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Resilience in Baccalaureate Nursing Students
An Exploration

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ABSTRACT

The purpose of the current study was to explore resilience in senior-level baccalaureate nursing students. Twenty-seven participants completed an online questionnaire assessing three stressors that pertained to marriage or divorce, death or loss of family members or close friends, and extreme financial hardship in the past 1 year. Resilience was measured using the 25-item Connor-Davidson Resilience Scale (CD-RISC-25) and one open-ended question about the experience of resilience. Mean CD-RISC-25 score was 73.26 (*SD* = 10.7; range = 45 to 96); only 33.3% of the sample was considered resilient (score >80). Qualitative data described academic stressors and support resources for resilience. Study findings underscore the relevance of resilience in nursing students. Nurse educators must help nursing students develop resilience to better prepare them for academic success and ensure a smooth transition into their professional nursing role. [*Journal of Psychosocial Nursing and Mental Health Services, 56*(7), 46-55.]

Nursing students' journey through their academic program is fraught with classroom and clinical challenges. Contemporary opinion indicates that resilience is a crucial skill needed to thrive and survive in stressful situations and a critical competency for the 21st century (McAllister & Lowe, 2011; Sanderson & Brewer, 2017).

A growing body of evidence has established the relevance of resilience in nursing education and supports the concept that enhancing resilience will better prepare nursing students for academic success (Chamberlain et al., 2016). Ríos-Risquez, García-Izquierdo, Sabuco-Tebar, Carrillo-Garcia, and

Martinez-Roche (2016) note that nursing students in their final year of school report a lack of fulfillment of expectations and disappointment that the high responsibilities of the nursing profession could stretch them beyond their capacities. Resilience will help them face and respond to academic challenges and bounce back when faced with setbacks or other adversities (Reyes, Andrusyszyn, Iwasiw, Forchuk, & Babenko-Mould, 2015a). Students who learn to be resilient will also make a smoother transition into their professional nursing roles, which is important in increasingly complex and chaotic health care environments (Hodges, Troyan, & Keeley, 2010; Reyes et al., 2015a; Stephens, 2013).

A focus on resilience in nursing education is necessary for the development and implementation of strategies to positively influence academic success and retention of students in nursing programs. The purpose of the current study was to explore resilience in nursing students enrolled in a baccalaureate nursing program and offer recommendations for resilience enhancement in nursing education.

BACKGROUND

Nursing students typically experience high levels of stress due to the intensity and demands of the academic environment combined with financial, family, or other stress. Academic sources of stress include a heavy workload, fear of failure, a competitive environment, and feeling stretched beyond one's capacity (Reeve et al., 2013). In the clinical setting, nursing students have reported stress associated with insecurity about their clinical competence and caring for patients experiencing symptoms such as pain. They have also reported stress associated with a fear of making mistakes, having interpersonal conflicts with patients and staff, providing intimate care to a male or female patient, and working with dying patients (Smith & Yang, 2017; Thomas & Revell, 2016). Personal stressors include psychosocial factors such as anxiety, depression, and lack of time with family and friends (Lo, 2002; Pitt, Powis, Levett-Jones, & Hunter, 2014).

Persistent levels of stress can put students at risk for psychological distress, emotional exhaustion, burnout (Aburn, Gott, & Hoare, 2016; Stephens, 2013; Thomas & Revell, 2016), and impaired resilience (Sanderson & Brewer, 2017; Ward & Eisbach, 2013). Resilience plays an important role in student academic success and retention in academic programs (Beauvais, Stewart, DeNicso, & Beauvais, 2014). Hodges et al. (2010) assert that nurse educators are called on to apply innovative teaching strategies that promote lifelong skills for developing insightful, meaningful, and resilient critical practice. A focus on resilience in nursing education is necessary to positively influence the formation of mature and confident nursing students who think analytically and flexibly and engage in self-reflection to manage the stressors in their academic programs. Deliberate attention to resilience in the curriculum will ultimately aide in their transition to clinical practice as a graduate nurse (Chen, 2011; Reyes et al., 2015a).

RESILIENCE

International research on resilience has increased considerably over the past 20 years and has evolved to better understand how people "bounce back" and manage various challenges they confront across the lifespan from a health and well-being perspective in contrast to a deficit or illness perspective (Windle, 2011). The word *resilience* originates from the Latin word *resilia*, which means the "action of rebounding" (Oxford Dictionary of American English, 2005). Merriam-Webster's (2018) online dictionary defines resilience, a term first used in 1807, as "the ability to recover from or adjust easily to misfortune or change." According to the American Psychological Association (2014), resilience is "the process of adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress" (para. 4). In their study of nursing students, Laschinger and Grau (2012) further elaborate and define resilience as "an ability to bounce back from adversity and is commonly found in people who feel that life is meaningful and have a high capacity for improvisation and adaptation" (p. 284). In a comprehensive review of the concept, Windle (2011) offers this definition:

> Resilience is the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma. Assets and resources within the individual, their life, and environment facilitate this capacity for adaptation and "bouncing back" in the face of adversity. Across the life course, the experience of resilience will vary. (p. 163)

Different approaches to studying resilience have led to shifts in how resilience is viewed. Early researchers framed resilience as a fixed personality trait or attribute that was present or absent. Contemporary perspectives consider resilience to be a dynamic process that can be developed, taught, modified, or enhanced; it can also be an outcome (Reyes et al., 2015a; Sanderson & Brewer, 2017). Although common understandings of resilience indicate the ability to bend but not break, to bounce back, and perhaps even to grow in the face of adversity, these definitions do not fully reflect the complexity and multifactorial aspects of resilience (Southwick, Bonanno, Masten, Panter-Brick, & Yehuda, 2014). Determinants of resilience include interacting biological, psychological, social, cultural, and spiritual factors that influence how an individual responds to stressful experiences (Southwick et al., 2014). Similarly, in their historical review of the construct of resilience, Tusaie and Dyer (2004) discussed the complexity of the construct of resilience, which warrants exploration from a holistic perspective, because resilience may vary in different contexts of age, gender, social class, nation/culture, and family history. Other researchers reported that resilience exists on a continuum that may operate to differing degrees in adaptations to stressors pertaining to fam-

ily life, social networks, the workplace, and the academic setting (Sanderson & Brewer, 2017).

Several concept analyses and review articles have established the relevance of resilience to nursing (Dyer & McGuinness, 1996; Earvolino-Ramirez, 2007; Hicks & Connor, 2013). In a correlational cross-sectional study of operating room nurses, Gillespie, Chaboyer, Wallis, and Grimbeek (2007) found significant correlations between resilience and hope, self-efficacy, coping, control, and competence, which underscored the relevance of resilience in nursing practice. In a qualitative study, Hodges, Keeley, and Troyan (2008) explored resilience in new graduate nurses and revealed that resilience facilitated transition into practice and reflection in their new role. In an integrative review on resilience in nursing students, Thomas and Revell (2016) identified nine reports that identified salient issues and highlighted the importance of faculty awareness about ways to promote students' resilience through working closely with students in advisement and the clinical and classroom setting.

In the development of a nursing diagnosis taxonomy, Ward and Eisbach (2013) identified three alterations in resilience: risk for compromised resilience, impaired individual resilience, and readiness for enhanced resilience. *Risk for compromised resilience* is defined as a potential decreased ability to sustain a pattern of positive responses to an adverse situation or crisis. *Impaired resilience* is an actual decreased ability to sustain a positive response to an adverse situation or crisis. *Readiness for enhanced resilience* is a pattern of positive responses to an adverse situation or crisis that is sufficient for optimizing human potential and can be strengthened (Ward & Eisbach, 2013). The nature of academic preparation for nursing practice puts nursing students at risk for alterations in resilience. Stressors in academic contexts may lead to ineffective coping during nursing studies and entry into nursing practice. Nursing students experience stressors that are unique to nursing education, which can lead to impaired resilience (Aloba, Olabisi, & Aloba, 2016). In a qualitative study using grounded theory, Reyes, Andrusyszyn, Iwasiw, Forchuk, and Babenko-Mould (2015b) identified a social process described as "pushing through" that reflected acts of resilience, but when impaired resilience exists, nursing students feel the pressures of family, extracurricular, and academic demands and feel ready to quit. When impaired resilience is present, individuals experience decreased interest in social and academic activities, low self-esteem, and elevation of stress (Ward & Eisbach, 2013).

Current understandings of resilience indicate that for resilience to exist, adversity, positive adaptation, and positive emotions must be present. By better understanding sources of stress and resilience in nursing students, nurse educators have a clearer basis for resilience-promoting interventions to facilitate student academic success and overall well-being.

METHOD

Design

The current study used a cross-sectional descriptive design. The setting was a large public university in the southeastern United States.

Participants

A convenience sample of senior-level students enrolled in the baccalaureate nursing program during the 2017 spring semester were recruited. Non-study personnel visited one class to describe the study and distribute an informational flyer to each student. In addition, flyers were posted throughout the School of Nursing building. The informational flyer described the study and directions on how to access an electronic link to the study questionnaire. The survey link was accessible to enrolled students only and was made available for 10 days.

Measures

Two instruments were used for data collection. The investigator-developed sociodemographic form collected information about age, gender, race/ethnicity, relationship status, having children, nursing assistant certification and employment, and having earned a previous college or university degree. Categorical responses were obtained for age to protect anonymity (<22 years, 23 to 30 years, ≥31 years). The survey included three *yes/no* questions about life stressors that occurred during the past 1 year, which were derived from the Holmes and Rahe (1967) Life Stress Index and pertained to marriage or divorce, death or loss of family members or close friends, and extreme financial hardship in the past 1 year. One open-ended question invited additional feedback from participants about anything else they would like to add about their experience with resilience as a nursing student.

The 25-item Connor-Davidson Resilience Scale (CD-RISC-25) was developed as a self-assessment tool to quantify resilience. This tool has been used to establish reference values for resilience in the general population and clinical samples and as a clinical measure to assess resilience in treatment response (Connor & Davidson, 2003). Written permission was obtained from the authors to use the instrument in the current study. The CD-RISC-25 items are rated on a 5-point Likert scale ranging from 0 (*not true*) to 4 (*true nearly all the time*). Respondents are asked to base their ratings on how they felt over the past 1 month. Total scores range from 0 to 100, with higher scores indicating greater resilience; resilience is defined by a score >80. The CD-RISC-25 has been validated in community populations, primary care outpatients, and various clinical populations (Connor & Davidson, 2003). High reliability (Cronbach's alpha = 0.89) and a test–retest reliability correlation of 0.87 have been demonstrated (Connor & Davidson, 2003). In a recent methodological review of resilience scales, the CD-RISC-25 received high-quality ratings on conceptual and theoretical adequacy and psychometric properties (Windle, Bennett, & Noyes, 2011). This instrument has been used in prior

research on resilience in nursing students (**Table A**, available in the online version of this article).

Procedure

The sociodemographic questionnaire and CD-RISC-25 scale were entered in Qualtrics software. An introduction to the survey described the study purpose and indicated that the survey was voluntary and would take approximately 10 minutes to complete. The survey link was de-identified (e.g., name, IP address). Upon submission of the completed survey, the system provided a link for participants to enter a drawing for one of five $10.00 gift cards.

Data Analysis

Descriptive statistics were used to characterize the sample for sociodemographic data and CD-RISC-25 score and included mean (*SD*) and range. CD-RISC-25 Likert scale responses and distributions were examined and analyzed quantitatively. Chi-square and bivariate linear regressions were performed to explore associations between sociodemographic variables and CD-RISC-25 score. Multiple linear regression was performed to explore predictors of resilience. Text responses to the open-ended question were explored and summarized. Analyses were performed using SPSS version 23.

Ethical Considerations

All study procedures were approved by the university institutional review board.

RESULTS

Fifty-six students were eligible to participate; 27 (48%) completed the online survey. Participant sociodemographic characteristics are described in **Table 1**. Most of the sample was age 23 and older (70%), most were female (81%), Caucasian (59%), and married (48%), and seven (26%) participants had children. A majority had worked or currently worked as a certified nursing assistant (78%), and approximately one half had a previous college or university degree (48%). Participants reported that the top contributor of stress in the past 1 year was extreme financial hardship (48%), followed by death or loss of family members or friends (30%), and marriage or divorce (7%).

TABLE 1

SOCIODEMOGRAPHIC CHARACTERISTICS OF NURSING STUDENTS (*N* = 27)

Variable	*n* (%)
Gender	
Female	22 (81)
Male	5 (19)
Age (years)	
≤22	8 (30)
23 to 30	12 (44)
≥31	7 (26)
Race/ethnicity	
Caucasian	16 (59)
African American	6 (22)
Asian	4 (15)
Hispanic/Latino	1 (4)
Relationship status	
Married	13 (48)
Single	12 (44)
Separate/divorced	2 (7)
Has children	7 (26)
Prior college or university degree	13 (48)
Current/past work as a CNA	21 (78)
Marriage or divorce in the past 1 year	2 (7)
Extreme financial hardship in the past 1 year	13 (48)
Death of a relative or friend in the past 1 year	8 (30)
	Mean (*SD*, Range)
CD-RISC-25[a] score	73.26 (10.7, 45 to 96)
CD-RISC-10[b] score	28.63 (5.09, 19 to 40)

Note. CNA = certified nursing assistant; CD-RISC = Connor-Davidson Resilience Scale.

[a] Total scores range from 0 to 100, with higher scores indicating greater resilience. Score >80 indicates resilience.

[b] Total scores range from 0 to 40, with higher scores indicating greater resilience.

Mean CD-RISC-25 score was 73.26 (*SD* = 10.7; range = 45 to 96). Multiple regression analysis was used to assess associations between sociodemographic and stress-related variables and CD-RISC-25 score. Correlation analysis indicated statistically significant associations between relationship status (married or partnered), prior college or university degree, and death of a close friend or family member in the past 1 year and CD-RISC-25 scores. In multiple linear regression with these three predictors, the model was significant, and these three predictors explained 37% of the variance in CD-RISC-25 score (adjusted R^2 = 0.366,

TABLE 2

MULTIPLE LINEAR REGRESSION ANALYSIS OF CONNOR-DAVIDSON RESILIENCE SCALE-25 SCORES (*N* = 27)

Variable	*B* [95% CI]	SE	β	*t*	*p* Value
Married or partnered	3.955 [–3.318, 11.23]	3.516	0.188	1.125	0.272
Have you earned another college or university degree?	–7.890 [–15.037, –0.743]	3.455	–0.375	–2.284	0.032
Have you experienced the death of a close friend or family member in the past 1 year?	7.810 [–0.388, 16.007]	3.963	0.340	1.971	0.061

Note. CI = confidence interval; SE = standard error.

$F[3, 23] = 6.008$, $p = 0.004$, 95% confidence interval [50.11, 89.65]). However, the direction of the relationship between having a prior college or university degree was not as expected. A negative beta coefficient indicated that for every 1-unit increase in prior educational degree, the resilience score will decrease by –0.375 ($p = 0.032$) (**Table 2**).

Seven participants offered subjective comments in response to the open-ended question. Not surprisingly, several identified that assignments and tests were stressful, especially when they occurred concurrently. Resilience strategies included reaching out to others in the support system, working hard, developing a "tough skin," and seeking professional help to manage anxiety and depression to remain resilient. One student wrote:

> Life tends to have a way of throwing curve balls your way whether it be health wise, family wise or in nursing school. I've found that if you remain strong, have a good support system, and work hard anything is possible.

Considering the relevance of resilience in nursing education, one participant's quote summed it up: "I would find it helpful to devote more time while in nursing school to build protective factors that enhance resilience."

DISCUSSION

Emerging evidence, including the results of the current study, underscore the relevance of resilience in nursing education. Therefore, one imperative of nurse educators should be to help students learn how to become more resilient. In the current study, approximately two thirds of participants responding to the web-based survey scored < 80 on the CD-RISC-25, the cut-point indicating resilience (Connor & Davidson, 2003). However, more than two thirds of participants reported the tendency to bounce back after illness, injury, or other hardship on the CD-RISC-25 item as *often true* or *true nearly all the time*. This ability to bounce back in the face of adversity is an important feature of resilience (Aburn et al., 2016; Stephens, 2013). At the individual level, personal agency contributes to negotiating adversity; however, the availability of a support network, including family and friends and other resources, such as counseling or psychological intervention, is also necessary (Crombie, Brindley, Harris, Marks-Maran, & Thompson, 2013; Tusaie & Dyer, 2004; Windle et al., 2011).

The CD-RISC-25 is one of the most widely used scales globally, and a short version, the CD-RISC-10, has been validated in various populations (Connor-Davidson Resilience Scale, n.d.). The tool is scored on a scale of 0 to 40, with higher scores indicating greater resilience. In a study comparing the CD-RISC-25 and CD-RISC-10 in Chinese rehabilitation patients, the reliability, sensitivity, and specificity were comparable between instruments and not statistically different (Peng et al., 2014). The current authors elected to use the CD-RISC-25 because it addresses five domains of resilience: (a) personal competence, high standards, and tenacity; (b) trust in one's instincts, tolerance of negative effect, and strengthening effect of stress; (c) positive acceptance of change and secure relationships; (d) control; and (e) spiritual influences (Connor & Davidson, 2003). In comparison, Aloba et al. (2016) identified a two-factor structure, "toughness" and "motivation," for the CD-RISC-10. Several studies on nursing student resilience using the CD-RISC-10 are listed in **Table A**. In these studies, mean resilience scores ranged from 24 to 40. In post hoc analyses, the CD-RISC-10 score was calculated for the sample and mean resilience score was comparable, 28.63 ($SD = 5.09$, range = 19 to 40). These studies reflect a culturally diverse student population but homogeneity in age and gender, which contrasts with the diversity in age, gender, and educational background found in the current study sample.

Significant correlations between relationship status and resilience, having "close and secure relationships" scored as *true nearly all the time* on the CD-RISC-25 by all participants, and qualitative responses describing the importance of the support system in the current study collectively highlight the importance of social support

in resilience. Other research similarly reports that having a close support system is an essential resource for resilience, which facilitates the ability to handle the rigorous demands of the educational program (Sigalit, Sivia, & Michal, 2017; Thomas & Revell, 2016). Research also emphasizes different social support resources (Crombie et al., 2013; Stephens, 2013). Peer caring has been shown to be significantly associated with resilience and subjective well-being in Chinese nursing students (Zhao, Guo, Suhonen, & Leino-Kilpi, 2016). Cultural factors may impact the types and amount of support needed by nursing students. Milne, Creedy, and West (2016) note that some cultures have a greater need for support due to close-knit extended family relationships; therefore, students may seek support from peers and faculty members. Nurse educators serve an important role in the social network of nursing students (Hurlington, 2010), and the quality of the educator–student relationship can strengthen student resilience and academic performance (Froneman, Du Plessis, & Koen, 2016). The age diversity in the current study suggests a wider range of potential support needs: students who are younger, single, and anticipating their career path may have unique support needs compared to older students who may be married with children, employed, and managing myriad obligations. Although the adage suggests that "with age comes wisdom" and implies that older students may demonstrate higher levels of resilience, adult learners often must confront ongoing, increasing, and competing demands on their time and cognitive resources (Valiga, 2012).

The current study is notable for the diversity in the sample in sociodemographic characteristics and life circumstances, in contrast to research that focuses on the traditional undergraduate student matriculating directly from secondary education (**Table A**). In the United States, the student population has become more diverse, a result of changing demographics and more opportunities to pursue a college education (Valiga, 2012). A surprising finding was that there were not significant correlations between sociodemographic variables and resilience; however, using multiple linear regression, having a prior college or university degree was found to be a negative predictor of resilience. Limited research exists on resilience and educational level. In a study of university nursing students in Hong Kong, post-graduate nursing students had significantly higher resilience scores compared to undergraduate nursing students (CD-RISC-10, 24.9 versus 23.8, respectively, $p = 0.02$) (Chow et al., 2018). Similarly, Pitt et al. (2014) found that senior-level nursing students had higher levels of resilience compared to junior-level nursing students. Research on the relationship between resilience and having earned a prior educational degree, as noted in 48% of the current sample, has not been reported in the literature. Financial hardship was also reported by approximately one half of students in the current study, which has been noted as a significant source of student stress in other studies (Milne et al., 2016; Smith & Yang, 2017). One might anticipate that these mature second-degree students would be advantaged by first-hand experience with academic success, greater emotional maturity in managing life complexities, and more effective coping resources and resilience to overcome stressful experiences (Smith & Yang, 2017). However, the academic and clinical demands of nursing education are often overwhelming and unlike other traditional academic programs. These students also have different needs and must juggle complex personal, work, and family obligations in addition to their academics. This juggling can often be a challenge to the resilience of even these more seasoned and mature students (Thomas & Revell, 2016).

The current study provides a snapshot of resilience, but student resilience may vary based on context and circumstances and the availability and adequacy of protective factors (Aloba et al., 2016; Earvolino-Ramirez, 2007; Sanderson & Brewer, 2017). Students may function with a high level of resilience in one domain, such as employment or social relationships, and low resilience in another domain, such as academe. Cultural factors could inform what may be considered success or indicators of resilience, and the concept of resilience may not be comparable across cultures (Windle, 2011). As illustrated in the current study, resilience is salient in nursing students, but a stronger knowledge of resilience, its natural history, and the ongoing development of protective factors and marshalling of resources can enhance a clearer framework for resilience enhancement strategies in nursing education.

IMPLICATIONS AND RECOMMENDATIONS

Nurse educators play a significant role in fostering students' development of knowledge and skills related to nursing practice and preparing students for future practice as nurses who can adapt and influence changing scopes of practice and effectively function in complex health care environments (Thomas & Revell, 2016; Waddell et al., 2015). Attrition from academic programs is of concern because the need for baccalaureate nursing students prepared for practice is growing as the aging population increases, placing greater demands on the health care system (Boardman, 2016; Valiga, 2012). Nursing students may be at higher risk for attrition than other programs of study due to unique circumstances surrounding their degree (Boardman, 2016).

Previous investigations have shown that nurses working in clinical practice who cultivate resilience over the course of their career reduce their risk for anxiety, depression, and posttraumatic stress disorder (Mealer et al., 2012). Therefore, fortifying nursing student resilience during academic programs should be an imperative of nurse educators. Nurse educators must first contextualize the concept of resilience and operationalize resilience for the settings and experiences of nursing students. Stephens (2013) proposed that

TABLE 3

ELEMENTS FOR RESILIENCE ENHANCEMENT AND TRAINING IN NURSING STUDENTS[a]

Personal Resources/ Protective Factors	Contextual Resources	Strategies	Outcomes
Adaptability/flexibility	Leisure/physical activity	Work/life balance	Connectedness
Conscientiousness	Mentorship	Meaning-making	Retention
Emotional intelligence	Social and family support	Problem solving	Satisfaction
Self-awareness	Peer support	Reflection	Well-being
Self-esteem, sense of personal worthiness	Faculty support Financial support	Coping Self-care	Employability
Spirituality	Organizational culture		
Sense of control			
Motivation			
Confidence			
Tenacity/persistence			
Sense of humor			
Ability to have close relationships			
Ability to manage range of emotions			
Delays gratification			
Desires to improve			
Communicates effectively			

[a] *Adapted from Earvolino-Ramirez (2007); Reyes et al. (2015b); Sanderson & Brewer (2017).*

clarification of the concept of resilience will assist nurse educators and nurse researchers in developing evidence-based interventions and strategies aimed at fostering resilience. The dynamic nature of resilience suggests that resilience is a changeable phenomenon that can be learned, taught, and cultivated (Reyes et al., 2015b). Thus, faculty and students need to contextualize resilience as a process that can be strengthened (Beauvais et al., 2014; Crombie et al., 2013).

Researchers have made clear recommendations for resilience enhancement and resilience training in nursing education (Aburn et al., 2016; Thomas & Revell, 2016). In a recent scoping review of 36 articles on resilience training in the health professions, Sanderson and Brewer (2017) identified nine studies on resilience training; five were in nursing. Four elements to consider in resilience training include personal resources and protective factors, contextual resources, strategies, and outcomes (**Table 3**). Methodologies for resilience training include face-to-face didactic sessions that use lectures, discussion groups, simulation, and out-of-class activities (Sanderson & Brewer, 2017). Resilience training provides opportunities for students to engage in self-assessment of resilience attributes, experiences, and situations that pose threats to resilience or trigger maladaptation. Resilience training may be offered as an elective course, workshop/seminar, or integrated into the curriculum, and should include self-assessment. An elective class or seminar course in resilience would help students devote more time to building protective factors that enhance resilience. A study by Li, Cao, Cao, and Liu (2015) suggests emotional intelligence interventions introduced in nursing curricula may increase emotional coping resources and social skills, which may benefit nursing student resilience and long-term occupational health. In a pilot study of nursing students enrolled in a mental health nursing course, Boardman (2016) implemented techniques building on self-efficacy and self-regulation, using interventions such as guided meditation, mindfulness walks, exercise, aromatherapy, reflective journaling, positive affirmations, and progressive muscle relaxation. Outcome measures indicated improved scores for resilience, increased mindfulness, and decreased stress. In a qualitative study to address high stress levels and mental health problems in first-year nursing students, van der Riet, Rossiter, Kirby,

Dluzewska, and Harmon (2015) implemented a 7-week stress management and mindfulness program. Three main themes characterizing participants' experience were attending to self, attending to others, and attending to program-related challenges. Students reported improved sleep, concentration, clarity of thought, and fewer negative thoughts (van der Riet et al., 2015).

One intervention that has shown promise for reducing stress and improving resiliency is the Stress Management and Resiliency Training (SMART) program (Chesak et al., 2015). The program was designed to help participants understand the neuroscience and biology of stress and learn skills to develop intentional attention and reframe life experiences using the five core principles of gratitude, compassion, acceptance, forgiveness, and higher meaning. Integrating the SMART program within the nursing program for students has the potential to decrease stress and anxiety and enhance resilience (Chesak et al., 2015). In a quasi-experimental study, Jameson (2014) found that a hardiness intervention had a significant effect on stress level in junior nursing students.

The quality of nurse educator relationships with nursing students can influence student resilience (Hurlington, 2010). In a synthesis of the nursing education literature on resilience, McAllister and McKinnon (2009) suggest that the ideal educational environment for supporting resilience is one that establishes effective social connections with peers, other adults, and faculty, and incorporates positive faculty role modeling and coaching techniques. In a qualitative study performed in university programs in South Africa, Froneman et al. (2016) applied the World Café data collection method to learn about the basic elements of effective educator–student relationships to strengthen resilience. Analyses yielded five main themes: (a) teaching/learning environment, (b) educator–student interaction, (c) educator qualities, (d) staying resilient, and (e) strategies to strengthen resilience. Students conveyed that they need interaction that is constructive, which included that the educator be approachable, respectful, friendly, professional, civil, adaptable, and nonthreatening, and must be patient with students who learn at different paces (Froneman et al., 2016). Educators are also responsible for creating a positive physical environment that includes an uncluttered classroom with fresh air; comfort breaks; fun activities during and between lessons; and an open, interactive, collaborative, and non-discriminatory emotional environment (Froneman et al., 2016). Scheduling major assignments and examinations to minimize concurrent deadlines will help minimize spikes in student stress levels. Nurse educators can emphasize skills that focus on deployment of personal and social resources in solving problems and sustaining stamina for nursing student resilience. Nurse educators can also foster student–peer relationship building through curriculum design that guides students in small group learning and encourages them to share opinions, praise, and constructive feedback (Zhao et al., 2016).

Structured experiential learning may enhance the competencies associated with resilience. Case studies, role plays, and simulation experiences can be used to improve emotional regulation, reflective ability, emotional intelligence, and empathy (Boardman, 2016; Foster & McKenzie, 2012). Educators provide structure and guidance in these learning activities to facilitate cooperative learning, problem solving, and social competence, and a sense of purpose and accomplishment. Chen (2011) articulates a methodology for implementing problem-based learning to build nursing student resilience through engagement with a realistic problem or situation with guided activities that promote self-efficacy in succeeding at challenging tasks, motivation to accomplish a goal, optimism about succeeding now and in the future, and self-reflection. Pines et al. (2014) designed a series of didactic and simulated training exercises delivered in four modules over two semesters to increase nursing students' perception of resiliency, empowerment, and conflict management.

The popular use of social media among younger students is a potential source of communication, mutual support, peer learning, and mentorship to enhance resilience (McAllister & Lowe, 2011). Sigalit et al. (2017) used social networking as a learning tool to enhance social ties and promote individual and group resilience among nursing students. Nurse educators can use social media technologies to develop a structured and organized support system for students that can be valuable during the nursing program and beyond (Sigalit et al., 2017). Nurse educators can use these teaching and learning strategies described above, recognizing that exposure to real-life circumstances and situations will help improve future response and activation of protective factors that promote resilience.

LIMITATIONS

The scope of the current study was limited in terms of design and the small convenience sample; thus, interpretation of findings must be considered with caution. The sample included nursing students in their last semester of nursing school, and their level of resilience may be different from that of nursing students just beginning the nursing program. The online survey was open for a brief period at the end of the semester when students were completing assignments and final examinations, which likely affected the low response rate. Response bias was also possible as the instruments used in the study comprised self-report measures, and students who responded may have significantly differed from those who did not respond. In addition, the study should be replicated in nursing student populations. Despite these limitations, the study provides support for the relevance and importance of resilience in nursing education. Further research is needed using large diverse samples and other biopsychosocial variables.

CONCLUSION

Nursing students face many unique stressors during their education program and it is paramount for them to develop resilience to buffer the effects of stress and facilitate adaptation to adversities. Only one third of participants in the current study scored as resilient on the CD-RISC-25. These findings suggest that nursing students are at risk for impaired resilience; students who have previously earned a college or university degree may be especially vulnerable to impaired resilience, as these students typically are older with more complex family and employment obligations in addition to academic demands. It is imperative to continue to develop an understanding of resilience so that the knowledge can be applied in nursing education. Findings from the current study add to growing evidence to support a focus on resilience in undergraduate nursing education.

REFERENCES

Aburn, G., Gott, M., & Hoare, K. (2016). What is resilience? An integrative review of the empirical literature. *Journal of Advanced Nursing, 75,* 980-1000. doi:10.1111/jan.12888

Aloba, O., Olabisi, O., & Aloba, T. (2016). The 10-item Connor-Davidson Resilience Scale: Factorial structure, reliability, validity, and correlates among student nurses in southwestern Nigeria. *Journal of the American Psychiatric Nurses Association, 22,* 43-51. doi:10.1177/1078390316629971

American Psychological Association. (2014). *The road to resilience*. Retrieved from http://www.apa.org/helpcenter/road-resilience.aspx

Beauvais, A.M., Stewart, J.G., DeNisco, S., & Beauvais, J.E. (2014). Factors related to academic success among nursing students: A descriptive correlational research study. *Nurse Education Today, 34,* 918-923. doi:10.1016/j.nedt.2013.12.005

Boardman, L. (2016). Building resilience in nursing students: Implementing techniques to foster success. *International Journal of Emergency Mental Health and Human Resilience, 18,* 1-5. doi:10.4172/1522-4821.1000339

Chamberlain, D., Williams, A., Stanley, D., Mellor, P., Cross, W., & Siegloff, L. (2016). Dispositional mindfulness and employment status as predictors of resilience in third year nursing students: A quantitative study. *Nursing Open, 3,* 212-221.

Chen, J.Y. (2011). Problem-based learning: Developing resilience in nursing students. *Kaohsiung Journal of Medical Sciences, 27,* 230-233. doi:10.1016/j.kjms.2010.11.005

Chesak, S.S., Bhagra, A., Schroeder, D.R., Foy, D.A., Cutshall, S.M., & Sood, A. (2015). Enhancing resilience among new nurses: Feasibility and efficacy of a pilot intervention. *The Ochsner Journal, 15*(1), 38-44.

Chow, K.M., Tang, W.K., Chan, W.H., Sit, W.H., Choi, K.C., & Chan, S. (2018). Resilience and well-being of university nursing students in Hong Kong: A cross-sectional study. *BMC Medical Education, 18,* 13. doi:10.1186/s12909-018-1119-0

Connor, K.M., & Davidson, J.R. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety, 18,* 76-82.

Connor-Davidson Resilience Scale. (n.d.). *CDRISC user guide*. Retrieved from http://www.connordavidson-resiliencescale.com/user-guide.php

Crombie, A., Brindley, J., Harris, D., Marks-Maran, D., & Thompson, T.M. (2013). Factors that enhance rates of completion: What makes students stay? *Nurse Education Today, 33,* 1282-1287. doi:10.1016/j.nedt.2013.03.020

Dyer, J.G., & McGuinness, T.M. (1996). Resilience: Analysis of the concept. *Archives of Psychiatric Nursing, 10,* 276-282.

Earvolino-Ramirez, M. (2007). Resilience: A concept analysis. *Nursing Forum, 42*(2), 73-82. doi:10.1111/j.1744-6198.2007.00070.x

Foster, K., & McKenzie, H. (2012.) Educational approaches to enhance emotional intelligence. In J. Hurley & P. Linsley (Eds.), *Emotional intelligence in health and social care: A guide for improving human relationships*. London, UK: Radcliffe.

Froneman, K., Du Plessis, E., & Koen, M.P. (2016). Effective educator-student relationships in nursing education to strengthen nursing students' resilience. *Curationis, 39*(1), 1595. doi:10.4102/curationis.v39i1.1595

Gillespie, B.M., Chaboyer, W., Wallis, M., & Grimbeek, P. (2007). Resilience in the operating room: Developing and testing of a resilience model. *Journal of Advanced Nursing, 59,* 427-438.

Hicks, M.M., & Conner, N.E. (2014). Resilient aging: A concept analysis. *Journal of Advanced Nursing, 70,* 744-755. doi:10.1111/jan.12226

Hodges, H.F., Keeley, A.C., & Troyan, P.J. (2008). Professional resilience in baccalaureate-prepared acute care nurses: First steps. *Nursing Education Perspectives, 29*(2), 80-89.

Hodges, H.F., Troyan, P.J., & Keeley, A.C. (2010). Career persistence in baccalaureate-prepared acute care nurses. *Journal of Nursing Scholarship, 42,* 83-91. doi:10.1111/j.1547-5069.2009.01325.x

Holmes, T.H., & Rahe, R.H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research, 11,* 213-218. doi:10.1016/0022-3999(67)90010-4

Hurlington, K. (2010). Bolstering resilience in students: Teachers as protective factors. Retrieved from http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/WW_bolstering_students.pdf

Jameson, P.R. (2014). The effects of a hardiness educational intervention on hardiness and perceived stress of junior baccalaureate nursing students. *Nurse Education Today, 34,* 603-607. doi:10.1016/j.nedt.2013.06.019

Laschinger, H.K., & Grau, A.L. (2012). The influence of personal dispositional factors and organizational resources on workplace violence, burnout, and health outcomes in new graduate nurses: A cross-sectional study. *International Journal of Nursing Studies, 49,* 282-291. doi:10.1016/j.ijnurstu.2011.09.004

Li, Y., Cao, F., Cao, D., & Liu, J. (2015). Nursing students' post-traumatic growth, emotional intelligence and psychological resilience. *Journal of Psychiatric and Mental Health Nursing, 22,* 326-332. doi:10.1111/jpm.12192

Lo, R. (2002). A longitudinal study of perceived levels of stress, coping, and self-esteem of undergraduate nursing students: An Australian case study. *Journal of Advanced Nursing, 39,* 119-126.

Mathad, M.D., Pradhan, B., & Rajesh, S.K. (2017). Correlates and predictors of resilience among baccalaureate nursing students. *Journal of Clinical and Diagnostic Research, 11*(2), JC05-JC08. doi:10.7860/JCDR/2017/24442.9352

McAllister, M., & Lowe, J.B. (2011). *The resilient nurse: Empowering your practice*. New York, NY: Springer.

McAllister, M., & McKinnon, J. (2009). The importance of teaching and learning resilience in the health disciplines: A critical review of the literature. *Nurse Education Today, 29,* 371-379. doi:10.1016/j.nedt.2008.10.011

Mealer, M., Jones, J., Newman, J., McFann, K.K., Rothbaum, B., & Moss, M. (2012). The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: Results of a national survey. *International Journal of Nursing Studies, 49,* 292-299. doi:10.1016/j.ijnurstu.2011.09.015

Merriam-Webster Dictionary. (2018). *Resilience*. Retrieved from https://www.merriam-webster.com/dictionary/resilience

Milne, T., Creedy, D.K., & West, R. (2016). Integrated systematic review on educational strategies that promote academic success and resilience in undergraduate indigenous students. *Nurse Education Today, 36,* 387-394. doi:10.1016/j.nedt.2015.10.008

Oxford Dictionary of American English. (2005). *Resilience*. Oxford, UK: Oxford University Press.

Peng, L., Zhang, J., Chen, H., Zhang, Y., Li, M., Yu, Y., & Liu, B. (2014). Comparison among different versions of Connor-Davidson Resilience Scale (CD-RISC) in rehabilitation patients after unintentional injury. *Journal of Psychiatry, 17,* 153. doi:10.4172/Psychiatry.1000153

Pines, E.W., Rauschhuber, M.L., Cook, J.D.,

Norgan, G.H., Canchola, L., Richardson, C., & Jones, M.E. (2014). Enhancing resilience, empowerment, and conflict management among baccalaureate students: Outcomes of a pilot study. *Nurse Educator, 39*(2), 85-90. doi:10.1097/NNE.0000000000000023

Pitt, V., Powis, D., Levett-Jones, T., & Hunter, S. (2014). The influence of personal qualities on performance and progression in a pre-registration nursing programme. *Nurse Education Today, 34,* 866-871. doi:10.1016/j.nedt.2013.10.011

Reeve, K.L., Shumaker, C.J., Yearwood, E.L., Crowell, N.A., & Riley, J.B. (2013). Perceived stress and social support in undergraduate nursing students' educational experiences. *Nurse Education Today, 33,* 419-424. doi:10.1016/j.nedt.2012.11.009

Reyes, A.T., Andrusyszyn, M., Iwasiw, C., Forchuk, C., & Babenko-Mould, Y. (2015a). Nursing students' understanding and enactment of resilience: A grounded theory study. *Journal of Advanced Nursing, 71,* 2622-2633. doi:10.1111/jan.12730

Reyes, A.T., Andrusyszyn, M., Iwasiw, C., Forchuk, C., & Babenko-Mould, Y. (2015b). Resilience in nursing education: An integrative review. *Journal of Nursing Education, 54,* 438-444. doi:10.3928/01484834-20150717-03

Ríos-Risquez, M.I., García-Izquierdo, M., Sabuco-Tebar, E.A., Carrillo-Garcia, C., & Martinez-Roche, M.E. (2016). An exploratory study of the relationship between resilience, academic burnout and psychological health in nursing students. *Contemporary Nurse, 52,* 430-439. doi:10.1080/10376178.2016.1213648

Sanderson, B., & Brewer, M. (2017). What do we know about student resilience in health professional education? A scoping review of the literature. *Nurse Education Today, 58,* 65-71. doi:10.1016/j.nedt.2017.07.018

Sigalit, W., Sivia, B., & Michal, I. (2017). Factors associated with nursing students' resilience: Communication skills course, use of social media and satisfaction with clinical placement. *Journal of Professional Nursing, 33,* 153-161. doi:10.1016/j.profnurs.2016.08.006

Smith, G.D., & Yang, F. (2017). Stress, resilience and psychological well-being in Chinese undergraduate nursing students. *Nurse Education Today, 49,* 90-95. doi:10.1016/j.nedt.2016.10.004

Southwick, S.M., Bonanno, G.A., Masten, A.S., Panter-Brick, C., & Yehuda, R. (2014). Resilience definitions, theory, and challenges: Interdisciplinary perspectives. *European Journal of Psychotraumatology, 5,* 1-14. doi:10.3402/ejpt.v5.25338

Stephens, T.M. (2013). Nursing student resilience: A concept clarification. *Nursing Forum, 48,* 125-133. doi:10.1111/nuf.12015

Thomas, L.J., & Revell, S.H. (2016). Resilience in nursing students: An integrative review. *Nurse Education Today, 36,* 457-462. doi:10.1016/j.nedt.2015.10.016

Tusaie, K., & Dyer, J. (2004). Resilience: A historical review of the construct. *Holistic Nursing Practice, 18*(1), 3-8.

Valiga, T. (2012). Nursing education trends: Future implications and predictions. *Nursing Clinics of North America, 47,* 423-434. doi:10.1016/j.cnur.2012.07.007

van der Riet, P., Rossiter, R., Kirby, D., Dluzewska, T., & Harmon, C. (2015). Piloting a stress management and mindfulness program for undergraduate nursing students: Student feedback and lessons learned. *Nurse Education Today, 35,* 44-49. doi:10.1016/j.nedt.2014.05.003

Waddell, J., Spalding, K., Canizares, G., Navarro, J., Connell, M., Jancar, S.,…Victor, C. (2015). Integrating a career planning and development program into the baccalaureate nursing curriculum: Part I. Impact on students' career resilience. *International Journal of Nursing Education Scholarship, 12,* 162-173. doi:10.1515/ijnes-2014-0035

Ward, T., & Eisbach, S. (2013). Impaired individual resilience. In B.J. Ackley & G.B. Ladwig (Eds.), *Nursing diagnosis handbook: An evidence-based guide to planning care* (10th ed., pp. 654-657). Maryland Heights, MO: Mosby Elsevier.

Windle, G. (2011). What is resilience? A review and concept analysis. *Reviews in Clinical Gerontology, 21,* 152-169. doi:10.1017/S0959259810000420

Windle, G., Bennett, K.M., & Noyes, J. (2011). A methodological review of resilience measurement scales. *Health and Quality of Life Outcomes, 9,* 8. doi:10.1186/1477-7525-9-8

Zhao, F., Guo, Y., Suhonen, R., & Leino-Kilpi, H. (2016). Subjective well-being and its association with peer caring and resilience among nursing vs medical students: A questionnaire study. *Nurse Education Today, 37,* 108-113. doi:10.1016/j.nedt.2015.11.019

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The authors have disclosed no potential conflicts of interest, financial or otherwise.

The authors thank Susan Letvak, PhD, RN, FAAN, for review of the manuscript; Thomas P. McCoy, PhD, PStat, and Alia Henderson, BS, for assistance with data analysis; and Peggy Markham, BA, MS, MSLS, for editorial assistance.

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Received: January 26, 2018
Accepted: April 3, 2018
doi:10.3928/02793695-20180619-06

Table A

Studies on Resilience in Nursing Students using the CD-RISC-10 (N = 8)

Citation 1st author, year	Aim	Method	Sample	CD-RISC	Key findings
Aloba et al., 2016	To explore psychometric characteristics of the 10-item CD-RISC in relation to self-esteem, depression, religiosity, and psychological distress among student nurses in southwestern Nigeria	Descriptive cross-sectional study	449 nursing students, *M*= 20.29 years (*SD*, 2.38), 87.5% female	*M*=27.64 (*SD*, 6.44), range 9-40	Scale has satisfactory reliability and construct validity, Cronbach's alpha 0.81; Factor analysis indicated resilience was explained by a two-factor model, labeled "toughness" and "motivation".
Chamberlain et al., 2016	To observe the predictors of resilience in third year nursing students as a strategy for dealing with or managing study and workplace related stress, and specifically assessed, innate dispositional mindfulness, professional quality of life, and employment	Observational quantitative successive independent samples survey design	240 3rd year undergraduate nursing students from three Australian universities; *M*=29 years (*SD*, 10.56), years, 89% female	M=*37.0* (*SD*, 7); males *M*=30.09; females *M*=27.29 (*p*=.003)	In stepwise linear regression, dispositional mindfulness subset acceptance made strongest contribution, followed by expectation of graduate nurse transition program acceptance; predictive model explained 57% of the variance in resilience.
Chow et al., 2018	To explore the relationship between resilience and well-being in nursing students in relation to academic success	Descriptive cross-sectional study	678 university undergraduate and graduate nursing students in Hong Kong; 89% female, age not reported	*M*=24.0 (*SD*, 5.7), range, 7-40	Senior students had significantly higher level of perceived well-being than junior students; Multivariable regression analysis found that resilience was significant predictor of perceived well-

					being.
Kong et al., 2016	To examine positive associations between emotional intelligence and clinical communication ability among practice nursing students and to determine whether resilience plays a moderating role in the relationship	Descriptive cross-sectional study	377 graduate students in nursing who were interns in the hospital, 81.7% female, *M*= 21.36 years (*SD*, 1.24), range, 16-24	Chinese version; *M*=28.2 (*SD*, 5.61)	Emotional intelligence was positively associated with clinical communication ability; Resilience significantly affected clinical communication ability and moderated relationship between emotional intelligence and clinical communication ability.
Li et al., 2015	To investigate the relationships among post-traumatic growth, emotional intelligence and psychological resilience in vocational nursing students who have experienced childhood adversities	Descriptive cross-sectional study	202 Chinese vocational school nursing students, all female, *M*=19.4 years (*SD*, 0.8), range, 18-22 years	Chinese version; *M*=23.96 (*SD*, 6.56)	A curvilinear relationship between emotional intelligence and post-traumatic growth, and between psychological resilience and post-traumatic growth; Moderate-level emotional intelligence and psychological resilience were most associated with the greatest levels of growth.
Mathad et al., 2017	To identify correlates and predictors of resilience among nursing students	Descriptive correlational study	194 1st to four levels of nursing students in colleges of nursing, India, 94% female, 99% single, age not reported	*M*= 26.31 (*SD*, 6.28) range 5-40	Students moderately resilient; Resilience significantly correlated with mindfulness, perseverative thinking and empathy in nursing students.

Ríos-Risquez et al., 2016	To examine relationship between resilience, academic burnout and psychological health in a sample of nursing students	Descriptive cross-sectional study	113 nursing students in final academic year of university; 75.2% female, *M*=24.42 years (*SD*=5.27) ,	Spanish, *M*=34.70 (*SD*, 4.82)	Resilience was associated with lower levels of psychological discomfort and academic burnout; Analysis indicated that high resilience scores and low emotional exhaustion scores predict better perceived psychological health.
Sigalit et al., 2017	To explore the associations between students' personal and group resilience to their utilization of social networking platforms and formally taught communication skills, students personal and clinical characteristics related to resilience, and factors that contribute to satisfaction with clinical placement	Descriptive cross-sectional study	149 second year university nursing students in Israel; 89% female, most single, *M*= 22.7 years (*SD*, 2.61)	10-item, *M*=2.93 (*SD*, 0.06)	Positive correlations between students' use of social networking to their personal and group resilience; Social media use, religion, and clinical placement were related to resilience and perceived helpfulness of the communication course. Social networking can be used to promote resilience.