Research Article

Resilience, Anxiety, and Perceived Stress in Nursing Students: The 'REASON' Study

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Abstract

Objective: Analyze study data for Resilience, Anxiety and Perceived Stress in Nursing students (REASON) pre and post training in resilience and stress management.
Implement faculty led formal training, discussion, and reflection for resilience and stress management and compare resilience, anxiety, and perceived stress scores before and after training.

Methods and Procedures: The researchers implemented faculty led training, discussion, and written student reflection on resilience and stress management. Students viewed and discussed open access stress discussion and management videos and TED talks. Faculty led resilience discussion and training on protective factors based on the faculty prior published research. Standardized tools were utilized to measure resilience [1], perceived stress [2], and anxiety self-report (Beck Anxiety Inventory [BAI], Beck, 1988) at the start of a 15-week semester, and at the end of the semester following training, discussion, and reflection in resilience and stress.

Subjects: Undergraduate nursing students in the second of four semesters. A total of 102 participants completed the study.

Results: Results from this study indicate that students who reported more frequent anxiety symptoms also reported more perceived situational stress. Students with improved resilience scores post training reported less frequent anxiety symptoms and less perceived situational stress. Resilience training proved to be beneficial in increasing participants' self-report of resilience. Stress management training was equally beneficial by decreasing the frequency of anxiety symptoms and feelings or thoughts associated with perceived stress for all participants. The results of this study suggest that the combination of resilience and stress management training may be essential for managing a person's response to stress and anxiety by increasing personal resilience.

Keywords: Anxiety; Nursing Students; Perceived Stress; Resilience

Background

Baccalaureate nursing education and training is intense and rigorous, and students often report high anxiety and stress levels [3]. Factors contributing to stress and anxiety in baccalaureate nursing students may include academic, clinical, and financial concerns. The literature supports that higher levels of resilience and emotional intelligence (EI) may help students manage stress and improve overall student success [4]. Resilience may naturally increase over time as the student matures. However, in a previous study at the same university, researchers did not find any significant difference in overall resilience scores from the first semester to the second semester [5]. The data in that study did reveal significant increases in stress and anxiety from first semester to second semester [5]. The increased anxiety in the prior study is potentially due to the increasing rigor of the program studies. Faculty and student concerns regarding increasing stress prompted initiatives to implement formal training in resilience and stress management. The researchers' motivation included the desire to help the students improve stress management, decrease anxiety, and increase resilience.

Literature Review

The literature contains a plethora of studies on the importance of resilience and stress management education during nursing school [6]. Faculty encouragement and guided discussion can help students develop resilience in the clinical and classroom settings but often this is not enough, and additional intervention is needed [7]. The pressures of a rigorous course load can be extreme [8]. Nursing students face pressure in the clinical arena due to factors such as patient acuity, workloads, fears of medication errors, and inadequate knowledge of disease states. Nursing educators must be able to equip students with necessary resources to cope with anxiety and stress for them to achieve success in the curriculum and profession of nursing [9].

Resilience and knowing how to deal with stress are qualities that every professional needs in the modern world. Similarly, nursing professionals need the same skills [10]. A positive healthy outlook, along with tools to increase resilience and decrease anxiety, go a long way toward enhancing personal and professional success [7,11,12]. The researchers' previously published findings support the need for implementation of resilience training and tools for stress management in undergraduate Baccalaureate nursing students [5].

Methods and Procedures

Procedures

Approval from the University's Institutional Review Board (IRB) was obtained prior to the collection and compilation of data. Data collection occurred in 2021and 2022. Permission was obtained to use the standardized tools to measure resilience [1], perceived stress [2], and anxiety self-report [13]. The survey tools were completed at the start of a 15-week semester, and repeated following training, discussion, and reflection on increasing resilience and decreasing stress and anxiety.

Students completed the CD-RISC 25, Cohen Perceived Stress Scale (CPSS), and Beck Anxiety Inventory (BAI) as part of normal coursework at the beginning and end of second semester. Informed consent was obtained. Students were assigned a number by the primary investigator for protection of human subjects and each student's survey results were recorded in relation to the assigned student numbers. No identifying data were used for analysis and data were analyzed in aggregate form.

During Spring 2021 and spring 2022 students in the second semester community course completed the study inventory tools at the beginning and end of the semester. The survey tools utilized included CD-RISC 25, CPSS, & BAI. The primary investigator implemented faculty-led training, discussion, and written student reflection on resilience and stress management. Students viewed and discussed open access stress management videos and TED talks. The faculty also led resilience training and discussion on resilience protective factors based on published research [6]. The formal resilience and stress management training and guided discussions were provided in the third week of the community nursing course.

TED The three secrets of resilient people [14].	You Tube
TED Increase your self-awareness with one simple fix [15].	You Tube
You Tube Strategies to become more emotionally intelligent [16].	You Tube
TED The secret of becoming mentally strong [17].	You Tube
Nursing student resilience [6].	CINAHL database

Table 1: Training Resources.

Study Questions

A retrospective, descriptive, correlational design was used to answer the following research questions:

What is the effect of formal resilience training on resilience scores of currently enrolled, second semester BSN students?
What is the effect of formal stress management training on anxiety scores of currently enrolled, second semester BSN students?
What is the effect of formal stress management training on perceived stress scores in currently enrolled, second semester BSN students?

Theory

Resilient individuals can manage stress and adapt to adversity. They may also learn and grow because of better coping in stressful situations. Nursing faculty are positioned to have a positive influence on the students. Protective factors help the individual build resilience [6]. Protective factors include humor, flexibility, self-awareness, a strong support system, and perseverance [6]. The researchers utilized Stephens' model as the basis for training the students on resilience [6].

Lazarus and Folkman proposed a transactional theory of stress and coping [18]. This theory indicates that individuals are constantly evaluating their environment for sources of stimuli. If the stimulus is perceived as a threat, the individual will initiate coping strategies [18]. The coping strategies may be satisfactory or unsatisfactory. In the current study, the researchers led discussions and reflection to assist the students to identify sources of stress and initiate appropriate and effective coping strategies, including relaxation techniques.

Instruments

The CD-RISC-25 is a self-report survey that measures how often during a one-month period a participant agrees with 25 various statements focusing on attributes associated with resiliency. Scores range from 0 to 4 with 0 meaning not true at all and 4 meaning true nearly all the time. Total possible scores range from 0 - 100. Higher total scores indicate higher resiliency.

The Beck Anxiety Inventory (BAI) is a self-report survey regarding the frequency of anxiety symptoms. Twenty-one (21) common symptoms of anxiety are listed. Participants are asked to report the frequency of these symptoms during a one-month period. The scoring ranges from 0 to 3 with 0 meaning they do not experience these symptoms at all and 3 meaning. The symptoms bothered them severely/or a lot. Total possible scores range from 0 to 63. Scores of 0 - 21 indicate low anxiety, scores of 22 - 35 indicate moderate anxiety, and scores equal to or greater than 36 indicate severe or potentially concerning levels of anxiety.

The PSS is a self-report survey used to assess the frequency of feelings and thoughts of participants in certain situations during the previous month. The PSS contains ten questions with possible answers ranging from zero to four with zero meaning never and four meaning very often. Reverse scoring was used on questions 4, 5, 7, and 8 according to the tool's scoring instructions. Total possible scores range from 0 to 40. Scores of 0 - 13 are considered low stress perception, scores of 14 - 26 are considered moderate stress perception, and scores of 27 - 40 are considered high stress perception.

Data Analysis and Results

Data analysis included examining for missing data and standard data cleaning. All interval/ratio variables were analyzed for normality and measures of central tendency. No multicollinearity was noted between variables. A total of 102 students' survey results were used for the study. All participants were second-semester nursing students enrolled in a baccalaureate nursing program in the southeastern region of the United States. No demographic information was required or collected for the participants in this study; however, it is known that the population of nursing students at this university is majority female and Caucasian.

A dependent sample paired *t-test* was performed to determine whether there was any statistically significant difference between pre- and post-training CD-RISC 25 scores of participants. The data was normally distributed, and the assumptions for a parametric paired t-test calculation were supported. There was a statistically significant increase in CD-RISC 25 scores from the pre- ($M = 72.50, SD = 10.95$) to post-training CD-RISC 25 score ($M = 74.89, SD = 12.55$) $t (101) = 2.62, p = .05$, indicating an increase in resilience because of the training.

A dependent sample paired *t-test* was performed to determine whether there was a statistically significant difference between pre- and post-training BAI scores of participants. The data was normally distributed, and the assumptions were supported. There was a statistically significant difference between the pre-training BAI score ($M = 18.39, SD = 12.54$) and post-training BAI score ($M = 16.70, SD = 11.97$) $t (101) = 1.96, p = .05$. These results indicate a decrease in anxiety because of the training.

A dependent sample paired *t-test* was performed to determine whether there was a statistically significant difference between the pre- and post-training PSS scores of participants. There was a statistically significant difference between the pre-training PSS score ($M = 18.24, SD = 6.82$) and post-training PSS score ($M = 17.49, SD = 6.93$) $t (101) = 1.12, p = .05$. These results indicate a slight decrease in perceived stress levels because of the training.

A correlational analysis was performed to determine the relationship between the CD-RISC 25, the BAI, and the PSS scores both pre- and post-training. Prior to beginning the analysis, the data was examined to determine if it met the assumptions for Pearson's (r) correlational analysis. The data were normally distributed, and the assumptions were supported. The study revealed significant correlations between CD-RISC 25, BAI, and PSS scores in both pre- and post-training. There was a positive correlation between BAI and PSS scores in both pre-training *(r = .579)* and post-training *(r = .486)*, indicating that as anxiety scores decrease, perceived stress scores decrease as well. There was a negative correlation between the pre-training CD-RISC 25 scores for both pre-training BAI *(r = - .348)* and pre-training PSS scores *(r = - .473)*, indicating that lower resilience scores are associated with increased anxiety and perceived stress scores. There was also a negative correlation between the post-training CD-RISC 25 scores for both post-training BAI scores *(r = - .442)* and post-training PSS scores *(r = - .528),* further supporting the hypothesis that as resilience increases, perceived stress, and anxiety decrease.

Results in this study indicate that students who reported more frequent anxiety symptoms also reported more perceived situational stress. In contrast, those who had higher resiliency scores reported less frequent anxiety symptoms and less perceived situational stress. These correlations were consistent for both pre- and post-training surveys.

Resilience training proved to be beneficial in increasing participants' self-report of resiliency. Stress management training was equally beneficial by decreasing the frequency of anxiety symptoms and feelings or thoughts associated with perceived stress for all participants. The results of this study suggest that the combination of resilience and stress management training may be essential for managing a participant's response to stress and anxiety by increasing personal resiliency.

Variable	(SD)	Possible Range	Actual Range	p
CD-RISC 25 Pre-intervention	72.5 (10.95)	0 – 100	46 – 99	0.05
CD-RISC 25 Post-intervention	74.89 (12.55)	0 – 100	33 – 100	0.05
BAI Pre-intervention	18.39 (12.54)	0 – 63	0 - 55	0.05
BAI Post-intervention	16.7 (11.97)	0 – 63	0 - 56	0.05
PSS Pre-intervention	18.24 (6.82)	0 – 40	Apr-33	0.05
PSS Post-intervention	17.49 (6.93)	0 - 40	Feb-32	0.05

Table 2: Dependent Samples t-test for CD-RISC, BAI, and PSS scores.

Variable	Pre-CD RISC 25	Post-CD RISC 25	Pre-BAI	Post-BAI	Pre-PSS	Post-PSS
Pre-CD RISC 25	–	.700*	-.35*	-.30**	-.47**	-.43**
Post-CD RISC 25	–	–	-.30**	-.44**	-.38**	-.53**
Pre-BAI	–	–	–	.75**	.58**	.39**
Post-BAI	–	–	–	–	.42**	.49**
Pre-PSS	–	–	–	–	–	.52**
n = 100 *p = <.05 **p = <0.01						

Table 3: Pearson's Analysis.

Discussion

While stress management training is important in overcoming the negative effects of stress, it also requires resilience [3,19]. Resilience can be described as a positive adaptation to adversity. This study revealed that resilience training can positively impact resilience qualities in student nurses which can be beneficial in preparing future nurses for the stress-related demands of the nursing profession. Similarly, resilience training for nurses in current practice could be investigated to determine if educational resources to help increase resiliency in the nursing workforce may assist with improving burnout rates. Students in nursing school often report a significant amount of stress because of the demands of the program requirements [9,20]. Nursing school requires a significant amount of coursework with additional clinical requirements. To be successful in nursing school, students must practice good time management skills. The addition of resilience stress management training in an undergraduate baccalaureate nursing program proved to be beneficial for controlling the effects of anxiety and perceived situational stress [21]. The combination of both resiliency and stress management training sessions showed an increase in resiliency scores while decreasing the frequency that students experienced symptoms of anxiety. The combination training also equipped participants to respond more positively to potential stressors.

Implications for Education and Practice

Nurses are faced with stressful situations every day which can produce devastating effects both physically and emotionally. Stress management training can be instrumental in decreasing the physical and emotional effects of stress. The results of this study show that empowering student nurses with training on stress management and resilience can decrease the symptoms of anxiety as well as the feelings and thoughts associated with perceptions of stress. Further use of the training model used in this study may prove beneficial for staff nurses in many clinical settings. Resilience training for nurses in current practice could be investigated to determine if educational resources to help increase resiliency in the nursing workforce may assist with improving burnout rates.

Strengths and Limitations

The timing of this study can be considered a limitation. The study took place during the COVID-19 pandemic. Increased rates of anxiety, along with mental health decline have been attributed to the pandemic [22,23]. Thus, the COVID 19 pandemic could be related to the prevalence of anxiety symptoms as well as the frequency of reported perceived situational stress.

Another limitation of this study is the lack of demographic information. A demographic survey was not administered in this study. The researchers know the general demographics of the student population include majority Caucasian females aged 18-21; however, specific demographic data may have been useful to determine whether personal background, race, ethnicity, age, gender, or Grade Point Average (GPA) could have affected pre-training CD-RISC 25, BAI, and PSS scores. Such data may provide insight into the effect that demographics have on resilience and ability to handle stress and anxiety.

The results of this study support the premise that providing stress management training can significantly decrease the frequency of anxiety symptoms and perceptions of situational stress in second-semester nursing students. This training was useful for improving the resilience, anxiety, and perceived level stress scores of second-semester students and should help prepare them for the stress in their future careers in nursing. These results may also indicate that stress management training may be beneficial to students in other programs of study. In addition, current practicing nurses may benefit from stress management training. Stress management training can assist with controlling the effects of anxiety and perceived situational stress in individual nurses and potentially have a positive effect on prevention of early job burnout.

Recommendations for Future Research

Future studies on resilience and stress management should incorporate multiple nursing cohorts at various stages of the nursing program. Conducting this study with first-semester nursing students may assist nursing faculty in identifying at-risk students early in the program so that a success plan can be implemented. This data may also be helpful for faculty planning. The ability to identify overall resilience scores of a cohort of students could allow faculty to customize clinical and didactic content for each cohort. Resilience and stress management training implemented in the first semester and in pre-nursing students could potentially increase student success throughout the nursing program.

Most students currently pursuing higher education have experienced some challenges of learning during the COVID-19 epidemic. The learning challenges are widely documented in the literature and the researchers are aware of many anecdotal reports received from learners and faculty colleagues. These challenges have caused increased anxiety about success in the classroom [22]. Resilience and stress management training would be useful in assisting all higher education students to prevent mental health decline that could impact educational success [24-26]. Research on the effects of resilience and stress management training in other programs of study would be beneficial to aid in decreasing the overall rates of anxiety and perceptions of situational stressors.

This study should be replicated in the current nursing practicing workforce. Nurses are faced with both physical and emotional stressors daily. Despite the implementation of workplace incentives, nurses are still at risk for burnout [27,28]. This may result from the negative impact of professional stressors which was exacerbated during the pandemic. The combination training of resilience and stress management for the nursing workplace may prove to be an essential component in improving nurse retention rates and decreasing nursing burnout [27].

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