Correlates and Predictors of Resilience among Baccalaureate Nursing Students

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ABSTRACT

Introduction: A growing body of literature recognizes the importance of resilience in the nursing profession. Both mindfulness and resilience aid in handling stress, stress increases the risk of rumination and/or worry especially in females and they are more empathetic than other healthcare students.

Aim: To identify correlates and predictors of the resilience among nursing students.

Materials and Methods: This is a descriptive correlation study and we have recruited 194 participants (1-4th year B.Sc Nursing) from Government College of Nursing and NIMHANS College of Nursing in Bangalore, India. The following instruments were used to collect the data, Freiburg Mindfulness Inventory (FMI), Toronto Empathy Questionnaire (TEQ), Perseverative Thinking Questionnaire (PTQ) and Connor–Davidson Resilience Scale (CD-RISC). Data was analysed using Pearson's correlation test and multiple regression analysis.

Results: Resilience is significantly correlated with mindfulness, perseverative thinking and empathy in nursing students. Based on regression analysis this model accounted for almost 33% of variance in resilience. This result is of interest as mindfulness alone explained 23% of the variance and unproductive Repeated Negative Thinking (RNT) and RNT consuming mental capacity predicted 8% and 2% respectively.

Conclusion: These results support the importance of resilience and mindfulness in nursing students. Hence, resilience and/or mindfulness enhancing interventions should be inculcated in nursing education.

Keywords: Empathy, Mindfulness, Nursing education, Repeated negative thinking

INTRODUCTION

Nursing students experience enormous stress to meet the professional demands [1]. Considerably, resilience is an essential quality that equips them to meet this demand [2]. According to the American Psychological Association, 2014, resilience can be defined as, "the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of stress [3]." It was reported that nursing students experience moderate to high level of perceived stress and this is negatively associated with resilience [4]. Moreover, resilience plays an important role in the retention of students in the academic program [5], and has a positive correlation with their academic success [6]. This also helps them to cope effectively with adversities in the clinical setting [7]. However, resilience is considered as an innate personal resource [8], this is dynamic in nature [9]. The growing body of literature recognizes the importance of resilience in nursing profession [10].

There is a significant positive correlation between resilience and mindfulness among health care professionals [11]. Mindfulness is being aware of the present moment to one's own experiences [12]. Being mindful helps to cope with stress [13], and resilience is considered as a measure of stress coping ability. Thus, both resilience and mindfulness play an important role in combating stress. Consequently, stress causes detrimental effects and many studies have reported stress factor increases the risk of anxiety and depression. Especially female nursing students are at high risk of anxiety and depression [14]. In this study, PTQ was used to assess the level of dysfunctional RNT [15]. This is involved in the maintenance of emotional disorders [16]. However, emotional problems are related to increased levels of RNT either in the form of rumination and/or worry. Specifically, rumination is the key feature in the onset of depressive symptoms [17], whereas, worry is subsequently related to anxiety [18]. Nursing students have more stress and anxiety compared with other students [19]. Indeed, students in nursing with high depressive rumination have

the pessimistic disposition and this is related to drop out from the academic program [20].

On the other hand, attempt is made in this paper to explore the role of empathy and its correlation with resilience. As empathy is an essential quality of a student nurse to provide quality health care to patients. In this study, TEQ was used to measure the affective empathy [21], this is an ability to imagine and understand the patients experience and the feeling [22]. In line with the professional requirement, several studies have reported higher levels of empathy in nursing students than other undergraduate students [23,24]. However, females are more empathetic than male students [24].

Considering the above evidence both mindfulness and resilience aid in handling stress, stress increases the risk of rumination and/worry especially in females and they are more empathetic than other healthcare students. Henceforth, we need to explore how much they are related and able to predict resilience.

MATERIALS AND METHODS

This is a descriptive correlation study, designed with an aim to identify the associated factors and predictors of the resilience among nursing students. A priori computation of sample size with r=-.24 as input, revealed 133 participants were required for the study at an alpha value of 0.05 and with an actual power of 0.80 as computed using G*Power version 3.1.9.2. Data collection was done from September 15 to February 16 and only those students who were willing to participate in the study were recruited. Total 194 participants (from 1-4th year B.Sc Nursing) were recruited from Government College of Nursing and NIMHANS College of Nursing in Bangalore, India. This study was approved by the Institutional Ethics Committee and informed consent was obtained from all the participants.

Socio-demographic sheet and the following instruments, FMI, CD-RISC, TEQ and PTQ were used to collect data from the students.

The socio-demographic sheet included age, gender, education, marital status and religion as reported by the participants.

Freiburg Mindfulness Inventory: The FMI is a self-report questionnaire to measure mindfulness. This consists of 14 items and is a very sensitive scale to change. Each item has a 4-point Likert rating from 1 (Rarely) to 4 (Almost always). The total score will be between 14 to 56. A higher score corresponds to high mindfulness. This scale is a valid and reliable instrument to measure mindfulness reported Cronbach's alpha is 0.86 [25].

Connor–Davidson Resilience Scale: CD-RISC is a brief, self-report questionnaire to measure resilience. Ten items scale was used in this study. Respondents answer each item on a scale from 0 (not true at all) to 4 (true nearly all the time). The range of total score is between 0 to 40. One who scores high has more resilience. This scale has robust psychometric properties [26], with Cronbach's alpha=0.85 [27]. Reported Cronbach's α =0.81 among Nigerian nursing students [28].

Toronto Empathy Questionnaire: This is a brief, reliable, and valid instrument to assess the affective components of empathy. TEQ measures empathy primarily as an emotional process. There are 16 items in this scale. Participants will rate each item on a scale from 0 (never) to 4 (always). Individual responses are added to give a total score, with the range of score between 0 to 64. Higher scores indicate a high level of affective empathy. TEQ was validated on college students and has sound psychometric properties [21].

Perseverative Thinking Questionnaire: The PTQ was developed to assess dysfunctional forms of RNT which are involved in the maintenance of emotional disorders. This consists of 15 items. Participants were asked to answer using the 5 point Likert scale from 0 (never) to 4 (almost always). The PTQ comprises of three core characteristics of RNT (repetitiveness, intrusiveness, and difficulties to disengage) and two associated features (unproductiveness of RNT and RNT capturing mental capacity). This scale is a reliable and valid instrument [15].

STATISTICAL ANALYSIS

Pearson's correlation test was applied to evaluate the correlation between variables. Prior to this missing value analysis was done. Then the mean scores of empathy, repetitive negative thoughts and mindfulness were subjected to multiple regression analysis to predict resilience. Data analysis was done using SPSS 16.0.

RESULTS

Characteristics of the study group are reported in [Table/Fig-1]. Students from all the four batch were included in the study. Majority of the students were females, single and belong to Christian religion. Results from the [Table/Fig-2] are evident that students were moderately resilient, mindful and empathetic. However, considerable amount of RNT was also reported. Moving ahead, Pearson's correlation test was run to determine the relationship between resilience, mindfulness, perseverative thinking and empathy among nursing students. The results obtained from the correlation analysis are shown in [Table/Fig-3]. It is apparent from this table that there is a significant correlation between resilience and mindfulness, perseverative thinking and empathy in nursing students. Particularly resilience is positively related to mindfulness and empathy. Conversely, there is a negative correlation between resilience and RNT subscales.

Finally, based on correlation results we applied multiple linear regression analysis (stepwise method) in which resilience was introduced as the dependent variable and all other variables as an independent variable. Overall, this model accounted for almost 33% of the variance in resilience. This finding is of particular interest as mindfulness alone explained 23% of the variance and

Characteristics	N (%)
Gender	
Male	11(6)
Female	183(94)
Marital status	
Single	193(99)
Married	1(1)
Class/batch	
1st year B.Sc	38(19.5)
2nd year B.Sc	42(21.5)
3rd year B.Sc	54(28)
4th year B.Sc	60(31)
Religion	
Hindu	67(35)
Christian	123(63)
Muslim	4(2)

[Table/Fig-1]: Characteristics of the sample (N=194).

Variable	Mean±SD	Range of total score
Resilience	26.31±6.28	5-40
Mindfulness	37.83±6.07	19-51
Empathy	41.39±6.55	26-58
Sub-scales of perseverative thinking scale		
Repeated Negative Thinking	16.64±6.85	3-35
Unproductive repeated negative thinking	4.83±2.56	0-12
RNT capturing mental capacity	5.96±2.76	0-12

[Table/Fig-2]: Descriptive statistics of resilience, mindfulness, perseverative thinking (subscales) and empathy.

	Age	Resilience	Mind-fulness	Repeated Negative Thinking	Unproductive repeated negative thinking	Mental capacity	Empathy
Age	-						
Resilience	-0.054	-					
Mindfulness	-0.063	0.471**	-				
Repeated Negative Thinking	-0.077	-0.203**	-0.090	-			
Unproductive repeated negative thinking	-0.003	-0.329**	-0.139	0.643**	-		
Mental capacity	-0.084	-0.291**	-0.134	0.690**	0.513**	-	
Empathy	-0.080	0.226**	0.116	-0.097	-0.210**	-0.178*	-

[Table/Fig-3]: Correlates of resilience among nursing students.
*p<0.05, **p<0.01
Pearson's correlation test

unproductive RNT and RNT consuming mental capacity predicted 8% and 2% respectively. The results of regression analysis are presented in [Table/Fig-4].

DISCUSSION

The most obvious finding to emerge from the analysis was that resilience is positively correlated with mindfulness and empathy. This finding seems to be consistent with other research which also found a significant correlation between resilience and mindfulness [11]. According to a survey, older nursing students were more empathetic and resilient [29]. On the other hand, resilience is negatively associated with RNT, similar result was reported in a study among anxiety and depressive patient's [30]. As reported above, both resilience and mindfulness are considered as a

	Unstandardized Co-efficient		Standardized Co-efficient	t	p
	B	Std. error	Beta		
Mindfulness*	0.495	0.065	0.483	7.627	<0.001
Mindfulness	0.455	0.062	0.444	7.320	<0.001
Unproductive RNT†	-0.694	0.147	-0.286	-4.711	<0.001
Mindfulness	0.445	0.062	0.434	7.222	<0.001
Unproductive RNT	-0.497	0.168	-0.205	-2.959	0.003
Mental capacity‡	-0.369	0.158	-0.162	-2.344	0.020

[Table/Fig-4]: Multiple linear regression analysis (stepwise method) of predictors of resilience.
*r=.483 and r²=.233   †r=.560 and r2=.314   ‡r=.577 and r²=.333
Multiple linear regression analysis (stepwise method)

measure of stress coping ability. This can be the reason behind our result.

The main finding of this study was that, mindfulness alone predicted 23% of the variance in resilience. This result can be supported by a study which reported mindfulness predicted 44% of variance in resilience among university students [31]. Our results are in line with other previous studies. Among health service professionals higher levels of both resilience and mindfulness are significant predictors of psychological distress and burnout [32]. Being mindful and having an accepting attitude towards experience bestows on psychological resilience, especially when exposed to trauma [33]. So, it is essential to enhance personal resilience to cope with demands of the profession [34]. Furthermore, unproductive RNT explained 8% of variance and RNT consuming mental capacity could predict only 2% of variance in resilience. However, less rumination was also one among significant predictors of resilience [30]. And there is no single demographic, personality or biological factor that can predict or enhance resilience more than a small degree [35].

Our results partially support aim of the study, since, only mindfulness and RNT could predict resilience but not empathy. Reason remains unclear which needs to be explored in future research.

These factors, active coping, cognitive flexibility, and social support aid in the maintenance of resilience [36]. Specifically, use of positive reappraisal and less rumination can predict high resilience in patients with anxiety and depression [30]. Positive re-appraisal is the main factor in protecting against the ill-effects of stress [37]. Substantially it plays a significant role in enhancing resilience [38] and mindfulness plays a key role in positive re-appraisal [39]. Even though re-appraisal is essential in increasing resilience other factors like personal, socio-environmental factors also contribute to a great extent [40]. Reason for our result could be explained based on the role of positive re-appraisal as a stress coping strategy.

LIMITATION

The scope of this study is limited in terms of its design itself and only self-reported questionnaires were used for data collection. However, research should be undertaken using a large sample size and other variables (both psychological and physiological parameters) in relation to resilience. This has to be explored in future research using controlled trials for practical application.

CONCLUSION

Taken together, these findings show resilience is significantly related to mindfulness, empathy and RNT. Regression results reveal mindfulness alone could predict 23% of the variance in resilience. Overall, these outcomes support the importance of resilience and mindfulness in nursing students. Resilience and/mindfulness enhancing program should be inculcated in nursing education.

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