

# Interventional Strategies to Decrease Nursing Student Anxiety in the Clinical Learning Environment

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## ABSTRACT

The clinical setting is a significant learning environment for undergraduate nursing students. However, the learning that occurs in this environment presents challenges that may cause students to experience stress and anxiety. High levels of anxiety can affect students' clinical performance, presenting a clear threat to success in a clinical rotation. It is crucial for clinical nursing faculty to foster a supportive learning environment conducive to undergraduate nursing student learning. The purpose of this article is to provide clinical nursing faculty with the current literature related to humor, peer instructors and mentors, and mindfulness training as strategies to decrease undergraduate student nurse anxiety in the clinical setting. The Neuman Systems Model is used as a theoretical framework, and the application of this model to humor, peer instructors and mentors, and mindfulness training is examined.

The purpose of nursing education is to provide the necessary theoretical knowledge and clinical experience to facilitate and prepare undergraduate nursing students to develop into the professional nurse

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role. During this preparatory process, students at all educational levels within all kinds of undergraduate nursing programs (i.e., diploma, associate, baccalaureate) report high levels of stress and anxiety in the clinical learning environment (Carlson, Kotze, & van Rooyen, 2003; Cook, 2005; Elliott, 2002; Hayden-Miles, 2002; Sharif & Masoumi, 2005; Shipton, 2002). Beck and Srivastava (1991) conducted a descriptive correlational study and found that 94 second-year, third-year, and fourth-year undergraduate nursing students reported the clinical experience as the most stressful and anxiety provoking component of the undergraduate nursing program. These findings support those of Timmins and Kaliszer (2002); however, the sample used by these researchers comprised students in their third year of a diploma program.

Many qualitative studies within the past 5 years report a variety of factors contributing to stress and anxiety in undergraduate nursing students in the clinical learning environment. The most common factors include the first clinical experience, fear of making mistakes, performing clinical skills, faculty evaluation, lack of support by nursing personnel, and theory gap. *Theory gap* is the discrepancy between what is taught in the classroom and what is practiced in the clinical setting (Carlson et al., 2003; Sharif & Masoumi, 2005; Shipton, 2002; Sprengel & Job, 2004; Timmins & Kaliszer, 2002).

Clinical practice is the larger part of education among nursing students, given that the time spent in clinical versus in the classroom is generally three times greater (Locken & Norberg, 2005). It is crucial for clinical nursing faculty to be aware of the heightened sense of anxiety students may experience during clinical training. It is this heightened sense of anxiety that deserves attention and intervention so students can apply their knowledge skillfully in an environment that is supportive and conducive to learning, which will facilitate success and increase retention.

This article provides an overview of the use of humor, peer instructors and mentors, and mindfulness training to decrease stress and anxiety in undergraduate nursing students in the clinical learning environment. The Neuman Systems Model is used as a theoretical framework.

### STRESS AND ANXIETY

Definitions of stress and anxiety vary throughout the literature; however, this article uses the definitions of psychologists Lazarus and Folkman. Pioneers in stress theory and research since the 1960s, they provided a definition of stress that applies to the clinical stress undergraduate nursing students experience. Lazarus and Folkman (1984) defined stress as:

A particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being. (p. 19)

Clinical education provides the environment in which students encounter stress, which can be appraised as challenging or difficult to manage, causing anxiety.

Lazarus and Folkman (1984) defined anxiety as:

A vague, uncomfortable feeling exacerbated by prolonged stress and the presence of multiple stressors. (p. 4)

There are two states of anxiety: state and trait. *State anxiety*, as described by Spielberger (as cited in Kanji, White, & Ernst, 2006), is the emotional state of an individual in response to a particular situation or moment, which includes symptoms of apprehension, tension, and activation of the autonomic nervous system, and can include tremors, sweating, or increased heart rate and blood pressure. *Trait anxiety* is the tendency of an individual to respond to stress with state anxiety. For the purposes of this article, the term *anxiety* will be referred to in the state form because the focus is on students' anxiety in response to stressors, demands, or stressful situations within the clinical learning environment, not the tendency to respond with anxiety.

### RATIONALE AND SIGNIFICANCE TO NURSING

Undergraduate nursing student stress and anxiety is not a new phenomenon to nursing education. The literature reveals many empirical studies dating back to the early 1970s investigating stress and anxiety among undergraduate nursing students in the clinical learning environment. However, according to Shipton (2002), much of the research about how undergraduate nursing students can manage the stressful demands of clinical education is still unexplored, and little has been done by clinical nursing faculty to solve this problem.

The clinical learning environment has been and will continue to be a large part of nursing education. As the advances in health care and technology continue to grow, the clinical setting will become progressively more stressful. In addition, the characteristics of today's students differ dramatically. Currently, undergraduate nursing classes include more nontraditional students with diverse backgrounds. Nontraditional students are adults entering the college setting with work and life experiences frequently unrelated to the new career they have chosen. Nontraditional students generally balance work, home, and school responsibilities. These multiple responsibilities can generate stress and anxiety, making achievement in undergraduate nursing programs even more difficult (Stephens, 1992).

According to Hughes (2005), "Stress contributes to anxiety, which can in turn interfere with students' academic performance by leading to the development of poor coping skills" (p. 22). Beddoe and Murphy (2004) stated, "High stress and anxiety impede concentration, memory, and problem-solving ability, which in turn, adversely affect academic performance and learning" (p. 305). It is significant for clinical nursing faculty to be mindful of the anxiety students encounter in the clinical learning environment; however, it is even more crucial for faculty to observe and monitor the effects of anxiety on students' ability to perform in a satisfactory and safe manner. Anxiety is a normal occurrence for most undergraduate nursing students during clinical training; however, faculty must intervene when students experience symptoms of anxiety that begin to negatively affect clinical performance and evaluation.

Tanaka, Takehara, and Yamachi (2006) conducted a study of 53 undergraduate students enrolled in a computer class to investigate the link between achievement goals and task performance, as mediated by state anxiety arousal. The study analyzed three achievement goals: mastery (which helps students focus on the task at hand), performance-approach (which orients students to demonstrate ability), and performance-avoidance (which preoccupies students with the negative possibilities involved in performance). In the study, the students created a 5-minute class presentation using computer software. An achievement goal questionnaire was administered before the course, and state anxiety levels were measured using the State-Trait Anxiety Inventory immediately after the presentation. Results showed a strong correlation between performance-avoidance and state anxiety, which resulted in poor performance. The outcome of this study indicates that state anxiety can negatively affect task performance. It is crucial for clinical nursing faculty to be aware of the potential effects anxiety can have on

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### CONCEPTUAL FRAMEWORK

The Neuman Systems Model provides a framework for the significance of the exploration of interventional strategies to decrease stress and anxiety among undergraduate nursing students in the clinical learning environment. Fawcett (2000) said, "Neuman's work focuses on the wellness of the client system in relation to environmental stressors and reactions to stressors" (p. 195). Stress and stress reactions are central to this model, and the overall goal is to promote optimal wellness and system stability by preventing stress or by intervening to provide support (August-Brady, 2000). This model views nursing as primarily concerned with implementing appropriate actions in stress-related situations or in reactions of clients to stress (Fawcett, 2000). Implementing strategies to decrease high levels of stress and anxiety is a means of providing student support in the clinical learning environment; however, strategies can also be implemented by clinical nursing faculty as a method of prevention.

In the Neuman Systems Model, the concepts of the client-client system, interacting variables, central core, flexible line of defense, normal line of defense, and line of resistance represent the concept person. Neuman referred to the client system as an individual, family, or group and viewed each with two components—stress and reaction to stress. The client system is composed of interacting variables functioning in a state of wellness or illness. These variables encompass five dimensions: physiologic, psychological, sociocultural, spiritual, and developmental (Fawcett, 2000). The central core refers to basic survival factors common to an individual, such as normal temperature range, genetic structure, response patterns, and strengths and weaknesses of body organs (Fawcett, 2000). The flexible line of defense is a mechanism that prevents stress in the client system, keeping the system free from stress reactions. The flexible line of defense protects the normal line of defense, which is the client-client system's normal or usual wellness state as a result of adjustment to environmental stressors. The line of resistance is a mechanism that attempts to stabilize the client-client system and assists in the return to usual wellness following an environmental stressor reaction (Fawcett, 2000).

The individual perspective of the Neuman Systems Model applies to undergraduate nursing students experiencing stress and anxiety in the clinical learning environment. The clinical stress students experience invades the normal line of defense, and when students cannot manage stress, the normal line of defense is broken and anxiety results. During this time, interventional strategies are needed to decrease anxiety, which will increase resistance to stressors and strengthen students' flexible line of defense.

According to Fawcett (2000), Neuman's concept of environment encompasses all stress factors within the envi-

ronment affecting the client-client system. Stress factors can be intrapersonal, interpersonal, and extrapersonal. According to Neuman, as cited in Fawcett (2000), stressors are "tension producing stimuli or forces within the internal or external environmental boundaries of the client/client system" (p. 203). Intrapersonal stressors occur within the client-client system, interpersonal stressors occur from the external environment, and extrapersonal stressors occur outside the boundaries of the client-client system and the external environment. The clinical learning environment is the setting in which students experience intrapersonal stressor anxiety. This intrapersonal stressor can produce the interpersonal stressor of performance difficulties, which can lead to the stress of an unsuccessful clinical rotation. Clinical evaluation, negative interactions with nursing staff, and fear of failure are also some examples of the interpersonal stressors undergraduate nursing students experience in the clinical learning environment.

The Neuman Systems Model defines health as the best possible wellness state and the greatest degree of stability among the client-client system (Fawcett, 2000). The level of health depends on the harmony with the internal and external environment. When students experience stress in the clinical learning environment and respond with anxiety, the normal line of defense is broken and a variance from wellness occurs. The Neuman Systems Model describes reconstitution as the return to wellness following treatment for a stress reaction. During reconstitution, the client-client system can progress beyond the normal line of defense to a higher state of wellness or can stabilize below their previous normal line of defense (Moore & Munro, 1990). It is at this point that strategies to decrease anxiety will prevent further stress reaction and achieve higher than usual states of wellness for the student.

According to the Neuman Systems Model, "Nursing is prevention as intervention" (Fawcett, 2000, p. 204). The concepts *prevention* and *intervention* include three components: primary prevention, secondary prevention, and tertiary prevention. Primary prevention is the process through which client-client system stability is accomplished. Intervention may begin at any point when stressors are either suspected or identified. Primary intervention is used when the stressor has not invaded the normal line of defense (August-Brady, 2000) and has not produced symptoms of anxiety. Secondary prevention should be initiated when a stressor invades the normal line of defense or when a primary intervention is not implemented or is unsuccessful. The goal of secondary intervention is to achieve client-client system wellness by strengthening the line of resistance to promote reconstitution (August-Brady, 2000). Tertiary prevention as intervention is implemented during reconstitution in an attempt to return the client-client system to wellness with a focus on maintenance (Fawcett, 2000). Strategies to decrease undergraduate nursing student anxiety in the clinical learning environment are considered primary and secondary interventions because strategies can be initiated at the start of a clinical

rotation as a preventative measure or at the time a student is identified as experiencing anxiety.

## DISCUSSION OF INTERVENTIONAL STRATEGIES

Prior to 2000, many research articles were published on a variety of strategies used by clinical nursing faculty to help decrease students' high levels of anxiety in the clinical learning environment. The literature search from 2001 to 2006 revealed approximately 10 peer-reviewed articles, most of which focused on contributing factors to anxiety. The use of humor, peer instructors and mentors, and mindfulness training are the three strategies described in the literature as successful in decreasing student anxiety in the clinical learning environment.

### Humor

One way clinical nursing faculty can help decrease students' anxiety is through the use of humor. Scholarly interest in humor has increased dramatically, with 5 dissertations written about humor in 1981 to more than 150 dissertations written about humor in 1994. However, according to Ulloth (2002), from this body of research, only one quarter of the studies examined the use of humor in higher education, and no studies examined it in nursing education. After 1994, the literature reveals more empirical studies on the use of humor with nursing students; however, in the past 5 years, few studies have focused on clinical education.

Humor as a teaching strategy can promote many benefits, such as making learning fun, focusing attention, facilitating learning, strengthening social relationships, increasing self-esteem, and relieving stress and anxiety (Hayden-Miles, 2002; Ulloth, 2002). Ulloth (2002) examined the benefits of humor through a qualitative study involving undergraduate nursing students in a tristate area. Within each of the programs, students identified at least one teacher who intentionally used humor in the classroom, and observations were made during two to three teaching sessions. At the end of the observation period, students in each class completed a humor questionnaire and participated in audiotaped interviews, which asked a variety of questions on the use of humor in the classroom. Students were unanimous in their beliefs that humor decreased stress and anxiety, and no students responded negatively to the use of humor by nursing faculty. According to one student, "When humor was used in classes, my test scores were higher because I felt at ease with the material and was relaxed and confident while taking the exam" (Ulloth, 2002, p. 479). This study shows that the use of humor to control anxiety can help students retain content learned within the classroom and that humor can be effective in the clinical learning environment to decrease anxiety and improve performance and learning.

Hayden-Miles (2002) specifically examined the use of humor in the clinical learning environment in a study of the meaning of humor for undergraduate nursing students in their relationships with their clinical instructors.

Participants in the study were enrolled in a baccalaureate nursing program and were required to have completed at least 1 year of clinical education. Through audiotaped interviews, students were asked to describe an experience when humor was shared with their instructor and their feelings on the interaction. All of the students described humor as a positive experience. All of the students repeatedly stated that the use of humor by their clinical instructor fostered their relationships, decreased their fears and anxieties, and enhanced their learning. According to Hayden-Miles (2002):

Humor meant students were free from intimidation and free to learn. It transformed their relationships with their clinical instructors into ones in which they were empowered, rather than dominated. (p. 423)

It is evident from these studies that learning and clinical performance can improve by decreasing high anxiety levels. In terms of the Neuman Systems Model, humor can be used as a primary or secondary intervention. Some clinical instructors routinely use humor as part of their teaching style. Humor, in this case, is used as a primary intervention and works to strengthen students' normal line of defense. On the other hand, a clinical instructor may not wish to use humor as a method of teaching. However, if a student is identified as experiencing high levels of anxiety at any time during a clinical rotation, instructors can choose to initiate humor as a strategy to help the student. Humor then becomes a secondary intervention, strengthens the line of resistance, and promotes the reconstitution process.

Injecting humor must be done with sensitivity to various differences in a culturally diverse setting. Therefore, clinical nursing faculty must decide when it is appropriate to use humor on the basis of individual students and circumstances. For example, times may exist in a student's life that may result in a particular personal experience when the acceptance of humor is not appreciated (Kuhrik, Kuhrik, & Berry, 1997). In situations when humor is appropriate to use as a strategy to decrease anxiety, clinical nursing faculty can use jokes, anecdotes, or humorous stories related to the clinical content being discussed. These examples of humor can be used in clinical preconferences, in postconferences, or in a private area in the clinical learning environment during a clinical discussion between the student and the clinical instructor. Role-playing in the clinical learning environment can also be used to induce humor. For example, during a clinical preconference, students can role-play the proper procedure for medication administration. Role-playing clinical skills can generate laughter and put students at ease prior to the start of their clinical experience.

It is important for clinical faculty to be aware that humor is characterized by making students laugh; however, humor does not require telling jokes or sharing stories or anecdotes, but simply having a lighthearted attitude (Kuhrik et al., 1997). Clinical instructors can take themselves lightly, laugh at themselves, and encourage students to do the same (Ulloth, 2003).

### Peer Instructors and Mentors

Another strategy clinical nursing faculty can use to decrease student nurse anxiety in the clinical learning environment is peer instruction and mentoring. Teaching assistants in disciplines such as chemistry, biology, and other natural sciences at the college level is not a new concept. Generally, a graduate student or a junior-level or senior-level student with a major in science acts as an assistant to the professor for freshman and sophomore students. These teaching assistants help novice students set up and perform experiments, assess results, and maintain safety in the laboratory (Becker & Neuwirth, 2002). Borrowing this teaching method from the natural sciences, Becker and Neuwirth (2002) developed a clinical laboratory teaching assistant role with beginning-level nursing students at a small private college to evaluate the effects on student anxiety in the clinical learning environment. Senior-level nursing students completing all medical-surgical clinical rotations and in good academic standing were selected by nursing faculty. These students were assigned to help junior-level faculty on a general surgical floor during the first day of a 2-day clinical experience. The teaching assistants helped clinical students with data collection, technical skills, and flow sheet and computer documentation, and they also answered questions. Evaluation of this program showed a significant decrease in nursing student anxiety and, as a result, 87% of the students reported improved clinical performance.

A similar study was done by Sprengel and Job (2004), but participants were freshman-level students in a 4-year nursing program. This study looked at the stress experienced by students in their first clinical experience. Twenty-eight freshman students enrolled in a fundamentals course were paired with sophomore students enrolled in a medical-surgical course. Each freshman worked with a sophomore student throughout the day with the guidance of a faculty member from each course. Results from this study showed an overwhelming positive response from freshman students in terms of decreasing anxiety levels during their first clinical experience. However, because peer mentoring involved only 1 clinical day, the effectiveness in decreasing anxiety was short term, which placed limitations on this study.

Owens and Walden (2001) conducted a study to decrease undergraduate nursing student anxiety in the clinical learning environment. Their study used peer instruction as a means of providing intense practice opportunities from individuals who would be perceived as less threatening than faculty. Although similar to the studies done by Sprengel and Job (2004) and by Becker and Neuwirth (2002), the setting was a skills laboratory, rather than a clinical learning environment. A senior-level nursing student was hired to work in the learning laboratory in a baccalaureate nursing program. The student was given the salary-compensated position of Peer Instructor. The peer instructor was responsible for supervising students during skill practice, helping students identify the need for skill remediation, and helping instructors prepare skill testing.

During a 3-year period, results from a Likert-type evaluation showed 69% of students responded affirmatively to the question, "Did the use of peer instructor's services help reduce your anxiety?" (Owens & Walden, 2001, p. 376). Although this study did not directly implement peer instructors in the clinical learning environment, the results support peer instructors as an effective strategy in decreasing anxiety among undergraduate nursing students.

Mentoring by nursing personnel is another strategy used by undergraduate nursing programs to decrease stress and anxiety among nursing students in the clinical learning environment. A study conducted by Locken and Norberg (2005) used a mentored triad consisting of a faculty member, an RN, and a nursing student. The study followed students through the second and third semesters of a five-semester nursing program. Half of the students took part in the mentored program, whereas others went through the traditional kind of clinical education. The mentored students worked with a staff nurse for the entire clinical rotation based on the mentor's work schedule, and faculty made visits at the beginning and periodically throughout the rotation. Locken and Norberg (2005) concluded that student anxiety was significantly reduced because students gained control over their schedules, established a trusting relationship with their mentors, and experienced an increase in skill practice and performance.

Peer instruction and mentoring are interventional strategies that can be implemented at all educational levels and in all kinds of undergraduate nursing programs. Although studies conducted on peer instruction do not involve senior-level students, faculty can use other qualified seniors as peer instructors to support seniors experiencing anxiety. However, using peers at the same educational level to act as instructors can result in students feeling uncomfortable or embarrassed accepting help from fellow students. In terms of the Neuman Systems Model, peer instructors and mentoring programs are considered primary prevention, with the goal of protecting students' normal line of defense. It is possible for undergraduate nursing programs to implement peer instruction on an as-needed basis or as a secondary prevention. In this case, a peer instructor is brought into the clinical learning environment to help those students identified as experiencing anxiety. Using peer instructors in this way will strengthen the lines of resistance and defense and promote reconstitution.

### Mindfulness Training

Jon Kabat-Zinn at the University of Massachusetts developed the Mindfulness-Based Stress Reduction (MBSR) program. This program is used with more than 10,000 medical patients and is beneficial for a variety of medical conditions, including anxiety (Newsome, Christopher, Dahlen, & Christopher, 2006). Mindfulness, a Buddhist concept, is based on fostering awareness, with the objective of helping people live each moment of their lives and being present in whatever the experience is at a particular moment (Newsome et al., 2006). Participants in an

MBSR program experience three forms of practice: yoga, meditation, and a body-scan awareness exercise. A variety of practices are available in MBSR programs to meet the needs of all individuals, which supports the concept person in the Neuman Systems Model. For example, according to Kabat-Zinn (as cited in Newsome et al., 2006), individuals displaying physical symptoms of anxiety prefer meditation and those experiencing cognitive anxiety such as racing thoughts or difficulty concentrating prefer yoga. Individuals enrolled in an MBSR program are instructed to attend to the present moment, observe and be aware of breathing, have an internal focus, and pay attention to their surroundings and the tasks at hand (Beddoe & Murphy, 2004).

The literature indicates that MBSR programs are highly effective in helping not only undergraduate nursing students with stress and anxiety, but all students in higher education (Beddoe & Murphy, 2004; Bruce, Young, Turner, Wal, & Linden, 2002; Newsome et al., 2006). In the study by Newsome et al. (2006), a 15-week MBSR program presented as a 3-credit elective was offered to graduate counseling students. The course met twice per week and included 75 minutes of yoga, sitting meditation, qigong (an ancient Chinese practice for fostering wellness), and relaxation techniques. On course completion, students reported an increased ability to handle strong emotions, such as anxiety, doubt, and fear. Although this study did not specifically address nursing students, results indicated that mindfulness training has a positive effect on students' anxiety levels in an academic setting.

Current research in mindfulness training specific to nursing students was conducted by Bruce et al. (2002). An 8-week MBSR course was offered to all baccalaureate nursing students. The program included eight 2-hour sessions, and students were required to follow 30-minute guided meditation audiotapes at home 5 days per week. The eight sessions consisted of body scanning, sitting meditation, walking meditation, and yoga. Results showed that of the 16 participants, 13 reported feeling an increased ability to handle stressful situations in the classroom and clinical setting, and mean anxiety scores were significantly reduced. In the clinical learning environment, students using mindfulness practices will quiet their minds, bodies, and emotions, which results in better stress management and a decreased potential of developing anxiety.

To further support the positive effects of MBSR, current research shows the use of autogenic training as effective in decreasing anxiety. Although autogenic training is not classified as part of an MBSR program, this technique exerts a calming effect on the mind and body, which supports the mindfulness concept. Autogenic training produces a calming effect on the mind and body and is used specifically to treat stress or medical conditions associated with stress. Autogenic training is a relaxation technique consisting of six mental relaxation exercises done through passive concentration (Kanji et al., 2006). The authors used a randomized control trial with third-year diploma nursing students and sophomore, junior, and senior bac-

calaureate nursing students. Students were divided into three groups: group A received autogenic training 1 hour per day for 8 weeks; group B received laughter therapy (which is synonymous with the use of humor) 20 minutes per day for 8 weeks; and group C was without intervention. Results showed group A as having a significant reduction in state anxiety, compared with groups B and C.

The literature indicates that mindfulness training is an effective interventional strategy to decrease anxiety among undergraduate nursing students. An MBSR program implemented in the clinical learning environment is used as a primary intervention because the program requires advance planning and development. The primary goal of mindfulness training is to maintain students' normal line of defense, strengthen the line of resistance, and achieve or maintain a state of wellness. Undergraduate nursing programs can achieve the goal of mindfulness training by integrating into the curriculum an elective course, workshops, or seminars teaching a variety of stress reduction techniques. In addition, yoga, meditation classes, and guided audiotapes on relaxation practices can be offered each semester to all nursing students.

## CONCLUSIONS AND RECOMMENDATIONS

The Neuman Systems Model provides a comprehensive framework for clinical nursing faculty as they attempt to address the problem of stress and anxiety among undergraduate nursing students in the clinical learning environment. The goal of clinical instructors is to have all students enter a clinical rotation in a state of wellness with a normal line of defense intact as they encounter clinical stressors. However, as the literature indicates, stress in the clinical learning environment can break students' normal line of defense, resulting in symptoms of anxiety. It is important for nursing programs to consider humor, peer instructors and mentors, or mindfulness training as a line of resistance to strengthen students' flexible line of defense.

Research clearly shows undergraduate nursing students identify the clinical learning environment as one of the most anxiety-provoking components of nursing education. In relation to this anxiety, the most significant concern for clinical nursing faculty is the effect of anxiety on learning and performance. Although anxiety can act as a motivator and performance enhancer, high levels can be debilitating, which can jeopardize student success in the nursing program if performance is negatively influenced. For example, a student who consistently experiences symptoms of anxiety during medication preparation and administration may display poor pharmacology knowledge and critical thinking, resulting in an unsatisfactory clinical grade. If clinical nursing faculty work to minimize students' stress response with the use of humor, peer instructors and mentors, or mindfulness training, nursing education will play a major role in decreasing anxiety, enhancing learning outcomes, improving student success, and increasing retention.

Research has been done on the aspects of undergraduate nursing education programs that frequently cause stress to students and the interventions to address this problem. However, little research has been done on the effects of anxiety on student learning and performance in the clinical learning environment. Empirical studies are needed to examine the direct relationship of interventional strategies on students' perceived anxiety with skill and knowledge acquisition, clinical performance, and retention. More nursing programs will be willing to integrate interventional strategies that decrease anxiety into curricula if nursing research can provide evidence-based practice that improves students' clinical performance, success, and retention. For example, if studies can show a positive influence on student success in clinical education as a result of peer instructors and mentors, nursing programs will invest time and money into implementing such programs on the basis of the scientific evidence.

It is not always possible to alter the stress associated with clinical nursing practice; however, it is both reasonable and realistic for all undergraduate nursing programs and clinical nursing faculty to strongly consider the research done in this area and be proactive in addressing students' anxieties in the clinical learning environment. Today's nursing students are the future of the nursing profession, and if clinical nursing faculty do not take the necessary actions to help students manage the demands of appraised clinical stress, nursing as a profession will fail to thrive (Shipton, 2002). As the nursing profession faces ongoing pressures to recruit and retain students, it is advantageous for undergraduate nursing programs to adopt the current literature on interventional strategies as they provide clinical education to all nursing students.

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