12-2020

Effect of a Self-Care and Self-Awareness Education Program on Resilience to Burnout and Depression in Clinically Experienced Nursing Students

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Abstract

The purpose was to examine the effect of a self-care educational intervention on nursing student resilience and thus the potential for compassion fatigue, depersonalization, burnout, depression, and inadequate self-care. A one-group pretest-posttest research design was applied to a convenience sample of 104 nursing students near the end of their last semester in a baccalaureate nursing program. The measurements were demographics, a psychometric resilience scale, program evaluation, and reflection question. The intervention was a standardized, intensive 30 min training program on the high degree of stress and burnout nurses face and the core self-care methods that can promote resilience to these hazards. The educational intervention had a strong positive effect on resilience scores (effect size of $r=72\%$; $p < 0.05$). Eighty-six percent of the participants believed that the intervention increased their capabilities for self-care, especially in sleep, spending time outside, hydration, nutrition, and physical stretching exercises but not in journaling. Eighty-one percent stated that they would be likely to seek professional help if needed. Although this study must be repeated in other samples before it be implemented with full confidence, the standardized, high intensity, short duration, resilience training session can be recommended to nursing programs just prior to graduation and to hospitals for nurse orientation programs.

Highlights

- A 30-minute intensive standardized self-care training session on resilience to burnout was tested on a sample of 104 nursing students.

- Personal resilience scores increased post-intervention with a strong effect size of 72%.

- 85% of participants rated the program as effective and enlightening.

- The use of intense, short duration resilience training is recommended for the final phases of nursing education and orientation programs in hospitals.

Keywords

Burnout, Resilience, Hardiness, Depression, Self-care, Stress, Caregiver fatigue

1. Introduction

Although stress is common to many professions, nurses and physicians are reported to experience some of the highest levels of chronic stress and burnout (Molina-Praena et al, 2018). Burnout is composed of the following elements: emotional exhaustion, depersonalization, and low personal accomplishment (Molina-Praena et al, 2018). Nurses are at greater risk for burnout because of the nature of the work: nurses expend most of their energy at the bedside with patients, assisting patients with activities of daily living in addition to more advanced procedures such as intravenous drug therapy. Critical care nurses are especially vulnerable to burnout due to high patient acuity, high levels of responsibility, working with advanced technology, caring for families in crisis, and being involved in morally distressing situations (Epp, 2012). The prevalence of emotional exhaustion is around 30% in oncology and emergency nurses, while depersonalization is present in 15% of oncology nurses and 36% of emergency nurses (Cañadas-De la Fuente et al, 2018). Almost 50% of nurses have reported clinically significant levels of burnout at one time or another(Li, 2018).

The key factors that cause burnout have been identified as patient acuity, staff shortages, long shifts, working conditions, and personal resilience (Munnangi et al, 2018). Detection of burnout and dissatisfaction among nursing staff is important because there is ample evidence that supports a negative association between burnout and empathy among nurses (Munnangi et al, 2018). Nurses who lack empathy may provide lower quality care resulting in patient dissatisfaction, which negatively impacts a health care facility. Furthermore, burnout may result in increased absenteeism, drug abuse, depression, and medical errors among nurses (Li, 2018). All of these consequences are detrimental to patients and present problems for health care facilities.

In a cross-sectional study of 1790 nurses across the U.S., over half of the nurses reported suboptimal physical and mental health. About half of these nurses reported making medical errors in the past five years. Nurses in worse health, as compared to those with better health, were 26-71% more likely to have made medical errors (Melnyk et al, 2018). Nurse and doctor wellness was concluded to be a high priority for health care systems for the improvement of quality of care (Melnyk et al, 2018).

1.1   Resilience and Protection from Burnout

The personal quality of *resilience* promises to be a potential antidote for burnout. Resilience has been defined as "the ability of an individual to adjust to adversity, maintain equilibrium, retain some sense of control over their environment, and continue to move on in a positive manner" (Jackson et al, 2018). A recent review study concluded that resilience is not associated with demographic variables, so anyone can develop it. Individuals have varying degrees of resilience and fostering within an individual can be complex (Jackson et al, 2018). The foregoing review study further concluded that the key factors affecting resilience were the level of workplace stress and the personality of the nurse, however the nature of the link between these factors and resilience remains unclear.

Research has shown that resilience can be learned under certain conditions. One method of improving resilience is to target evidence-based resilience factors including the following: meaning in life, positive emotions or positive affect, hardiness, self-esteem, active coping, self care, self-efficacy, optimism, social support, cognitive flexibility, and religiosity or spirituality (Blum, 2014). Mindfulness-based therapy is another form of resilience training based on a non-judgmental awareness of the present moment and accompanying feelings (Helmreich et al,

2017). Through mindfulness, individuals can become accepting of whatever circumstances surrounds them without stressing over things they cannot control (Helmreich et al, 2017). Additionally, numerous studies show that exercise reduces stress (Wunsch et al, 2019). The unifying commonality of these strategies is that each is a self-care method because of the focus on helping oneself.

Many studies suggest that boosting all forms of self-care is appear to be likely to have a positive effect on resilience. The Stress Management and Resiliency Training (SMART) is one such program that has been tested on nurses. SMART is structured program consisting of twelve online modules to retrain the brain by intentionally paying attention to life experiences and reframing those experiences through the principles of gratitude, compassion, acceptance, higher meaning and self forgiveness (Magtibay et al, 2017). The goal of the program is to enhance peace, joy, resilience, and altruism which reduces stress and improves well-being. The practicing nurses in the study showed reductions in stress, anxiety, and burnout along with improvements in resilience, mindfulness, happiness (Magtibay et al, 2017). Another study by Chesak et al. (2015) examined the efficacy of the SMART program on new nurses. Many of the improvements in this study were not statistically significant but the participants did have decreased stress and anxiety with marginally increased resilience and mindfulness scores. Bonamer (2019) demonstrated that providing nurses with meditation techniques increased resilience scores while also reducing compassion fatigue (Bonamer, 2019).

1.2 Measurement of Resilience

To provide a quantitative measure of the effectiveness of standardized education interventions, a measuring instrument of good quality is paramount. Many resilience or hardiness

questionnaire instruments have been developed and tested with regard to the psychometric properties.   The CDRS (CDRS) is the most frequently used with known measurement validity and reliability in multiple languages.   The CDRS comes in a 25-item and 10-item versions (Campbell-Sills and Stein, 2007). Kuiper et al. (2019) conducted a comparison of the different versions of the CDRS and recommended the 10-item version due to its excellent measurement properties and due to the fact that it took less time for participants to complete. Factor analysis and Rausch modeling showed that the psychometric properties of the 10-item version can be improved by removing two more questions to make an 8-item version (Ehrich, 2017).

Kwan et al. (2019) tested the psychometric properties of the short version of the CDRS in arthritis patients and found that it had excellent internal (alpha= 0.94) and external (alpha=0.96) reliability and construct validity (p <0.05 for five of six evaluations). Aloba (2016) tested the CDRS in a sample of nursing participants and found a reliability alpha of 0.81and a statistically significant measurement validity. Several dozen other studies corroborate these estimates of measurement quality (reviewed in Kwan et al., 2019).

Another resilience instrument is the Dispositional Resilience Scale (DRS), also in a long and short (15-item) version.   In one study, the DRS had a Cronbach's alpha of 0.83 (reliability), an *r* of 0.69 (validity), monofactorial status, and did not require much time for the participants to complete (Rodríguez-Rey et al, 2018). In another study, Bartone (2007) found the DRS to have a reliability alpha of 0.78. The measurement properties were thus good and comparable to the CDRS.

The Wagnild-Young Resilience Scale (WYRS) has 14 items and has also been extensively evaluated for its measurement properties (Wagnild and Young, 1993). Heilemann et al. (2003)

found a reliability alpha of 0.93 and a medium, statistically significant, construct validity (r = .29 to .36) in a sample of urban, low income women. Surzykiewicz et al. (2019) found reliabilities in the range of 0.82 to 0.88 and statistically significant validity in a multisite sample of troubled youths.   Evidence was found for both a three-factor and one-factor structure in the WYRS in the above studies.

The findings above show that the three major resilience scales have similar measurement properties and teeter between a three-factor and one-factor structure from sample to sample. Therefore, there is no firm basis by which to decide between them based on psychometric properties. This point is echoed by Cohen et al. (2017) who reviewed and compared the Wagnild-Young Resilience Scale, Windle-Markland-Woods Psychological Resilience Scale, and the CDRS. The authors determined that although the measurement quality of the three scales were similar, but the ease of interpreting the conceptual structure of the CDRS gave it the edge of the others. The conceptual structure consisted of three factors labeled personal competence, perseverance, and leadership.

The CDRS and WYRS have the distinction of having been previously psychometrically tested in practicing nurses and nursing students, a sample that is the focus of the present study. The CDRS was used in prior research in samples of undergraduate nursing participants (Lekan et al., 2018; Aloba, 2016), critical care nurses (Meiler et al., 2016), and transplant nurses (Yan et al., 2018). These findings provide the present study with the advantage of helping form the framework and basis for comparisons. The WYRS was used in samples of nurses (Beauvais et al., 2014; Meyer and Shatto, 2018) and nursing assistants (Navarro-Abal, 2018). The authors of the present study could not find any testing of the DRS and BRS in nursing populations.

The conclusion is that both the CDRS and WYRS have good measurement properties. On the simple basis that more studies have been conducting in nursing in the past using the CDRS than the WYRS, the CDRS was adopted in the present study to enable direct comparisons.

1.3   Educational Intervention

Blum (2014) created a course called *Caring for Self* for nursing students at Florida Atlantic University. The course is a comprehensive panorama of methods for improving self-care and resilience. However, as promising as this educational approach may be, it has never been tested to determine the degree to which it quantitatively increases resilience in those who complete the full course. In addition, a semester long course in self-care is not practical in many nursing education programs where core skills in nursing needed to pass the national nurse licensing exam need to be kept in focus; nor is it practical for in-service hospital training programs. An intensive, condensed version of Blum's course packed into a 30 min. session was consequently tested for efficacy in increasing resilience in the present study.

1.4 Purpose and Hypothesis

The purpose of the study was to measure the effect of a 30-minute self-care teaching intervention based on the program of Blum (2014) on student resilience. Students in their last semester were selected because the most clinical experience and are in the hospital for full 12-hour days, thus they are more likely to have seen or experienced stress and burnout. The main hypothesis was the self-care intervention would produce an increase CDRS after the intervention as compared to before.

2. Methods

2.1 Type and Design of Study

The research design was an uncontrolled, non-experimental, pre-post mixed-methods study with an educational intervention. The sequence was pretest, educational intervention, posttest, program evaluation collection, and demographic data collection.

2.2 Sample

The sample design was a convenience sample at a single geographic location. Participants were nursing students near the end of their last of five semesters in an undergraduate baccalaureate program. A total of 116 participants were offered participation in the study during a regular classroom session by one of the authors (PAH-C). Eight participants refused participation, and four participants only completed the pretest and did not complete the posttest. This resulted in a total sample size of 104, with a participation rate of 90.5% which we rate as good. In the program evaluation section of the survey, three participants skipped all the questions and while all others answered all 21 of them. For the demographic section, in addition to the four non responders mentioned earlier, one participant did not respond to the question on ethnicity and one participant did not answer the question on education. Overall, both the participation rate and consequently the percentage of valid data were regarded as high.

2.3 Measurements

Resilience in the present study used the formal definition of Jackson et al. (2018) described in the introduction section above: "... the ability of an individual to adjust to adversity, maintain equilibrium, retain some sense of control over their environment, and continue to move on in a

positive manner." The questionnaire consisted of five components in the following sequence: Participants completed the pretest instrument (CDRS); received an educational intervention on the benefits and methods of self-care; completed the posttest instrument (CDRS); completed an evaluation of the education intervention; and lastly, provided demographic information about themselves. The CDRS consisted of 25 questions with response on a scale from 0-5 (Connor and Davidson, 2003). The total score was the sum of the answers for each of the 25 items. Higher scores indicate that the individual is more resilient to adversities.

In the evaluation section, participants rated the effectiveness the presentation. Participants indicated which self-care methods, if any, they are most likely to use and which ones they are least likely use. Participants could select more than one method if they desired. Additionally, participants indicated if the presentation increased their overall awareness about the stresses of nursing as a profession and of the importance of self-care. Also included in the evaluation section was the question of the likelihood of the participant to seek professional help if they were to become severely overwhelmed or emotionally distressed. After the evaluation section, there was a qualitative component where participants were requested to reflect on their thoughts or leave comments about any aspect of self-care or resilience. The last section of the questionnaire on demographics was self-reported age, gender, race/ethnicity, and the highest level of education. Note that although all participants were nursing students in their final semester, they were not uniform in age nor education level. Many were older students were in the sample as well as several with advanced degrees in other fields, including doctoral degrees. The full questionnaire is available on request from the corresponding author (ABT).

The measurement reliability for the CDRS in the present sample was high with a Cronbach alpha of 0.91 and Guttman Lambda-6 of 0.95. This compares well to the reliabilities found in

previous studies where alpha level ranged from 0.78 (Bartone 2007) to 0.94 (Kwan et al. 2019). The measurement reliability in the present setting was in the upper end of the range found in previous studies.

2.4 Procedure

Ethical approval for this study was received from the East Tennessee State University Institutional Review board on November 6, 2019. Permission to conduct the study was obtained from an instructor in three classes near the end of the final semester in the program. The participants were anonymous in that no personally identifying information was to be placed on the questionnaire. The printed-on-paper version of the questionnaire was distributed to the participants; an overview of the study and informed consent information was provided verbally as well as appearing in the instructions on the questionnaire. The pretest-intervention-posttest-evaluation-demographics sequence described above was conducted by one of the authors (PAH). Questionnaires were collected.

The educational intervention consisted of a 30-minute presentation by one of the authors (PAH-C) which was based on the recommendations of Blum (2014), as detailed in the Introduction section above. The core self-care topics were the importance of journaling, deep breathing, progressive muscle relaxation, stretching, yoga, grounding, maintaining good nutrition, hydration, sleep, spending time outside, and planning self-care days. The syllabus and slide presentation document used for the education intervention is available on request from the corresponding author (ABT).

2.5 Data Analysis

The responses on the questionnaires were first entered into a Microsoft Excel spreadsheet. The resulting data files were imported into R version 4.0.0 (R Core Team, 2020). The following statistical analyses were conducted: (1) demographic counts and percentages, (2) distribution plots, (3) Connor-Davidson pretest and posttest score distributions, medians and quartiles, (4) Shapiro-Wilk normality test, (5) Kruskal-Wallis one-way analysis of variance for comparing pretest and posttest scores, (6) Cohen's criterion for effect size, (7) evaluation items counts and percentages. Last, , a meta-analysis was conducted to convert the main findings in this and other studies into standardized effect size metrics (Pearson r and Cohen d). The R program is available upon request from the corresponding author (ABT). The justification for the use of non-parametric statistical methods such as quartiles and Kruskal-Wallis hypothesis tests is explained in the Results section below.

High school graduate, diploma, or equivalent	21.2
Some college credit, no degree	52.9
Trade/Technical/Vocational degree	0
Associate degree	8.7
Bachelor's degree	13.5
Master's degree	0
Professional degree	0
Doctorate degree	1.0

3. Results

3.1 Demographics

Four-fifths of the participants were female (Table 1) with 1% of participants not specifying a gender. Over nine out of ten participants were under the age of 25 with only one-in-fifteen over the age of 30 (Table 1). Regarding ethnicity, nine of ten were white (Hispanic or non-Hispanic), 1 in-35 were Black or African American and 1-in-35 again were Middle Eastern or multiple races.

This item was not answered by 1.9% of participants. Regarding highest level of formal education, 21% had high school diplomas, or the equivalent, 53% had some college credit outside of nursing with no degree, 9% had an Associate's degree, 14% had a bachelor's degree outside of nursing, and 1% had a doctorate in a major other than nursing. None of the participants reported that they had a trade/technical/vocational degree.

3.2   Distribution and Normality of the Resilience Scale

The distribution of the CDRS scores was not parametric as shown in Figs. 1 and 2. The skew was -0.95 and the kurtosis was 2.28. The Shapiro-Wilk normality test had a p-value of 0.0002 which indicates that the distribution could not be considered to be a normal distribution. Therefore, only non-parametric statistical analyses were used.

3.3 Resilience Scores

Fig. 1 shows the distribution of the pretest resilience scores where the y-axis shows the number of participants and the x-axis shows the resilience scores. Most of the scores were between 65 and 80, with two scores below 40, which were considered outliers but included in all data analysis. The median score for the pretest was 76.0, with an interquartile range of 11.3.   Fig. 2 displays the posttest resilience results. Most of the scores were between 70 and 100, which is higher than in the pretest shown in Fig. 1. Only one outlier score was below 40. The median for the posttest scores was 82.0, with an interquartile range of 16.0. The median score of the posttest was 6 points higher than the pretest and moreover, the interquartile range of the posttest was 42% wider than the pretest.

To test our hypothesis that the educational intervention would result in higher posttest scores, a Kruskal-Wallis one-way analysis of variance was calculated. The difference between

pretest and posttest scores was statistically significant at $p < 0.01$ (N=104).   The effect size was calculated and assessed using Cohen's criterion (Cohen, 1988). Since the distribution of the resilience scores was not parametric, the effect size was calculated by dividing *W* of the Wilcoxon rank sum test by *S*, the sum of all numbers in the sample in a series. The resulting effect size was *r* = 0.72 (Cohen's *d* = 2.08). By Cohen's criteria, this effect size is considered very large. This shows that self-care educational intervention based on the recommendations of Blum (2014) had a large effect on the resilience scores of participants; our main research hypothesis was thus true.

3.4   *Participant Evaluation of Education Intervention*

Five out of six participants (86%) responded "Yes" to the question of whether the presentation helped increase their awareness of the importance and methods of self-care. Only 6% responded "No," and 11% responded "Maybe" (Table 2). The fact that 15 times as many participants said "Yes" than "No" independently confirms the strong effect size measured on the resilience scale, validating the usefulness and effectiveness of this education method (Blum 2014).

The most likely self-care methods that participants *expected to use* were sleep (77%), spend time outside (69%), hydration (68%), plan a self-care day (62%), nutrition (54%), and stretching/yoga (51%). Fewer people chose deep breathing (43%), journaling (15%), progressive muscle relaxation (14%), and grounding (14%) as methods they were most likely to use. The self-care methods that participants were *least likely to use* were journaling, which stood out in having by far the highest percentage (64%) than other methods. The second or third choices were progressive muscle relaxation (18%), grounding (14%).   The remaining were stretching/yoga (11%), deep breathing (9%), feed yourself (7%), plan a self-care day (6%), sleep (4%), spend time

outside (3%), and hydrate (2%). The conclusion drawn from these expectations is that the topic of journaling can be omitted in future versions of the educational program.

A key question is whether professional help such as psychotherapy would be sought if needed. The results show that only 19% of participants were not likely at all to seek professional help if overwhelmed or emotionally distressed by experiences on the job, 53% were somewhat likely to seek professional help, and 29% were very likely to seek professional help. Combining the last two categories, 81% of participants were inclined to seek professional help when needed. The fact that 4 out of 5 participants would likely seek professional help is considered to be high proportion, which offers some reassurance that the participants understood the seriousness of job-related distress and burnout.

3.5   Qualitative Results

Thirty-three participants provided their thoughts qualitatively about self-care and resilience. Most of the participants' stated that self-care is important or more important than they heretofore realized. Several responses concerned barriers to self-care. One participant stated that "nutrition and exercise is really hard to fit into our schedules because if you're working,   you're too tired." Another participant wrote, "Throughout nursing school, sometimes you have no choice but to be stressed/burnt out." Finally, a participant stated that "Nursing school makes having time to visit free counselors on campus nearly impossible." The conclusion drawn from the qualitative data is that the importance of resilience and self-care is better appreciated after the training session but that time constraints may be the predominant barrier to finding opportunities for taking care of oneself.

4. Discussion

4.1   Synposis

The result of this study supports the main hypothesis that posttest resilience scores would be higher than pretest scores. The educational intervention had a *strong* beneficial effect on resilience scores (effect size of $r = 72\%$). The intervention was judged by the participants to be effective because six-in-seven responded that the presentation increased their motivation and capabilities for self-care, especially in the areas of sleep, spending time outside, hydrating, nutrition, and physical stretching exercises. Journaling was the only method that was less likely to be used than to be used. Four-fifths of participants stated that they would seek psychotherapeutic help.   The overall finding is that an intensive 30 min. session on a panorama of self-care methods based on the program of Blum (2014) improves resilience and consequently would be expected to diminish the risk of stress, burnout, depression, and related problems.

4.2   Relation to Previous Studies on Resilience Levels

Previous studies have not been in full agreement regarding general resilience levels in practicing nurses or nursing students. The present findings are however generally consistent with most of the previous studies. This study agrees with the findings of Lekan and others (2018) who studied resilience in baccalaureate nursing participants.   Our pretest resilience scores are similar to those of Lekan's group. The mean score in their sample was 73. Our median score was 76 (before the intervention) so the measure of central tendency was nearly the same in the two studies.

Our pretest resilience scores were somewhat higher than those found by Bonamer and Aquino-Russell (2019) who studied the effects of transcendental meditation on resilience and compassion fatigue. Bonamer and Aquino-Russell measured a mean pretest score of 70.4,

meanwhile we measured a median pretest score of 76, which is slightly higher. One reason for this difference could be sample differences. Participants in this study were primarily young nursing students whereas participants in Bonamer and Aquino-Russell's study were experienced working nurses.

The findings from this study are also in rough agreement with Chesak and others (2015). The mean pre-intervention resilience score in Chesak and others' study was 79.7, which is slightly higher than our median pretest score of 76. Magtibay and others (2017) used only two key items from the CDRS in their study on the effects of the SMART resilience training program on nurses. The pre-intervention mean resilience score was 77.5, which is very similar to the scores in the present study.   To sum up, our findings confirm most but not all previous assessments of nursing student resilience.

4.3   Relation to Previous Studies on Intervention Effectiveness

The program effect on reliance had some similarities to those of Magtibay and others (2017) who tested the effects of the SMART resilience training program. The SMART program is an online program consisting 12 modules completed over the course of 24 weeks. A total of 50 participants were tested for resilience by the same pre-posttest measure used in this study. At the end of the training program, average CDRS scores increased in Magtibay's study with a calculated effect size of $r = 21\%$ (Cohen's $d = .43$). This was markedly lower than the effect size of $r = 72\%$ found for the education intervention used in this study.

The present study also agrees with Bonamer and Aquino-Russel's findings who found that a self-care intervention, consisting of four 90-120-minute meditation training sessions, lifted CDRS scores. The calculated effect size was $r = 39\%$ (Cohen's $d = .85$; $N = 20$). Bonamer and

Aquino-Russel's study effect size was higher than that in Magtibay's study but lower than the present study.

The findings in the present study disagree with the findings of Chesak (2015), who found that implementing the SMART resilience training program (described above) in a sample of 19 new nurses and 20 controls did not result in a statistically significant increase in Connor-Davidson resilience scores ($p > 0.05$). The scores for the education intervention group were nearly the identical on the pre- and posttests (calculated effect size of $r = 3\%$; Cohen's $d = .0056$). Although reasons for this disagreement cannot be precisely determined at this stage, possible explanations for the discrepancy could be: (1) Tthe participants in Chesak (2015) were newly graduated nurses who were transitioning from school to work life. The transition from a nursing student to a practicing nurse is likely more stressful than being a nurse participant. Therefore, the SMART training program may have been an added stressor for these participants going through this transition that prevented a focus on the material presented. (2) The possibility that the delivery of the education intervention was online in Chesak (2015) and in-person for Bonamer and Aquino-Russel (2019) and this study. It is worth noting that both studies using in-person education sessions had higher effect sizes than the online sessions in Chesak's study. (3) Chesak (2015) also had a smaller sample size than the other study that tested the SMART educational intervention (Bonamer and Aquino-Russel, 2019). The treatment group was less than one-fifth of the sample size in this study. Any of these differences could potentially be the explanation for the discrepancy in the effectiveness that was found between these three studies.

One method of resolving the differences is to combine the findings of all available studies using meta-analysis. The combined effect sizes of Chesak's, Bonamer's, Magtibay's, and present this study were calculated using weighting for the sample size. The overall effect size was $r = 0.39$

(Cohen's $d = 1.05$) and the overall effect was statistically significant at $p < 0.05$. By Cohen's criterion (Cohen, 1988), this is a medium effect size. Consequently, over all the studies, educational intervention methods appear to be moderately effective in improving resilience.

Based on the comparison of our findings to that of others, we recommend the Blum approach as being more effective than the SMART approach. The modified Blum approach used in the present study has the additional advantange of being shorter, more intensive, training session than any other. This has the benefits of efficiency and economy.

4.4 Theoretical Implications

Our findings and a multistudy meta-analysis provide additional validation for the fundamental contention that *resilience skills can be improved by didactic education in self-care* (Mills, Wand, and Fraser, 2014; McElligot, Thomas, and Kohn, 2009; McAllister and McKinnon, 2009; Thomas and Revell, 2016; Smith and Yang, 2017; Vidal-Blanco et. al., 2018; Lopez et. al., 2018; Liang et. al., 2019; Clear et. al., 2018).

Furthermore, our findings fully support the argument of Crane and Ward (2016) that repeated high volume training should not be the only option to enhance nurses' resilience because theoretically, they argued, these skills should be learnable in a short period of time. Our 30-minute education session based on the course outline of Blum (2014) appears to be very effective in increasing resilience skills by all available measures, supporting the theory of Crane and Ward (2016). If longer term, repeated training in self-care and resilience is not feasible for any reason, the present 30-minute session based on Blum (2014) can now be recommended for implementation to nursing schools with a few caveats explained below. Hopefully, this would help prepare the students for the likelihood that they will have responsibility for patient care in overload, overtime, and high

stress conditions, conditions that have been proposed to be responsible for the high rates of nurse suicide (Davidson et. al., 2019).

4.5   Limitations

This study had several strengths and limitations that need to be kept in mind when considering the conclusions. The effect size was 72%, which is very strong by Cohen's criteria. Additionally, our measurement quality was exceptional. The internal validity of our study is high because the posttest was conducted immediately after the intervention and there were no other causes for higher resilience scores after the self-care education. Only one person from our research team administered the questionnaire and delivered the educational intervention. It is possible that if a different person delivered it, the results would change. Our study also has moderate external validity. Our sample size was very good, but our study was limited because it was conducted at one university with only traditional nursing participants in the undergraduate program. If the study were conducted at another university's nursing program or in a hospital setting, and similar results were found, the findings would be more generalizable.

5. Conclusion

Our research supports implementing self-care education into nursing programs to increase resilience to burnout, depression, or suicide. Our self-care intervention based on 30-minute version of the Blum (2014) academic course had a very strong effect on CDRS scores. This result validates the theoretical contention of Crane and Ward (2016) that self-care skills can be learned and implemented in a short period of time, without the necessity of a complete course or weeks long sequence of modules. The ramifications are that the education method used in this study has the

potential to improve employee retention for hospitals and mitigate staff shortages due to a healthier and less stressed nurse population.

6. Recommendations

We recommend that the present education method be applied in other settings and but with the caveat that it be simultaneously tested for efficacy with the CDRS to provide evidence for generalizability to the different setting. The primary advantage of this method over the SMART method is that it requires less time to have a similar effect so it is more efficient. The session material on the topic of journaling can and should be omitted. We also recommend applying and testing the present method more widely to student nurses, new nurses, experienced nurses, and other healthcare professionals. Nurses need to be equipped to handle any stress that comes their way. A large amount of evidence now indicates that boosting resilience at the earliest opportunity is a good way to fortify and empower nurses against burnout, depression, and consequently, suicide.

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Tables

Table 1. *Demographics*

Demographic Characteristic	Proportion (%)
Gender	
Male	17.3
Female	79.8
Not specified	1.0
Age group	
Under 21	2.9
21-25	90.2
25-30	4.9
31-35	0
36-40	1.0
Over 40	0
Not specified	1.0
Ethnicity	
White	88.5
Black or African American	2.9
American Indian or Alaska native	0
Asian	0
Native Hawaiian or other Pacific Islander	0
Multiple races	1.9
Other	1.0

Not specified	1.9

Education

High school graduate, diploma, or equivalent	21.2
Some college credit, no degree	52.9
Trade/Technical/Vocational degree	0
Associate degree	8.7
Bachelor's degree	13.5
Master's degree	0
Professional degree	0
Doctorate degree	1.0

Table 2. *Evaluation*

Evaluation Item	Proportion (%)
Awareness	
Yes	85.6%
No	0.05%
Maybe	0.11%
Self-care methods: most likely	
Journaling	15.4%
Deep breathing	43.3%
Progressive Muscle Relaxation	14.4%
Stretching/yoga	51.0%
Grounding	14.4%
Feed yourself	53.8%
Hydrate	68.3%
Sleep	76.9%
Spend time outside	69.2%
Plan a self-care day	62.5%
Self-care methods: least likely	
Journaling	63.5%
Deep breathing	8.7%
Progressive Muscle Relaxation	18.3%
Stretching/yoga	10.6%
Grounding	14.4%

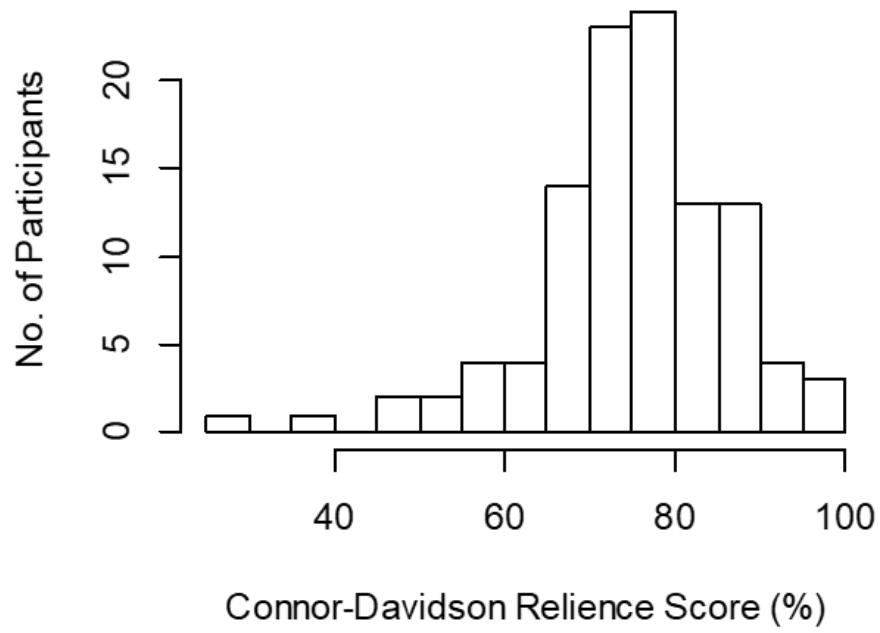|	
Feed yourself	6.7%
Hydrate	1.9%
Sleep	3.8%
Spend time outside	2.9%
Plan a self-care day	5.8%
Would seek professional help?	
Not likely at all	19.2%
Somewhat likely	52.9%
Very likely	28.9%

Figures

Fig. 1 Distribution of Pretest Connor-Davidson Resilience Scores in 104 Participants
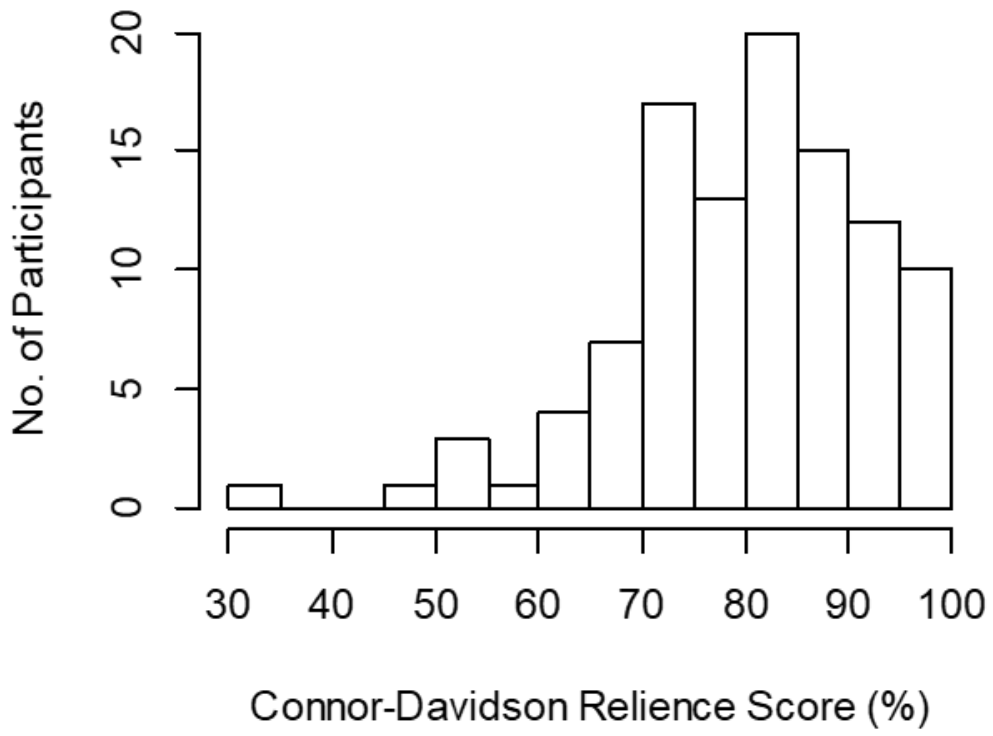
Fig. 2 Distribution of Posttest Connor-Davidson Resilience Scores in 104 Participants