

# Building Resilience in Nursing Students: Implementing Techniques to Foster Success

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**ABSTRACT: Introduction:** Nursing programs often experience attrition due to the rigor of their curriculum. Resilience is a key tool for success with any venture in a person's life. Building resiliency in nursing students may improve program completion. Educating students regarding the concepts of self-efficacy and self-regulation, and having them complete exercises using these techniques, can pave the way to student success. **Method:** A cohort of 40 baccalaureate nursing students completed a 13 week pilot study completing interventions designed to increase resiliency. A pre-test/post-test design was used for data collection. **Results:** Data analysis revealed an overall increase in resiliency scores. **Conclusion:** Further duplication of this study should include a longitudinal study over multiple cohorts of nursing students. Students and educators benefit from engaging in techniques aimed at improving self-efficacy and self-regulation. The findings of this study support interventions aimed at building resiliency in nursing students.

**Keywords:** Resilience, nursing, nursing students, educators

## INTRODUCTION

### Purpose and Significance of the Problem

Educators are finding themselves at an impasse; struggling to provide solutions for student attrition both school-wide and in their specialized major of study. Nursing students are not exempt from this phenomenon and have additional stressors due to the rigor of their programs. Cultural adaptation, culture shock, clinical requirements, and method of testing impact program completion. Resilience is a key tool for success with any venture in a person's life. Building resiliency in nursing students benefits students in program completion and as they enter practice as a licensed clinician. Educating students regarding the concepts of self-efficacy and self-regulation, and having them complete exercises using these techniques, can pave the way to student success.

## BACKGROUND

### Factors Affecting Future Nursing Practice

Researchers from all areas of healthcare practice and institutes of higher education are setting their sights on the present and future nursing shortage which is inevitably in our foreseeable future. The Bureau of Labor Statistics reported registered nurses (RNs) were among the top occupations in terms of growth through 2022 (Bureau of Labor Statistics, 2013). As a nation we face a more daunting future in terms of supply and demand of available nurses to fill open positions. The "United States Nurse Workforce Report Card and Shortage Forecast" projects a shortage of nurses across the United States between 2009 and 2030, with the hardest hit areas being the South and West (Jurascheck, Zhang, Ranganathan & Lin, 2012). As a practitioner and educator, another concerning factor is the level of education our future nurses will be required to obtain as means to uphold quality of care for their clients. The Robert Wood Johnson Foundation, in partnership with the Institute of Medicine (IOM), published a report in 2010 which indicated to maintain quality and safety for clients the entry level of education for nurses should be

at the baccalaureate level. The goal number set for baccalaureate-prepared nurses in practice is 80%; the reality is only near 55% of the current workforce holds a baccalaureate degree in nursing (Rosseter, 2014).

A question healthcare consumers should ask is why worry whether nurses obtain a baccalaureate degree? Research shows baccalaureate-prepared nurses improve the quality and safety of care delivered to their clients. A study of cardiac clients in the Intensive Care Unit (ICU), both in Europe and the United States, reported data indicating 4.9 fewer deaths occurred per 10,000 clients as a result of the ICU being staffed with "a higher percentage of nurses with bachelor's degrees" (Heede et al., 2009). Aiken et al. indicated a link between higher levels of nursing education and client outcomes, stating a 10% increase in the proportion of nurses holding BSN degrees decrease the risk of patient death within 30 days of admission and the odds of failure to rescue by 5% (Aiken et al., 2003). If research promotes increasing the numbers of baccalaureate nurses at the bedside, then why is the healthcare industry at risk of not meeting their goals? The answer is multifaceted, but fingers point towards a couple reasons: 1) dwindling applicants to baccalaureate programs and 2) attrition from these programs. The traditional 4-year nursing degree can be intimidating leading students to veer away from nursing or pursue a 2-year associate degree. Further complicating decreased enrollment is the overall number of baccalaureate programs. The National League for Nurses (NLN) reported of 1,869 nursing programs in the United States, 710 baccalaureate, 1,092 associate, and 67 diploma programs (National League for Nursing, 2014). This represents a major challenge to undergraduate baccalaureate programs.

The next problem faced is attrition. Attrition continues to plague most institutions of higher education. Nursing students are not immune, and may be at higher risk than other programs of study due to a unique set of circumstances surrounding their degree. Students enrolled full-time in a traditional 4-year baccalaureate nursing program encounter multiple stressors which differ from previous encountered stressors during general education courses. To start, the level of rigor increases, students are exposed to uncomfortable and unfamiliar human experiences during clinical, heavy course loads, standardized testing, and balancing personal, social, and academic demands. Many students find themselves near failure in the first

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semester of the program, unable to return or forced to sit out of courses until the next year.

It is not to say attrition can be viewed only in a negative context. In some instances attrition may be the logical or appropriate strategy for a student to employ. Lew Sandborne offers an alternative view of attrition stating, "Some students may enter higher education unprepared, at the wrong time of their lives, or find institutional programs of study may not suite their educational pursuits" (Sandborne, 2012). This concept is echoed in the "white papers" on student attrition regarding how difficult it is to estimate attrition because many times students do not reveal the true reason for leaving a program of study or institution (Ascend Learning, 2012). Heilbronner remark, if a program of study or institution does not meet the need of the student, whether it be in pursuit of greater academic challenges or for an institution offering more specialized academic majors, the focus should be on matching the student with the correct institution, not focusing on the loss of revenue (Heilbronner, Connell, Dobyns & Reis, 2010). These examples provided shine light on the flipside of attrition. While attrition presents a barrier to advancing the number of practicing nurses in our workforces it would best serve students to attend nursing programs when they are at an advantage for success rather than failure.

A new stressor encountered often is incivility; in the classroom, in clinical, and outside the academic environment. Exposure to high levels of incivility may influence students negatively leading to academic failure, dismissal, or choosing to voluntarily leave their program of study. Combine these stressors with the student from a disadvantaged background or the marginal student barely making the grade; it's no wonder why students are at high risk for failure in a nursing program. The NLN published a report of one-year retention status of full-time undergraduate nursing students: As a whole, one-year retention for baccalaureate nursing programs is near 90%, yet in 4-year institutions the retention is only 75% (National League for Nursing, 2007). Building resiliency in nursing students is one way to combat the negative stress experienced and improve outcomes of program completion, limiting the number of students lost to attrition and producing clinicians the healthcare industry desperately needs.

## Review of Current Evidence Supporting Building Resilience

Resilience has a number of definitions and has been cited by many researchers as a key trait in mental health and wellness. Merriam Webster provides a few definitions of the term resilience: 1) the ability to become strong, healthy, or successful again after something bad happens, and 2) the ability of something to return to its original shape after it has been pulled, stretched, pressed, bent, etc. (Webster, 2016). Some can agree nursing school may be "the bad thing" that happens, and certainly nursing requires someone to be pulled, stretched, and event bent out of shape. If these situations occur during the course of study and in practice, then why would building resiliency in students not be a good idea?

In order to understand *how* to build resiliency first we have to understand the constructs of resiliency. In a concept analysis examining resiliency, Gillespie et al. listed self-efficacy as one of the defining attributes of resiliency; this is consistent with 2 of the 7 elements Sullivan et al. listed to increase resilience, self-efficacy and self-regulation (Gillespie, Chaboyer & Wallis, 2007; Sullivan, et al., 2012) Self-efficacy is a concept introduced by Albert Bandura and continues to be a driving force behind the concept of human motivation, success and resiliency. Self-efficacy is a multifaceted concept centering on one's own ability to believe they are in control of outcomes; that a person believes they can be successful at a task and perceives they have tools necessary to do so. Resilience arises out of a belief in one's own self-efficacy, the ability to deal with change and the use of a repertoire of social problem-solving

skills (12). A study by Pines et al. demonstrated resilient students recognize their success depends on internal resources (competence, abilities) rather than external forces (Reyes, Andrusyszyn, Iwasiw & Forchuck, 2015).

The next attribute, self-regulation, is another important component of resiliency. Self-regulation is the ability to switch from a state of excitement or hyperarousal to a state of calm. This transition is accomplished through learned relaxation techniques which may include mindfulness, meditation, aromatherapy, and guided imagery. Mindfulness is a self-regulation technique requiring an individual to focus internally, being aware of their feelings and intentions, but also aware of what is happening in their immediate surroundings. In practicing this exercise one learns to control thoughts and emotions related to anxiety. Mindfulness applies to self-regulation in a person's ability to focus and remain collected in a stress-filled environment. Self-regulation contributes to building resiliency in a person's ability to control emotions and actions when under pressure. Social Cognitive theorists include the concept of self-regulation in regards to efficacy and emotional regulation. According to Bandura, "If human behavior were regulated solely by external outcomes, people would behave like weathervanes...In actuality, people possess self-reflective and self-reactive capabilities that enable them to exercise some control over thoughts, feelings, motivation, and action" (Bandura, 1991). Education in techniques promoting self-regulation may make a positive contribution in building resiliency of nursing students.

After researching attributes of resilience, this author decided to create a pilot study aimed at interventions to build resiliency in nursing students. Interventions were selected to demonstrate the techniques of self-efficacy and self-regulation. The following section provides a brief outline of this initial study.

## METHOD

### Design

The research protocol is written as a pilot study intended to provide results of an exploratory nature. The initial intent was to complete a longitudinal study however it was discovered time and sample size would be inadequate potentially complicating the study and impacting generalizability. A pre-test/post-test design was selected using paper and pencil instruments, qualitative questionnaires, and a brief demographic survey. Four tools were selected for both pre and post-testing: 1) Resilience Scale (RS), 2) General Self-efficacy Scale (GSE), 3) Philadelphia Mindfulness Scale (PHLMS), and 4) Perceived Stress Scale (PSS). A brief demographic survey and pre-test qualitative questionnaire served to test baseline knowledge of the term "resilience" and gain basic demographic data of the cohort. The post-test qualitative questionnaire sought to answer specific questions related to interventions implemented during the study.

### Participants

Participants of the pilot study consisted of second-term, first-year, students enrolled in a baccalaureate nursing program in a Southeastern city in the United States. Convenience sampling was used as the method for participant selection. All students enrolled in the Mental Health (MH) Nursing course (N = 40) were given the opportunity to participate in the study. During the second week of class nursing students were addressed by the primary researcher (this author) and briefed on the study. In the same classroom session students were recruited via sealed envelope method. One envelope contained the consent form and a number assigned at random while the second envelope contained the pre-test tools, questionnaire, and demographic survey. All students (N = 40) signed consent to participate. Over the remaining 13 weeks students participated in various resiliency building activities. At post-testing 39 students completed the forms.

## Procedure

After completing consent and pre-test tools students were introduced to a variety of techniques building on self-efficacy and self-regulation. The following interventions were implemented over 13 weeks: Focused guided meditation, a mindfulness walk, the “shadow person” exercise, aromatherapy, super hero poses, reflective journaling (clinical component), positive affirmations, and progressive muscle relaxation. As a group interventions were introduced to the participants; first providing the rationale for implementation, then instruction on how to complete the activity. All interventions were implemented in the classroom with the exception of the mindfulness walk, which was completed outdoors on campus, and reflective journaling completed in the clinical setting. Students were encouraged to practice techniques learned outside the classroom environment throughout the term. Most interventions took place a week prior to exams, when the class needed a “break” from lecture, or as it applied to didactic content. After completing their final exams students filled out the post-test tools and qualitative questionnaire.

## Instruments

For all quantitative data, mean scores were generated for overall scores and individual questions on each evaluative tool. The effect of interventions for this study was evaluated comparing pre and post-test scores on the RS, GSE, PHLMS, and the PSS. The two measurement tools of focus were the RS and the GSE.

### Resilience Scale (RS)

The RS contains twenty-five items and is scored on a seven-point Likert scale with one indicating *disagree* to 7 indicating *agree*. Internal consistency reported from the initial pilot study of thirty-nine nursing students yielded a reliability coefficient of 0.89 (Wagnild & Young, 1993). Since pilot testing internal consistency is reported between 0.76 - 0.91 (Wagnild & Young, 1993). Test-retest reliability correlations range between 0.67 - 0.84 ( $p < .01$ ).

### General Self-efficacy Scale (GSE)

The GSE measures perceived coping amongst daily stressors as well as the ability to cope with life events. The 10-item questionnaire is graded on a five-point Likert scale with one representing not true at all and 4 representing exactly true. Reliability is reported as a Cronbach's alpha = 0.76 - 0.90.

### Philadelphia Mindfulness Scale (PHLMS)

The PHLMS is a twenty-item questionnaire using a five-point Likert scale. Scores range from one (never) to five (very often) measuring mindfulness based on two subscales; awareness and acceptance. Internal consistency for the awareness scale is reported as a Cronbach's alpha = 0.81 and 0.85 for the acceptance scale during initial psychometric testing. No specific validity testing was reported.

### Perceived Stress Scale (PSS)

The PSS measures an individual's perceived level of discomfort present in events one interprets as “stressful.” The tool consists of ten items and is scored on a five-point Likert scale ranging from zero (never) to four (very often). Roberti, Harrington and Storch tested the psychometric properties of the PSS-10 reporting a Cronbach's alpha reliability of 0.89 (Roberti, Harrington & Storch, 1993). The reported alpha coefficient was 0.80.

## Ethics

Institutional Review Board approval was granted prior to the start of the project by the college where the primary researcher works as an assistant professor of nursing.

## RESULTS

### Resilience Scale (RS)

Pre-test scoring on the RS revealed an overall mean score of 132.89 out of 175 possible points. Post-test scoring was calculated as mean total score of 143.15. The difference is an increase of 10.63 points from the start of the study to the end following implementation of interventions. The class as a whole demonstrated a 74.36% (29/39 students) increase in scores with an average increase of 17.1 points per individual score.

### General Self-efficacy Scale (GSE)

Pre-test scoring of the GSE revealed an overall mean score of 29.5 out of a max score of 40 points. Post-test scores increased by 2.04 points overall to a mean score of 31.54. While overall post-test scores did not increase as much as the RS, 82.05% (32/39) of the class improved their individual scores by a mean score of 3.65 points from pre-test scores on the GSE.

### Philadelphia Mindfulness Scale (PHLMS)

Pre-test scores on the PHLMS were better than post-test results. Scores decreased overall from a mean score of 73.07 out of 100 points to a mean score of 72.8 (a decrease of 0.2 points). Unfortunately 59% (23/39) of the class reported decreased individual mindfulness scores following interventions, with an average drop of 8.13 points per student.

### Perceived Stress Scale (PSS)

Scores on the PSS decreased with post-testing. A mean of score of 22.38 was calculated after interventions compared to a pre-test mean of 24 points out of a total possible 40 points. This represented an overall drop of 1.62 points between total mean scores. Individually 69.2% (27/39) of students reported a decrease in individual perceived stress by 4.03 points.

## Demographic Survey

The average age of students in the class was 25.51 years of age. Male students comprised the minority of gender in the class at 10% (4/40) while females represent the majority gender at 90% (36/40). In regards to race 82.5% of the class identified themselves as white, 12.5% as black, and 5% as Asian; 95% of the class identified as Non-Hispanic and 2.5% as Hispanic. When students were asked to rate their daily stress level on a scale from 0-10 (0 being no-stress and 10 being most-stressed) a mean score of 6.89 was calculated. Eleven of the forty students (27.5%) reported no daily interventions used to combat stress. Interestingly enough these individuals reported higher scores on their daily stress level.

## Post-Test Questionnaire

The goal of this tool was to determine if students perceived they benefited from interventions and if any were used outside the classroom. Results indicated 76.92% (30/39) of students felt the implemented techniques were useful and 64.1% (25/39) used them outside the classroom setting throughout the term, for a variety of reasons. The most popular interventions included progressive muscle relaxation, focused guided meditation, mindfulness outdoor activity, positive affirmations, and aromatherapy (Tables 1 and 2).

## DISCUSSION

These findings represent a small fraction of data to be collected regarding the benefits of techniques aimed at increasing resilience in nursing students. This pilot study is the spring board for planning a larger-scale longitudinal study. Results, while not generalizable,

**Table 1.**  
Pre-test and post-test comparison mean values of evaluation tools

Pre-test Scoring (n = 40)		Post-test Scoring (n = 39)	
RS	M = 138.88	RS	M = 143.51 (↑ mean score of 10.63 points)
GSE	M = 29.5	GSE	M = 31.54 (↑ mean score of 20.4 points)
PHLMS	M = 73.10	PHLMS	M = 72.8 (↓ mean score of 0.21 points)
PSS	M = 24	PSS	M = 22.38 (↓ mean score of 1.62 points )

**Table 2.**  
Comparison of pre-test and post-test qualitative questionnaires

Pre-test Scoring (n = 40)		Post-test Scoring (n = 39)	
Daily Level of stress: 0-10 Likert Scale	M = 6.825 Average individual score = 7/10	Techniques used throughout the term?	Y = 76.92% (30/39) N = 30% (9/30)
Method of stress relief prior to study?	Y = 72.5% (29/40) N = 27.5% (11/40)	Techniques used outside study modules?	Y = 64.1% (25/39) N = 35.8% (14/39)

indicate efficacy in continued implementation of techniques specific to building resiliency. During the 13 weeks of interventions only one student was lost to attrition, making the post-test student total 39 (n = 39). Overall there was a positive response to all the techniques implemented. Each intervention was selected to reflect certain aspects of self-efficacy and self-regulation. In regards to self-regulation many of the activities focused on traits to improve mindfulness.

Techniques specific to self-efficacy included super hero poses, positive affirmations, and reflective journaling about positive and negative experiences during their MH clinical rotation. When analyzing post-test responses on the qualitative questionnaire it appears as if positive affirmations and reflective journaling were more popular with the class and were carried on outside the classroom. One student responded, “Before every exam I would use my favorite affirmation and say, ‘Lemonade is my favorite drink’”. The aim of reflective journaling was to pick one positive and one negative clinical experience for the week. While the positive experience was important to efficacy building, students were required to provide a solution to the negative experience. In alignment with Social Cognitive theorists, people may gain efficacy through failure if they are able to learn from the mistake and willing to try again. Through self-analysis and problem-solving the student is encouraged to believe they can change the outcome should a similar situation arise again, therefore building positive self-efficacy beliefs. Bandura (1977) hypothesized a student’s belief about their efficacy to manage academic task demands can also influence them emotionally by decreasing stress, anxiety, and depression (Bandura, 1997). This statement is congruent with the study’s overall goal of building resiliency. It appears based on post-test GSE scores the techniques implemented did contribute to overall improvement of self-efficacy beliefs. When faculty encourages the use of efficacy-building techniques students are afforded the opportunity to build resilience to failure and lay a path for the future where adversity is met with optimism instead of self-doubt.

Techniques specific to self-regulation included focused guided meditation, a mindfulness walk, your “shadow person” aromatherapy, and progressive muscle relaxation. Based on responses from the post-test qualitative questionnaire students enjoyed meditation, mindfulness, and progressive muscle relaxation. The intention behind including self-regulatory behaviors in the study was aimed at decreasing academic and everyday stress, as well as challenging students to explore surroundings using their other senses rather than sight alone. These three interventions were mentioned the most to be carried over outside the classroom. Students reported, “I could use these anywhere!”, “when trying to de-stress before an exam”, and “when I was at the gym or at work”. One student reported, “I used some of the relaxation techniques after being in a minor car accident”. Post-test scores on the PSS decreased, although minimal, and may be attributed to student report of using meditation and progressive relaxation outside the classroom.

Mindfulness seems to be the most popular technique implemented which is surprising considering post-test scoring decreased on the PHLMS. The aim of including the outdoor mindfulness exercise was to stimulate the use of the students’ *other senses* to recognize change in their surroundings. Students “looked around” their environment then were instructed to close their eyes and focus on an intention. After several minutes students were then encouraged to explore their environment with eyes closed while still concentrating on their intention. While short-term goals associated with this exercise aims at aiding students to manage daily and academic stress, the overarching goal is to prepare students for a clinical environment in which they must rely on more than sight alone to deliver safe and effective client care.

## RECOMMENDATIONS

### Limitations

Areas identified as limitations for this pilot study include: 1) sample size, 2) time constraints to implement interventions, 3) the number of interventions implemented, and 4) blinding of study participants. Due to the nature of design and intention to be implemented as a pilot study sample size may not necessarily be considered a limitation; however since results are not generalizable sample size should be taken into account. In future planning of a longitudinal study the primary investigator will initiate interventions during the nursing student’s first semester and continue to record individual and cohort data as students’ progress throughout the curriculum. The study will be replicated and implemented to include three to four cohorts. This process should increase the generalizability of findings.

The time available to implement techniques was not desirable. Didactic time was very short leading interventions to be “sandwiched” in between or at the very end of content delivery. During post-test data analysis it was discovered only certain interventions were considered “useful” to the students. In future planning it may be necessary to limit the number of interventions, which in return may allow for a more thorough delivery of techniques.

The final limitation was the method used to blind the primary investigator to student participation. Each student received a number (at random) via sealed envelope at pre-testing. Students were instructed to remember this number by whatever means was best (write it down, keep it with course materials, take a picture, etc.). Students were reminded on several occasions to begin finding their number prior to post-testing; however this did not spur all students to find their numbers. Upon analysis of post-tests it was clear some students had forgotten their numbers. It was required by the investigator to compare the pre-test demographic questionnaire to the post-test questionnaire to match handwriting. Upon duplication another method to help students retain numbers must be implemented or the primary investigator should be un-blinded to student participation.

## Future Implications for Practice

From an investigator's view this study was a learning experience providing valuable outcomes which will be used to replicate further studies. It appears as if students do value the implemented techniques and many reported their use outside the classroom setting. Improvement in both GSE and RS scores lead this investigator to believe the study achieved the goal of improving resiliency in this cohort of nursing students. However, the continued effect on this cohort and future cohorts should be the area of focus when planning a longitudinal study.

It is no surprise interventions aimed at self-efficacy and self-regulation have the ability to set students up for success in a nursing program. Many students enter programs not realizing the rigor and expectations expected of them leading to burnout and fatigue. As educators it is imperative to guide students down the path of success persevering through roadblocks we encounter along the way. In understanding the important role resiliency plays in navigating the way down life's path; the same concept can be applied to student progression through a nursing curriculum. As within any healthcare population treatment must be individualized to meet client needs. Following the same line of thought, no two students are created equal. Some come from backgrounds where needs were met, support was offered, and coping mechanisms well developed; this may not be the same scenario as another individual from a disadvantaged background. Implementing techniques to foster resilience may help struggling students succeed by gaining insight in how to control emotions, combat stress, and increase efficacy beliefs that they have the power to be successful.

Much of what we say and how we portray ourselves in and out of the classroom sets the tone and conduct our students follow. Why not be the person they remember in the future after a code or disaster as the reason they were calm and collected amidst confusion and chaos? The work we do and time spent cultivating a positive learning environment for our students speaks volumes when we see them flourish as clinicians in their nursing practice. Replication of this type of study not only benefits students but helps the educator engage more meaningfully with their class. This primary investigator experimented with the implemented techniques prior to introducing the study and continues to use many as a method to further build personal resiliency.

## CONCLUSION

The overall tone of the pilot study was positive. Minus limitations the data collected will serve as a baseline to construct further studies on this topic. The use of quantitative and qualitative tools enabled this investigator to gain better insight as to how students benefitted from the techniques implemented. The majority of students seemed to benefit from the intervention which is consistent with a phenomenal increase of post-test scoring on the RS. In a field as progressive and dynamic as healthcare nurses are required to be knowledgeable and perform at high levels. They are required to remain focused on client care while coordinating services and navigating the communication channels within a multidisciplinary team. Building resiliency during nursing curriculum may not only combat attrition to improve the dream of a workforce comprised of 80% baccalaureate nurses, but produce practitioners that are insightful, optimistic, and in tune with the emotional needs of the clients they serve.

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