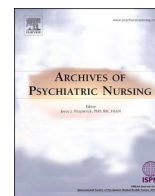




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Resilience and burnout in healthcare students and inpatient psychiatric nurses: A between-groups study of two populations

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ABSTRACT

Background: Stressful environments can have significant effects on an individual and lead to burnout. Psychological consequences of burnout include trauma reactions, depression, anxiety and substance use disorders. Resilience, a protective mechanism can mitigate the negative impact of burnout.

Method: This study utilizes an exploratory correlational design to determine whether or not there is 1) a similar correlation between resilience and burnout between psychiatric nurses working in a high stress environment and students who are naive to the high stress academic environment and 2) a higher level of resilience in the psychiatric nurses compared to the healthcare students.

Results: A significant inverse relationship was observed with respect to resilience and burnout in both the professional nurse and student groups. However, the inpatient psychiatric nurse group was not found to have a higher level of resilience than the student group, when controlling for age.

Conclusion: This suggests that resilience to burnout is not related to the work environment but life experience (age) was found to be a factor related resilience in this sample.

Introduction

Resilience is a protective mechanism against the consequences of burnout such as trauma reactions, depression, anxiety and substance use disorders (Hu et al., 2015; Jackson et al., 2016; Jacobowitz et al., 2015; Taku, 2014). Specifically, burnout can increase a healthcare worker's susceptibility to having a trauma reaction after secondary exposure (Cieslak et al., 2014). In contemporary society, healthcare workers face many challenges along a continuum from managing day to day stressors, to reacting and responding to global pandemics such as COVID-19. Professional nurses make up the largest segment of healthcare workers and spend the majority of their work hours providing direct patient care. Irrespective of the clinical setting, provision of healthcare can be highly stressful and involve risks to personal safety. However, psychiatric nurses experience increased levels of stress due to the patient population they are caring for, which can include patients with suicidal ideation, violent behavior, verbal and physical threatening. This is often associated with more emotional distress than other nursing specialty fields (Jacobowitz, 2013; Yoshizawa et al., 2016). Furthermore, factors such as the emergence of COVID-19 and other recent global health pandemics (i.e., H1N1, Ebola, etc.), increase the psychological impact of stress, and

risk for burnout (Shechter et al., 2020). The literature discusses the effect of high stress experiences in terms of a potentially negative impact on the healthcare worker's mental health (Jacobowitz et al., 2015; Taku, 2014). Recently, a study of 1257 healthcare workers managing the care of COVID-19 patients, reported "symptoms of depression (50.4%), anxiety (44.6%), insomnia (34.0%), and distress (71.5%)" (Lai et al., 2020 p.8). Resilience can mitigate the negative impact of burnout in the healthcare environment (Marcus & Dubi, 2006; Taku, 2014).

University students also experience stress due to academic demands such as assignments, exams and interpersonal relationships (Bacchi & Licinio, 2017; Kwaah & Essilfie, 2017). For healthcare students, clinical completion requirements are an added source of stress. Noteworthy, stress can increase as they get closer to transitioning into the professional setting (Smith & Yang, 2017; ul Haq et al., 2018). Recent calls to action to respond to the COVID-19 pandemic have included healthcare students further complicating the issue (American Organization for Nursing Leadership, 2020; Miller et al., 2020). This has the potential for deleterious psychological effects for students who are entering an occupational environment with high levels of stress, complicated by an emerging pandemic response. To understand the etiology of resilience and burnout in individuals who work in high stress areas is not a simple

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relationship. The literature presents conflicting evidence and differences between populations with demographics such as age, gender and length of employment (Cooke et al., 2013; Gillespie et al., 2009; Rushton et al., 2015; Sull et al., 2015). With that in mind, the purpose of this study is to further explore the relationship of resilience and burnout in two groups of subjects: a sample of inpatient psychiatric hospital nurses working with individuals that have a high potential for violence, compared to a sample of university healthcare students.

Job stress is defined as “the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker (National Institute for Occupational Safety and Health (NIOSH), 2014, para 5).” Healthcare environments are considered one of the most stressful occupational settings (Koinis et al., 2015; Maslach & Leiter, 2016). This is due to the inherent mental, emotional and physical demands placed on the individual providing care in a high-stakes environment. Compounding the issue, are factors such as tenuous relationships with management and colleagues, staffing shortages, complex decision making, exposure to trauma and concerns for patient safety (Aiken et al., 2013; NIOSH, 2014; Perez et al., 2015). Navigating these challenges can negatively impact the healthcare workers’ job performance and compromise their ability to provide high quality care. These factors cause high levels of stress and low role satisfaction which lead to high turnover and attrition (Sellers et al., 2019). Furthermore, working in environments with prolonged stress exposure, in which the demands of the job outweigh resources and support for the individual, can significantly increase the risk for physiological and psychological conditions (Koinis et al., 2015).

Resilience.

Resilience is defined as one’s ability to bounce back or recover from adversity. In the literature, it has been described as both a trait and a process. Resilience is a positive response to stress in which the individual experiences growth and development despite challenges. As a trait, it is defined as an individual’s innate ability to respond to negative events or have an adaptive personality (Maltby et al., 2015). As a process, resilience is described as “dynamic and can be influenced by the environment, external factors, and/or the individual and the outcome” (Garcia-Dia, DiNapoli, Garcia-Ona, Jakubowski, & O’Flaherty, 2013 p. 267). Interesting to note, demographics such as gender, age and length of employment were found to be associated with higher levels of resilience, specifically with female healthcare workers, full-time work versus part-time work and age or being an older employee (Gillespie et al., 2009; Sull et al., 2015). However, this is not consistently reported. In other studies, years of experience in the workplace did not increase resilience scores (Cooke et al., 2013; Rushton et al., 2015). Other demographic factors such as income and level of education did not affect levels of resilience (Gillespie et al., 2009; Wagnild, 2003).

Posttraumatic growth is another important consideration when conceptualizing resilience. Posttraumatic growth is the transformative positive change that can occur as a result of a struggle with great adversity (Maitlis, 2020). Exposure to traumatic events can cause a range of post-trauma growth responses, however individuals who experienced personal trauma versus occupational trauma in practice settings had a greater association with negative outcomes (Shamia et al., 2015). That being said, when examining the impact of personal trauma, Li et al. (2015) found that nursing students who experienced adverse childhood events, emotional intelligence and psychological resilience were associated with posttraumatic growth.

Burnout

Burnout is defined as “a psychological response to prolonged exposure to chronic emotional and interpersonal stressors on the job” (Maslach and Leiter, 2016, p. 103). The key dimensions of this response are an overwhelming exhaustion, feelings of cynicism with detachment from the job, and a sense of ineffectiveness with lack of accomplishment (Maslach et al., 2001). In addition, Maslach and Schaufeli (1993)

identify essential components of burnout: (a) There is a predominance of dysphoric symptoms such as mental or emotional exhaustion, fatigue, and depression, (b) the emphasis is on mental and behavioral symptoms more than physical ones, (c) burnout symptoms are work-related, (d) the symptoms manifest themselves in “normal” persons who did not suffer from psychopathology before, and (e) decreased effectiveness and work performance occur because of negative attitudes and behaviors. These factors have been linked to poor levels of psychological resilience which in turn causes difficult psychological adjustments (Rees et al., 2015).

Research on burnout has identified six areas of risk in the occupational setting: excessive workload, lack of autonomy, insufficient recognition and reward, lack of support and conflict in the environment, perception of fairness and values or meaningfulness of the work (Price, 1991). Treglown et al. (2016) found that individuals with moody, emotionally volatile, excitable personalities were at greater risk for burnout due to short-lived enthusiasm for projects and people, as well as a heightened sensitivity to betrayal. They also found that individuals with cautious personalities also presented with a higher risk of burnout due to limited positive social interactions.

Burnout has been recognized as an occupational hazard to individuals working in healthcare (Maslach & Leiter, 2016). Burnout among health care workers is associated with negative health effects, missed work days, high turnover rates and lack of effectiveness in the work setting, as well as low job satisfaction (Maslach et al., 2001; Portoghese et al., 2014; Schaufeli et al., 2009). Specifically, health risks such as cardiovascular diseases, musculoskeletal pain and depression are linked to burnout (Salvagioni et al., 2017).

Factors that mediate or moderate the relationship of resilience and burnout.

Burnout is significantly predicted by work stress. Resilience is a moderator in the work stress-burnout relationship (Hao et al., 2015). The importance of resilience in preventing burnout, mitigating stress and promoting retention in the healthcare workforce is well documented in the literature. Resilience is a protective mechanism against burnout and has been significantly correlated with less stress, better mental health and improved quality of life (Kemper et al., 2015; Leners et al., 2014). Resilience is linked to high compassion satisfaction, low burnout, and a higher tolerance of both general and clinical uncertainty. Resilience is also noted to be negatively associated with burnout, secondary traumatic stress and inhibitory anxiety (Cooke et al., 2013).

Although resilience buffers the impact of negative experiences by improving mental health and preventing burnout, resilience did not mediate the negative effects of burnout in regards to physical health (Arrogante & Aparicio-Zaldivar, 2017). Consequently, medical students experiencing burnout with lower quality of life measures in mental and physical health domains had significantly more thoughts of dropping out of school (Dyrbye et al., 2010). However, in a cohort of student athletes, information and support from their coach moderated the stress burnout relationship (Lu et al., 2016). Personal characteristics such as optimism and work-related factors such as organizational support impacted engagement in the healthcare work environment (Mache et al., 2014). Other factors were also explored. Spiritual well-being was associated with reduced emotional exhaustion and depersonalization and physical well-being was associated with personal accomplishment (Rushton et al., 2015). Self-compassion and mindfulness were protective factors that are positively associated with resilience and inversely associated with burnout (Olson et al., 2015). Interventions focused on improving mindfulness and resilience may be helpful in the prevention and treatment of burnout (Montero-Marin et al., 2015).

Methods

The purpose of this study is to address two main research questions. First, is there an inverse relationship between resilience and burnout in inpatient psychiatric nurses and in healthcare students (which would further support the theory that resilience is protective)? Second, does a

population of inpatient psychiatric nurses working in a high stress environment have higher levels of resilience compared to healthcare students (this might suggest that resilience can be enhanced through work-related experiences)? To test these research questions, four hypotheses were formulated. For purposes of analysis, students were selected from a variety of educational programs to further determine whether there are differences among student types.

Hypothesis 1. Resilience scores are inversely related to Burnout scores in the combined student group and inpatient psychiatric RNs.

Hypothesis 2. Among the students, the 14-item Resilience Scale (RS-14) score for the combined bachelors and graduate nursing students is greater than for the combined public health and other students.

Hypothesis 3. The Burnout score in inpatient psychiatric nurses is not significantly greater than in the combined student group.

Hypothesis 4. Resilience scores are greater in inpatient psychiatric nurses compared to the combined student group.

Research definitions

1. Stressful work environment - working in an ICU, inpatient psychiatric unit, or emergency department.
2. Healthcare student - attendee of one of the following programs: generic Baccalaureate RN, Adult Gerontological Primary Care Nurse Practitioner, Masters in Public Health.
3. Non-nursing students - Masters in Public Health students.
4. Nursing students - includes both Bachelors and Masters level nursing students
5. Combined student group - members of the Bachelors RN, Masters in Public Health, and graduate students in Adult Gerontology Nurse Practitioner programs.

Design

The study's design utilized an exploratory correlational design employing a 56-item online questionnaire that was administered to a convenience sample of undergraduate nursing, graduate nursing and graduate public health students at a northeastern US university.

For purposes of hypothesis testing, an alpha level of 0.05 was chosen. Sample size estimation was performed using G*Power 3.1 (Faul et al., 2009). At Power = 0.80 using a Mann-Whitney *U* Test with an expected medium Effect Size in a two-tailed analysis, a sample of 134 was required.

Ethical considerations

In order to facilitate protection of human subjects, this study was reviewed and approved by the IRB of the authors' university, the student-subjects' data were anonymous as they were collected using an online platform (Survey Monkey™), and identifying information, including IP addresses, were not solicited or collected. Additionally, de-identified data of the inpatient psychiatric nurses from a prior IRB approved study conducted by one of the current study's authors with respect to the relationship of resilience and burnout were used to compare to the results of the data collected from the current study (see Table 1 for demographic characteristics of the subjects).

Sampling and setting

The sampling procedure consisted of student research assistants soliciting other students in their classrooms to be the subjects of the study. Permission from the class instructors was obtained beforehand, and the instructors were not present in the room during the solicitation and consenting processes. The research assistants were not students in

the classes where students were solicited, and an implied consent process was employed, i.e., the research assistants read a script describing the study, answered any questions that were posed, and directed the students to access the consent using their smartphones or laptops through a link that the research assistants provided. The students could either exit from the link or continue to the questionnaire depending on their inclination towards participating as subjects.

The data were collected in the Spring of 2018 from 3 groups of samples: 1) bachelors nursing students; 2) adult gerontology primary care nurse practitioner students; and 3) public health graduate students (MPH program, non-clinical). These data were compared to a dataset from a previous study conducted by one of the authors in the Spring of 2012 at a 250-bed free standing psychiatric hospital in a suburban New York location. In that study, data were collected from RNs in the locked acute inpatient units.

Data collection instruments

The survey utilized a 15-item demographic author-developed questionnaire. To measure resilience and Burnout, the 14-item Resilience Scale (RS-14) (Wagnild, 2009); and the Burnout Scale (a 10-item standardized subscale of the Professional Quality of Life Scale) were used (Stamm, 2010). The Resilience Scale-14 (Wagnild, 2009) has been used to measure resilience in a variety of groups. It employs a 7-point Likert scale, ranging from Strongly Agree to Strongly Disagree and consists of 14-items. Published Cronbach alphas for the RS-14 range from 0.93 in a clinical sample to 0.96 in a college student sample (Aiena et al., 2015). The Burnout Scale (BO) (Stamm, 2010) has been used to measure burnout in many studies involving clinical samples. It utilizes a 5-point Likert scale, ranging from Very Often to Never, and consists of 10-items. Cronbach alphas of the Burnout Scale in clinicians range from 0.78 to 0.85 (Hemsworth et al., 2018).

Analytic procedures

The data were analyzed for missing statistics and normality of the distributions. Due to relatively few missing statistics, data missing at random were replaced using each individual subject's mean score for that scale. Data missing not at random were not replaced since it may be the result of subject bias. Due to only one out of the eight distributions of the groups of data (4 groups of subjects X two variables = 8 groups of data) being normally distributed, all analyses were conducted using nonparametric tests, i.e., Spearman correlation coefficient, Mann-Whitney *U* Test and the Kruskal-Wallis ANOVA Test. Statistical analyses were performed using IBM-SPSS version 25.

Results

The first step involved assessing the quality of the data. One-hundred and twenty-two (122) students responded, but 3 were excluded due to data missing in a non-random manner (MNAR), resulting in a sample size of 119. The nature of the missing data were that they failed to indicate which academic program they were in and they failed to complete one or both of the standardized measurement scales. Three (3) students in the Generic RN program failed to answer from 1 to 3 questions on one of the measurement scales in a random manner (no observable pattern). In each of the latter cases, the data were replaced using the mean scores for that student with respect to the particular scale. Additionally, 3 students indicated their program as 'Other'. The previously collected data with respect to the inpatient psychiatric RNs consisted of 51 subjects. In total, a combined dataset of 170 subjects was utilized which is in excess of the minimum size of 134 as calculated from the sample size estimation procedure.

With the alpha level set at 0.05 ($p < .05$), significant differences were not observed in comparing the combined student group to the inpatient psychiatric nurse group, except with respect to 5 demographic

Table 1
Demographic Statistics of the Combined Student and Inpatient Psychiatric RN Groups.

		Combined student group		Inpatient psychiatric RN group		Significant differences between groups
		N = 119		N = 51		
		N	%	N	%	(p - Values)
Program	Generic BS-RN Program	42	35.3	Not applicable		
	NP Program	36	30.3			
	MPH Program	38	31.9			
	Other	3	2.5			
	Total	119	100.0			
Age	Mean	29.5		Not available		
	Minimum	21				
	Maximum	59				
	21–30	77	63.1	9	17.6	<.001
	31–40	33	27.0	13	25.5	
	41–50	7	5.7	16	31.4	
	51+	5	4.1	13	25.5	
	Total	122	100.0	51	100.0	
Gender	Female	106	89.1	45	88.2	
	Male	13	10.9	6	11.8	
	Total	119	100.0	51	100.0	
Race	Black	19	23.8	14	27.5	<.02
	White	34	42.5	35	68.6	
	Asian	17	21.3	1	2.0	
	Other	10	12.5	1	2.0	
	Total	80	100.0	51	100.0	
Ethnicity	Latino	14	17.5	3	5.9	<.05
	Non-latino	66	82.5	48	94.1	
	Total	80	100	51	100.0	
Work status	Full-time	54	44.3	51	100	<.001
	Part-time	45	36.9	0	0	
	Unemployed	23	18.9	0	0	
	Total	122	100.0	51	100	
School status	Full-time	76	62.3	Not applicable		
	Part-time	46	37.7			
	Total	122	100.0			
Current work environment	ICU	13	10.7	0	0	
	Emergency department	10	8.3	0	0	
	Psychiatric unit	2	1.7	51	100	
	Other (Non-first responder)	96	79.3	0	0	
	Total	121	100.0	51	100	
Plan for future employment	ICU	22	20.8	Not applicable		
	Emergency department	17	16.0			
	Psychiatric unit	6	5.7			
	Other (Non-first responder)	61	57.5			
	Total	106	100.0			
Years of RN work	0	68	60.2	0	0	
	1	1	0.9	5	9.8	
	2–3	4	3.5	12	23.5	
	4–5	8	7.1	11	21.6	
	6+	32	28.3	23	45.1	
	Total	113	100.0	51	100.0	
Highest education	1–3 college			19	37.3	
	Bachelors			27	52.9	
	Masters			4	7.8	
	Doctoral			1	2.0	
	Total			51	100.0	
Work schedule (shift)	Day			17	34.7	
	Evening			19	38.8	
	Night			13	26.5	
	Total			49	100.0	
Household income	<\$50 k	28	23.5	Not available		
	\$51 K–\$100 k	37	31.1			
	\$101 k–\$150 K	33	27.7			
	>\$150 k	21	17.6			
	Total	119	100.0			
Relationship status	Committed Relationship	25	31.3	37	75.5	<.01
	Lives with friends or family	48	60.0	8	16.3	
	Lives alone	7	8.8	4	8.2	
	Total	80	100.0	49	100.0	
Use of meditation	Daily	10	8.2	Not available		
	Several times per week	19	15.6			
	Occasionally	32	26.2			
	Never	61	50.0			
	Total	122	100.0			

characteristics. Categories of age showed significantly more 21 to 30-year old's in the student group compared to the inpatient psychiatric nurses (Chi-Square, $df = 3, p < .0010$) which was expected based on the nature of the groups. The category of race indicated significantly fewer White and more Asian and 'Other' subjects among the students compared to inpatient psychiatric nurses (Chi-Square, $df = 6, p = .013$). Similarly, ethnicity represented significantly more Latino individuals among students compared to inpatient psychiatric nurses (Chi-Square, $df = 1, p = .03$). The category of relationship status, as expected, contained significantly more students living with family members (other than a life partner) compared to inpatient psychiatric nurses (Chi-Square, $df = 2, p = .0010$). Lastly, students' unemployment was significantly greater than inpatient psychiatric RNs, as expected (Chi-Square, $df = 2, p < .0010$). Of note, 81% of students were employed either full-time or part-time (see Table 1 for more details).

The four groups of data (bachelors RN, NP, MPH and inpatient psychiatric RN's) were evaluated for normality of the distributions on the resilience and burnout measures using descriptive statistics, histograms and the Kolmogorov-Smirnov Test. Only the distribution of data for the burnout variable for inpatient psychiatric nurses approached normality (see Table 2 for more details). As a result, all of the analyses employed non-parametric univariate and bivariate tests.

H1. The RS-14 scores are inversely related to BO scores in the combined student group and inpatient psychiatric RNs. (See Tables 3 and 4.)

Resilience and burnout scores were tested for correlation in the combined student group using the Spearman Correlation test. A significant inverse relationship was observed with a large Effect Size (Cohen, 1992; $r_s = -0.61, p \leq 0.001, N = 119$). A similar result using the same test was observed among inpatient psychiatric RNs with a medium Effect Size (Cohen, 1992; $r_s = -0.39, p = .005, N = 51$). These results suggest that it is likely there is an inverse relationship between resilience and burnout that is stable in different populations.

H2. Among the students, the RS-14 score for the combined bachelors and graduate nursing students is greater than for the combined public health and other students.

Using the non-parametric Kruskal Wallis ANOVA test for three or more groups, the resilience scores were not found to significantly differ among the student groups ($p = .64, N = 119$). This result suggests that there is no self-selection process with respect to internal coping ability (resilience) and choice of a stressful career (nursing). Of note, a post hoc power analysis suggests that a sample of 156 is necessary for this analysis. Given that the actual combined student group size was 119, it is possible that this result is due to insufficient power. However, the p -value of 0.64 with a group size of 119 subjects suggests that it is quite probable that a significant difference in resilience among the students would not be found even with the suggested minimum sample size.

H3. The BO scores in inpatient psychiatric nurses is not significantly greater than in the combined student group.

Again, the Mann Whitney U test was used to compare the two groups

Table 2
Psychometric Statistics of the Resilience and Burnout Scales in the Combined Student and Inpatient Psychiatric RN Groups.

	Combined student group		Inpatient psychiatric RN group	
	RS-14	BO	RS-14	BO
N	119	119	51	51
Mean	80.3	23.1	85.7	19
Median	83.5	23	88	19
SD	14.1	6.1	14.9	4.6
Minimum	17	10	21	10
Maximum	98	37	98	29
Skew	-1.7	-0.1	-3.1	0.01
K-S (p-value)	<.01	<.05	<.001	0.09

Table 3
Comparison of resilience and burnout scores in combined student and inpatient psychiatric RN groups using the Mann-Whitney U Test.

	Combined Student Group			Inpatient Psychiatric RN Group			Mann-Whitney U
	Mean	Median	SD	Mean	Median	SD	
RS-14	80.3	83.5	14.1	85.7	88	14.9	2128*
BO	23.1	23	6.1	19	19	4.6	4222**

* $p < .01$.
** $p < .001$.

Table 4
Comparison of resilience means, standard deviations and group sizes among student sub-groups.

Group	Mean	Standard deviation	Group Size
Generic BS-RN	82.1	11.8	$N = 42$
NP RN	80.6	16.2	$N = 36$
MPH	79.1	11.7	$N = 38$
Other	83.3	4.0	$N = 3$

of subjects. This hypothesis was rejected and burnout scores were found to be significantly higher in combined students (median = 23) compared to inpatient psychiatric RNs (median = 19; $p < .001; N = 170$). It appears that students in this sample experience a significantly greater amount of burnout symptoms compared to inpatient psychiatric RNs, but with a range of scores from 10 to 37 caution in interpreting the meaning of the result needs to be exercised, similar to that discussed related hypothesis 2.

H4. The RS-14 scores are greater in inpatient psychiatric nurses compared to the combined student group.

Using the non-parametric Mann Whitney U test for comparison of two groups, it was observed that the resilience scores were significantly greater in inpatient psychiatric RNs (Median = 88) compared to combined students (median = 83.5; $p = .002; N = 170$). Although statistically significant, the range of scores (17–98) needs to be considered and it is important to recognize that a readily discernible difference in characteristics in these two groups may not be possible.

Post hoc test controlling for significant demographic variables

As mentioned earlier in the Results section of this paper, 5 demographic variables were found to significantly vary between the inpatient psychiatric RN group and the combined student group. To determine the effects of these demographic variables on the findings for hypotheses 3 and 4, a two-step multiple logistic regression analysis was performed. In step 1, the 5 demographics were regressed against the 'inpatient psychiatric RN/combined student' binary variable. In step 2, Burnout scores and the RS-14 scores were regressed (maintaining the demographics as control variables). The results are that 1) age was the only demographic found to be statistically different between the inpatient psychiatric RN and combined student groups ($B = -0.66, p = .01, OR = 0.51, R^2 = 0.44$); 2) Burnout scores remained significantly different between the inpatient psychiatric RN and the combined student groups ($B = 0.133, p = .03, OR = 1.14, R^2 = 0.02$); and more importantly 3) RS-14 scores were not significantly different between the inpatient psychiatric RN and combined student groups. This latter finding suggests that hypothesis 4 is not retained when controlling for the effect of age.

The latter findings may be interpreted that age did not have an effect on the difference in burnout between the inpatient psychiatric nurse and combined student groups (students had significantly higher levels of burnout), but that age was a more robust predictor of resilience than

work/school environment resulting in the latter no longer being a significant predictor of resilience. This appears to suggest that life experience (age) is more strongly associated with the development of resilience than psychological adjustment to workplace-related stress.

Discussion

A significant inverse relationship was observed with respect to resilience and burnout in both students and inpatient psychiatric nurses. This suggests that resilience may be protective with respect to the development of burnout. This finding is consistent with the literature (Cooke et al., 2013; Kemper et al., 2015; Leners et al., 2014; Zou et al., 2016). Resilience can minimize the impact of a strenuous or harmful environment and enhance the individual's ability to thrive in a stressful environment (McGowan & Murray, 2016; Rippstein-Leuenerberger et al., 2017; Sanderson & Brewer, 2017). However, in a recent study of more than 5000 physicians, researchers found that even with higher levels of resilience, the individual was still susceptible to the effects of burnout (West et al., 2020). This is important because even though resilience may offer some protection against burnout, it may not prevent it.

Initial results from this study found that the inpatient psychiatric nurses had higher resilience levels than students. Findings such as this, could possibly occur through some aspect of the work environment or work experience that enhances resilience and reduces burnout such as traumatic growth or through attrition. Challenges of the work environment reduce the nurse workforce to only those with higher resilience and lower burnout, i.e., healthy worker effect (Li & Sung, 1999), or some combination of both of the above processes. One study found that the turnover rate for newly hired registered nurses is estimated to be 17.5% and one in three (33.5%) leave within two years (Kovner et al., 2014) potentially supporting the healthy worker idea. However, results from the current study did not support this, because post hoc tests controlling for significant demographic variables revealed that age had a stronger association with the development of resilience versus the environment. That being said, when examining the effects of stress in the work environment, Crane and Searle (2016) found that environments that had challenge stressors, or stressors that created opportunities for growth and development, fostered the development of resilience versus environments with hindrance stressors which inhibited the development of resilience. Based on their work, it appears that the environments of the psychiatric setting and the school setting where the research took place contain hindrance stressors that inhibit the development of resilience. This may be due to certain unpredictable aspects to the stressor or the overall amount of stress (overwhelming) that the subjects experience.

Consistent with other studies in the literature, findings in the current study found that age was significantly predictive of higher levels of resilience (Gillespie et al., 2009; Gooding et al., 2012; Sull et al., 2015). Age however, did not have an effect on burnout. This is contrary to findings from other studies, which have found a relationship between younger age and burnout (Gómez-Urquiza et al., 2017; Zeng et al., 2020). This difference may be due to the unpredictable and overwhelming characteristics of work in an acute psychiatric inpatient setting, and the quantity of stress that students experience who are frequently, working at full or part-time employment while dealing with the challenges of academic workload.

Students in this study had significantly higher levels of burnout compared to inpatient psychiatric nurses. For students, factors such as self-evaluation and organizational support, perfectionism, lack of academic self-efficacy and the perception of lack of teacher support were linked to burnout (Leupold et al., 2019; Onuoha & Idemudia, 2017). Understanding the impact that stress and trauma can potentially have on the student, resilience and burnout prevention training should begin in the academic setting. As students transition into potentially professional environments, they should be prepared to navigate challenges successfully with continued support. It is essential that they are trained to know how to develop resilience in response to overcoming obstacles,

persevering in a demanding career and preventing burnout (McDonald et al., 2016). Although resilience and burnout have a protective relationship, specific strategies to develop resilience and prevent burnout must be integrated into health and wellbeing training for healthcare students and professionals.

In a scoping review of the literature, Low et al. (2019) found that resilience in healthcare provider education was developed through strategies which were combined into the following six themes (a) Reflective Practice; (b) Storytelling; (c) Peer Support and Mentoring; (d) Professional Support and Mentoring; (e) Mindfulness and Meditation Practice; and (f) Enhancing Self-Knowledge and Personal Competencies (p. 322–323). Interestingly, a review of resilience in the academic health education setting found weak evidence that resilience was associated with only slightly improved academic performance and decreased burnout (McGowan & Murray, 2016). Overall, resilience training for students was implemented as a preventative measure to entering a stressful career, and not as a response to mitigating student burnout in the academic setting. This evidence points to the need for integration of resilience development and burnout prevention training starting in the academic setting. Furthermore, Vanhove et al. (2016) found that with more formal approaches such as resilience and trauma training, the effects were small and diminished over time with the exception of higher risk individuals. This diminishing effect suggests that training should be ongoing as the individual transitions into the professional environment.

Finally, resilience was not found to be significantly different among the 4 categories of students. This suggests that there is no self-selection process with respect to resilience and the choice of nursing as a career. This is important as resilience development and burnout prevention training should be taught across the health professions in an inter-professional format.

Limitations

The data reported here are cross-sectional and do not reflect findings stemming from an experimental design, no statements of causality can be inferred from the results. In addition, given subjects were not randomized to the two study groups, issues of lack of comparability and sample bias are possible. This is supported from the fact that 20% of students work in a high stress workplace as defined in this paper, i.e., ICU, emergency department or inpatient psychiatric unit. The results should be interpreted with this limitation in mind. Future research should incorporate prospective and or experimental designs to test the replicability of the findings reported here. Despite these limitations, this study addresses an important gap in the current extant scientific literature related to resilience among the nursing workforce and addresses a timely issue with significant practical implications for the nursing workforce and broader healthcare delivery field.

Implications for practice

In the work setting, and in the context of COVID-19 and other recent global health pandemics, careful considerations will need to be made to minimize the negative consequences of high stress and exposure to traumatic experiences. The literature shows that collegial healthcare environments in which workers have relationships outside of the work environment should be fostered to build resilience. Innovative solutions to maintain social connectedness should be implemented. Institutions can come up with creative ways to build team resilience and reduce burnout with restorative activities to mitigate the impact of stress and trauma. Resources within the healthcare work environment can include providing supervision with challenging clinical cases, debriefing after incidents, taking a break from stressful patients (Jacobowitz et al., 2015). Individual coping mechanisms to support resilience such as developing mindfulness skills, engaging in self-care and seeking emotional support from colleagues (Perez et al., 2015) should be encouraged and taught to nurses. Furthermore, as the literature shows

diminished effects of interventions over time, resilience development and burnout prevention training should occur on a consistent, routine basis.

Implications for future research

It is important to understand how to reduce burnout and enhance resilience development in students. Interventions should be developed to promote the health and well-being of students and measured for outcomes. Furthermore, resilience can be measured utilizing a longitudinal study approach. This will shed light on how resilience changes over time as the individual transitions from an academic environment into the workforce. This may also reveal reasons for attrition and identify if and how the healthy worker effect impacts the existing workforce.

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