kaya and Odacı, has a Single-factor structure. High scores indicate high resilience.[23]

DATA COLLECTION PROCEDURE

Pre-tests (personal information form, Stress Coping Styles Scale, Connor-Davidson Resilience Scale) were administered to all nursing students accepted to the study just before the intervention (the stress management course started). As an intervention, a stress management course was conducted two hours a week for 14 weeks. At the end of 14 weeks, post-tests were administered immediately after the end of the course. In order to avoid researcher bias, the pre-tests and post-tests were administered face-to-face by an instructor who was independent of the research and the course.

STRESS MANAGEMENT COURSE

The stress management course, approved course for first-year and second-year nursing students by the university, was theoretical and elective, 2 hours a week, face-to-face. The nursing department at the faculty of health sciences offered it during the 2022-2023 academic year's fall semester. The researcher who teaches in the mental nursing program and has a doctorate in psychiatric nursing was the instructor for the course. The course teaches students concepts related to stress and coping; effective coping methods; and practical abilities for their personal and professional lives. The course content is presented in detail in Table 1. Teaching methods included theoretical presentations, question-and-answer sessions, experience sharing, warm-up games, role-playing exercises, and homework. During the implementation of the study, students were not exposed to any other activity (course, lecture, training, conference, etc.) that would affect their coping skills.

STATISTICAL ANALYSES

The IBM SPSS version 28 software and Windows were used for the data analysis. Frequency, percentage, the Wilcoxon signed-rank test, and correlation analysis were used to examine the data. Correlation analysis determined the bivariate association between the subscales of coping styles and resilience. The Wilcoxon signed-rank test was used to evaluate scores before and after the course because data did not confirm to the normal distribution. p values less than 0.05 are regarded as statistically significant.

ETHICAL CONSIDERATION

Ethical approval was obtained from İstinye University's Social Sciences and Humanities Research Ethics Committee on September 6, 2022 (No: 2), and written permission was granted by the Dean of the Faculty of Health Science. The purpose and limitations of the study were explained to the students before to the study, and their written agreement was collected. They were informed that the data they submitted would be kept confidential, used exclusively for scientific research, and published only via anonymous codes.

RESULTS

PARTICIPANT CHARACTERISTICS

Student mean age was 21.16 years [standard deviation (SD), 2.72]. Most students were female (80.6%), 68.7% were second-year students, most (64.2%) lived with their families, 85.1% stated their family income as "average" and 67.2% evaluated their academic performance as "successful". Most of the students stated that they do not use tobacco (89.6%) or alcohol (85.1%). 68.7% had 2 or 3 siblings. Those who had experienced a stressful life event (59.7%) mentioned at least one of the following: preparing for university exams, working and studying, family pressure to succeed, financial problems, anxiety about the future, domestic violence, death of a family member, and a serious personal or family health problem.

COMPARISON OF MEAN PRE-TEST AND POST-TEST SCALE SCORES OF STUDENTS

After the stress management course, the mean optimistic style ($\overline{X}$=1.75, SD=0.50) scores of students increased statistically significantly (respectively p=0.024) (Table 2). There was no statistically significantly difference in the self-confident, social support-seeking, submissive, helpless style and resilience mean scores after the course (p>0.050).

TABLE 1: Stress management course content.

Course objectives	Course outcomes	Week and Duration (2 hours)	Course content
In this course, the student will evaluate her/his own situation by learning about the symptoms of stress, its causes, and the body's stress responses, and increase her/his awareness. In addition, the student will learn effective methods for coping with stress.	At the end of this course, students are able to 1. Tell the terminology of stress 2. Explain fight-or-flight response and physiological responses to stress 3. Explain the general adaptation syndrome 4. Tell stress symptoms 5. Explain sources of stress 6. Evaluate the relationship between stress and illness 7. Understand adaptive and maladaptive behaviors 8. Explain occupational stress, burnout, compassion fatigue, resilience concept 10. Understand stress management techniques: Relaxation, breathing exercises, meditation, physical exercise, managing emotions and time-related stress, nutrition and healthy lifestyle, mindfulness-based stress reduction program.	Week 1 Week 2 Week 3 Week 4 Week 5 Week 6 Week 7 Week 8 Week 9 Week 10 Week 11 Week 12 Week 13 Week 14	What is stress? **The terminology of stress* Responses to Stress **Fight-or-flight response* **Physiological response to stress* The general adaptation syndrome Stress symptoms The power of perception **Perceived stress* Sources of stress Self-assessment of stress **The stress response and you* Stress and illness Adaptive and maladaptive behavior Mid-term exam week Occupational stress Burnout, compassion fatigue Resilience Stress management: individual strategies Relaxation, breathing exercises Stress management: individual strategies Manage emotions, managing time-related stress, nutrition and healthy lifestyle, physical exercise Stress management: individual strategies Managing time-related stress, nutrition and healthy lifestyle, mindfulness-based stress reduction program.

TABLO 2: Comparison of the scales pre-test and post-test mean scores of students (n=67).

Variables	Time	SD	Minimum	Maximum	Z/p value
Optimistic style	Pre-test	1.65 (0.51)	0.20	2.60	-2.255/**0.024**
	Post-test	1.75 (0.50)	0.00	3.00	
Self-confident style	Pre-test	2.18 (0.47)	0.86	3.00	-1.055/0.291
	Post-test	2.13 (0.44)	0.00	3.00	
Seeking of social support style	Pre-test	1.90 (0.42)	1.00	3.00	-0.595/0.552
	Post-test	1.86 (0.44)	0.00	2.75	
Submissive style	Pre-test	1.31 (0.55)	0.17	3.00	-0.319/0.750
	Post-test	1.28 (0.47)	0.00	2.50	
Helpless style	Pre-test	1.65 (0.55)	0.75	3.00	-1.595/0.110
	Post-test	1.53 (0.48)	0.00	2.50	
Resilience	Pre-test	24.34 (6.74)	3.00	37.00	-0.846/0.397
	Post-test	25.00 (6.07)	10.00	40.00	

SD: Standard deviation; †Standard deviations are given in parentheses; §p values indicate the statistically significant differences between groups; ¶Bold values indicate statistical significant values.

CORRELATIONS BETWEEN TOTAL SCORES FROM "COPING STYLE" SUBSCALES AND "RESILIENCE" SCORE

The Pearson correlation analysis was used to determine correlations between resilience scores and the sum of the coping style subscale scores, and the results are shown in Table 3. A statistically significant positive correlation was found between self-confident coping style and resilience (r=-0.560; p<0.001). An increase in resilience leads to an increase in self-confident approach coping style. There was a statistically significant negative correlation between helpless coping style and resilience (r=-0.550; p<0.001). An increase in resilience leads to a decrease in helpless approach coping style.

TABLE 3: Correlations between total scores from "coping style" subscales and "resilience" score.

	Resilience	
Coping style subscales	**r value**	**p value**
Optimistic style	0.214	0.082
Self-confident style	0.560**	**<0.001**
Seeking of social support style	0.119	0.337
Submissive style	-0.229	0.062
Helpless style	-0.550**	**<0.001**

†Bold values indicate statistical significant values; §p values indicate the statistically significant relationship between variables; ¶**Correlation is significant at p=0.01 level.

DISCUSSION

This study examined the effects of stress management course on students' resilience and coping styles and investigated the relationship between resilience and stress coping styles.

The study showed that the stress management course had no influence on mean scores of resilience. "The first H1: There will be a statistically significant difference in nursing students' resilience mean scores after the stress management course." was rejected. Onan et al. found a significant decrease in the mean resilience scores of nursing students after a stress management course.[6] According to Lowe, resilience has two parts: individual and environmental factors, and interaction between the two increases resilience.[24] It is evident that both individual traits and environmental circumstances have an impact on how resilient people become. The dynamic structure of resilience involves physical health, behavioral and psychosocial adaptation, and academic and professional performance.[25] As a result, because students may experience a variety of personal and environmental stresses, the stress management intervention in our study had no effect on the mean resilience scores of the students. For example, when asked about their experiences of stressful life events, most of the students in our study mentioned different individual or environmental stressors such as "working and studying, domestic violence, financial problems,

loss of a family member, health problems, or anxiety about the future and success". Thus, only teaching how to cope with stress may not have been enough to increase resilience. Resilience is very personal and differs from person to person, suggesting that individual characteristics should be considered in interventions attempting to increase resilience and that individual-based studies should be conducted. In addition, resilience is a concept that increases when a person feels that they can cope with events. In our study, there was a positive change only in the "optimistic approach" positive coping style of the students after the course. Therefore, resilience may not have increased. An intrinsic vitality or energizing life force is another definition of resilience.[26] These definitions show that developing resilience takes time. This relates to the weak results of our investigation.

Coping styles are effective in stress management, and it is important to implement interventions to improve the coping mechanisms of nursing students.[7] Karaca and Şişman found that the mindfulness-based stress reduction program is effective in increasing nursing students' use of self-confident and optimistic approaches, and decreasing their use of the helpless approach.[27] Similarly, our study showed that after the stress management intervention, the mean optimistic style scores of students increased, but with no difference in the self-confident, social support-seeking, submissive, and helpless style mean scores. This finding supports hypothesis "The fourth H1: There will be a statistically significant difference in nursing students' optimistic style subscales mean scores after the stress management course." In our study, students indicated that they had learned many methods to manage stress by the end of the course. The fact that they felt that they had learned methods of coping with stress may have caused the "optimistic coping style" to change positively and the variety of techniques may have made the students feel confident in having many options. On the other hand, in our study other hypotheses (2nd, 3rd, 5th and 6th H1s) were rejected. In the current study, students mentioned different stressful life events in their personal lives. The lack of a positive effect of the stress management course on other coping styles may be due to their exposure to different stressors. Additionally, since they were first-year and second-year students, positive effects on other coping styles (self-confident, social support-seeking, submissive, and helpless style) may not have been observed due to adaptation problem to the university environment, lack of social friendship or shyness. Lastly, stress factors may have differed due to class differences between first- and second-year students, which may have affected our research results. The fact that they coincided with the online course period due to the coronavirus disease-2019 pandemic may have negatively affected the adaptation process of students to university life. We suggest conducting more research to learn how nursing students might use several coping mechanisms to lessen stress.

In our study, a positive relationship was found between resilience and self-confident approach coping style and a negative relationship was found with helpless approach coping style. This finding supports hypothesis "Seventh H1: There will be a statistically significant difference in the relationship between the resilience and coping styles of nursing students after the stress management course." When resilience increases, the self-confident approach coping style also increases, while the helpless approach coping style decreases. It has been reported in the literature that those with low resilience use negative coping mechanisms under stress, while those with high resilience use positive coping mechanisms.[1] In addition, it is known that people with high resilience can cope better with negative situations.[16] Similarly, in our study as increased resilience improved the coping ability, the self-confident coping style increased. Conversely, those with low resilience used the helpless approach coping style because they had weaker coping skills. In this situation, increasing resilience contributes to the use of positive stress coping mechanisms. The results of our study are important in revealing that the stress management intervention increased the resilience of students.

IMPLICATIONS

Increasing resilience positively affects coping styles. Therefore, it is important to implement training programs in the nursing education curriculum to increase students' resilience. We further recommend that

stress management be added to the curriculum because it increases students' optimistic coping style. Nurse educators should also give students the tools they need to manage stress and build resilience.

LIMITATIONS OF THE STUDY

There are restrictions on the generalization of the study because it only included a small convenience sample and first- and second-year students majoring in nursing at the faculty of health sciences. Furthermore, the cross-sectional study did not evaluate how the respondents' coping mechanisms and resilience over time changed.

CONCLUSION

This study found the stress management course had a positive effect on students' optimistic approach coping styles but had no effect on other coping styles (self-confident, seeking of social support, submissive, and helpless style) and resilience. The study concluded that an increase in resilience strengthened the self-confident coping style and weakened the helpless coping style. This study revealed that resilience is a very important concept in terms of coping. We recommend future interventional studies to increase resilience. The fact that the stress management course improved the students' ability to cope with stress demonstrates the value of such training courses and their ongoing relevance.

Acknowledgment

The authors would like to thank all students who participated in this study for their valuable contributions.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

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