Original Research Article

Impact of time management program on stress and coping strategies adopted by nursing students with regard to academic performance

Juby Mary Chacko[1],*, Achamma Varghese[1], Nirmala Rajesh[1]

[1]*Dept. of Nursing, Shri Jagdishprasad Jhabarmal Tibrewala University, Rajasthan, India*

ABSTRACT

Background: Because nurses must interact with a variety of people in a variety of situations, nursing is an emotionally taxing and extremely stressful vocation on various times of the day and circumstances. To look at the coping mechanisms nursing students use to deal with the stress of their studies and clinicals. High levels of stress can have negative effects on learning, coping, academic performance, and retention in nursing students as well as memory, focus, and problem-solving skills. There have been no studies explicitly involving nursing students, but college students with higher levels of learnt resourcefulness tend to be more motivated, self-assured, and academically persistent.

Materials and Methods : At a chosen health science university in Mangalore, 320 undergraduate students participated in a descriptive-correlative study. Utilizing disproportionate stratified sampling approaches, the samples were chosen. Researcher used various tool such as time management questionnaire, Student Nurse Stress Index and self-prepared tool for academic performance.

Results: The mean post-test stress score (65.79±8.79) ranging from 31 to 86 was lower than the mean pre-test stress score (70.77±9.01) ranging from 36 to 95. The mean time management during post-test (110.88±15.08) was higher than that of pre-test (98.14±11.46). The mean stress score during post-test (65.79 ± 8.79) was lower than that of pre-test (70.75±9.02). The mean academic performance score during post-test (26.52±4.84) was higher than that of pre-test (22.79±3.90). Majority of samples (71.6%) were having good level of time management followed by 27.5% having average and 0.9% having excellent time management score during pre-test. Where as in post-test, most of the samples had (83.8%) good time management score followed by 8.8 % having excellent and 7.5 % having average The results also showed that 65.6% were having moderate level of stress followed by 31.9% having high and 2.5 % having low stress level, where as in post-test, most of the samples had (81.9%) moderate stress score followed by 13.1 % having high and 5% having low stress score. The data regarding academic performance states that 73.4% were having average academic performance score followed by 24.7 % having poor and 1.9% having good academic performance. Where as in post-test, majority of the samples had (64.1%) average academic performance score followed by 23.4 % having good and 12.5 % having poor academic performance score.

Conclusion: This study reveals that the stress load is directly related to poor academic performances and a good strategy adaptation will definitely bring a fruitful result in nursing students for their carrier development.

1. Introduction

The foundation of the healthcare system is the nurse, and being a good nurse requires rigorous training that begins on the first day of nursing school or college. Nursing

* Corresponding author.
E-mail address: jubymary@gmail.com (J. M. Chacko).

students encounter difficult situations frequently throughout their studies. The student's health is seriously threatened by academic demands, adjusting to college and dorm life, living apart from family, and coping with a variety of patients (Cherkil S et al, 2013., Prasad CV,2013., Singh A, 2013., Yamashita K,2012). Students' health is frequently impacted by ongoing stress from a variety of sources, which increases their risk of experiencing mental health issues and psychosomatic illnesses. The coping mechanisms that students employ greatly influence how they perceive stress and how well they can manage it. Students who believe they are under a lot of stress and who find it difficult to deal with the situation may frequently suffer from a variety of physical and mental health issues (Carver CS et al, 1997., Tully A et al., 2004., Labrague LJ et al, 2014., Kaneko S et al, 215., Ho M, Wong VSW et al, 2015., Jones MC, 1999).[1–5]

Stress is a crucial and likely response of daily living, and is unavoidable because it related to any external incident, whether it is satisfying or worries producing. A person reaction towards stress found on whether an event is judged as a challenge or a warning. Challenging stimulus can bring constructive outcome for instance improved task performance and increase motivation. In other way threatening ones can lead social discomfort, depression, anxiety, and even develop suicidal intention. Stress is a necessary and likely reaction to everyday life that cannot be avoided because it is connected to every outside event, regardless of how rewarding or unsettling it may be (Bakhsh M et al, 2015). For nursing students, time management can be the most useful skill. To make more time for other critical tasks, nursing students may need to prioritise all of their activities. Additionally, one of the most crucial skills that everyone must master is time management. Therefore, mastering time management skills will aid pupils in feeling more at ease, focused, and in charge. Additionally, efficient time management techniques, such as prioritising tasks and defining goals, can increase productivity and decrease stress, which will improve work output (Eid N, et al 2013., Al Khatib A).[6–9]

High expectations, information overload, academic pressure, unattainable goals, scarce chances, and intense competition all contribute to academic stress in the collegiate setting (Busari O et al.2012).

Hence the mn purpose of this study was to study the impact of time management program on stress and coping strategies adopted by nursing students with regard to academic performance.

2. Materials and Methods

2.1. Research approach

An evaluative quantitative approach was used to accomplish the objective

2.2. Research design

Research design used was quasi experimental design

2.3. Study settings

The study was carried out in different nursing college, Mangaluru.

2.4. Study population

Population was B.Sc. nursing students of Nursing Colleges.

2.5. Samples

Samples will be B.Sc. nursing students of selected colleges who fulfilled inclusion criteria.

2.6. Inclusion criteria

1. Students of B.Sc. Nursing Program who were willing to participate.
2. Students who were physically and psychologically fit during the time of data collection.
3. Students who were open to communicate and collaborate for the study.

2.7. Exclusion criteria

1. Students who have already attended time management skill training programme.
2. Students who were undergoing any counselling programme.
3. Students who were absent during the data collection procedure.

2.8. Sample size

The sample size was 320 nursing students. Based on the formula
$$n = \frac{2\,(Z\alpha + Z\beta)2 * S2}{d2}$$
Where $Z\alpha$ =1.96 at 95% confidence level and $Z\beta$ =1.28 at 90% power

S= Combined Standard deviation and d= mean difference s=10.85 d=5.72. With 95% confidence level and 80% power wrt (Relationship between Effectiveness of Time Management and Stress levels among Nursing) sample size comes to be minimum of 80 in each group. Hence total sample will be 80 x 4 =320.

3. Sampling Technique

The sampling was be done in two stages.

1. *Stage 1:* Random Sampling was done to select the Nursing colleges
2. *Stage 2:* Disproportionate stratified sampling technique was used for selecting the sample.

4. Data Analysis

The statistical calculations were performed using computer-based statistical software Statistical Package for the Social Sciences (SPSS) version 21.0

5. Results

Table 1: Range, mean, standard deviation and median of time management scores among Nursing Students

	Range	Mean	SD	Median
Pre-test	72-139	98.14	11.46	98.0
Post-test N=320	82-143	110.88	15.08	107.0

Data presented in Table 1 revealed that the mean post-test time management score (110.88 ± 15.08) ranging from 82 to 143 was higher than the mean pre-test time management score (98.14 ± 11.46) ranging from 72 to 139.

Table 2: Range, mean, standard deviation and median of stress scores among Nursing Students

	Range	Mean	SD	Median
Pre-test	36-95	70.77	9.01	72.0
Post-test N=320	31-86	65.79	8.79	65.0

Data presented in Table 2 revealed that the mean post-test stress score (65.79 ± 8.79) ranging from 31 to 86 was lower than the mean pre-test stress score (70.77 ± 9.01) ranging from 36 to 95.

Table 3: Mean, standard deviation, mean difference, t value and p value of time management scores before and after time management program among nursing students

Time	Mean	SD	Mean difference	't' value	p value
Pre-test	98.14	11.46	12.74	10.711	<0.001
					***
Post-test	110.88	15.08			

T (319 =1.650 at 0.05 level of significance
*** Significant at 0.001 level N=320

The data presented in Table 3 depicts the mean, standard deviation, mean difference, t value and p value of time management scores before and after time management program among nursing students. Data revealed that the mean time management during post-test (110.88 ± 15.08) was higher than that of pre-test (98.14 ± 11.46). The t value

obtained (10.711) was higher than the table value (1.650) at 0.05 level of significance. [10–16]

Hence, the null hypothesis was rejected and research hypothesis was accepted. Therefore, the mean time management score was significantly different before and after time management programme.

Table 4: Mean, standard deviation, mean difference, t value and p value of stress scores before and after time management program among nursing students

Time	Mean	SD	Mean difference	't' value	p value
Pre-test	70.77	9.01	4.98	10.761	<0.001
Post-test	65.79	8.79			***

t (319) =1.650 at 0.05 level of significance
*** Significant at 0.001 level N 320

The data presented in Table 4 depicts the mean, standard deviation, mean difference, t value and p value of stress scores before and after time management program among nursing students. Data revealed that the mean stress score during post-test (65.79 ± 8.79) was lower than that of pre-test (70.75± 9.02). The t value obtained (10.761) was higher than the table value (1.650) at 0.05 level of significance. Hence the null hypothesis was rejected and research hypothesis was accepted. Therefore, the mean stress score was significantly different before and after time management programme. [17–22]

Table 5: Mean, standard deviation, mean difference, t value and p value of academic performance scores before and after time management program among nursing students

Time	Mean	SD	Mean difference	't' value	p value
Pre-test	22.79	3.90	3.73	17.169	<0.001
Post-test	26.52	4.84			***

t(319)=1.650 at 0.05 level of significance
*** Significant at 0.001 level N=320

The data presented in table 05 depicts the mean, standard deviation, mean difference, t value and p value of academic performance scores before and after time management program among nursing students. Data revealed that the mean academic performance score during post-test (26.52 ± 4.84) was higher than that of pre-test (22.79± 3.90). The t value obtained (17.169) was higher than the table value (1.650) at 0.05 level of significance.

Hence the null hypothesis was rejected and research hypothesis was accepted. Therefore the mean academic performance score was significantly different before and after time management programme.

Data presented in Table 6 revealed that majority of samples (71.6%) were having good level of time management followed by 27.5% having average and 0.9%

Table 6: Distribution of samples according to level of time management before and after intervention

Sl. no	Level of time management	Scoring	Pre-test		Post-test	
			f	%	f	%
1	Poor	≤45	0	0	0	0
2	Average	46-91	88	27.5	24	7.5
3	Good	92-136	229	71.6	268	83.8
4	Excellent	137-182	3	0.9	28	8.8

having excellent time management score during pre-test. Where as in post-test, most of the samples had (83.8%) good time management score followed by 8.8 % having excellent and 7.5 % having average.
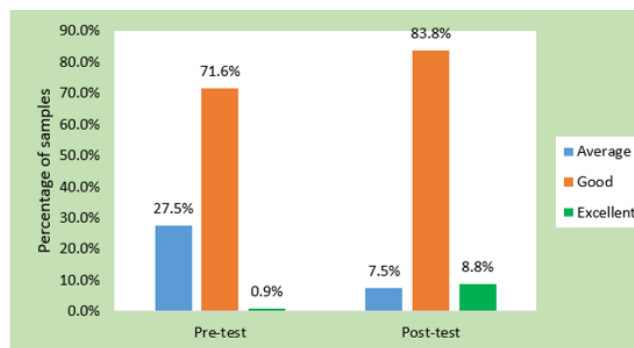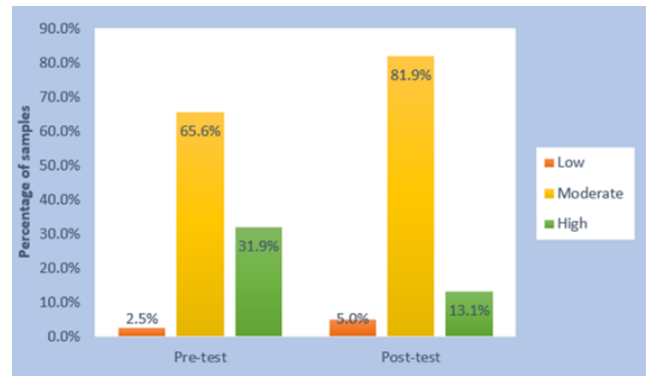

Fig. 1: Level of time management

Table 7: Distribution of samples according to level of stress before and after intervention

Sl. no	Level of stress	Scoring	Pre-test		Post-test	
			f	%	f	%
1	Low stress	≤50	8	2.5	16	5.0
2	Moderate	51-75	210	65.6	262	81.9
3	High	>75	102	31.9	42	13.1

Data presented in Table 7 revealed that majority of samples (65.6%) were having moderate level of stress followed by 31.9% having high and 2.5 % having low stress. Where as in post-test, most of the samples had (81.9%) moderate stress score followed by 13.1 % having high and 5% having low stress score.
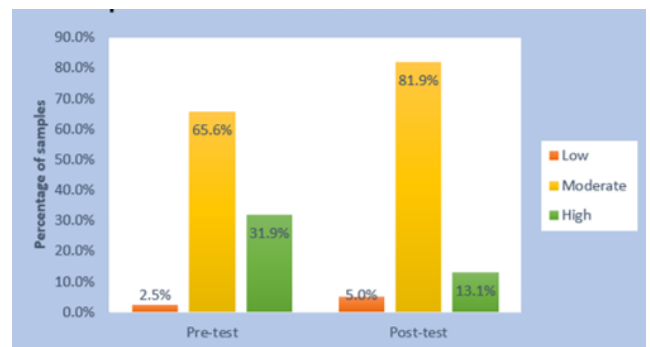
Data presented in Table 8 revealed that majority of samples (73.4%) were having average academic performance score followed by 24.7 % having poor and 1.9% having good academic performance. Where as in post-test, majority of the samples had (64.1%) average academic performance score followed by 23.4 % having good and 12.5 % having poor academic performance score.

Data presented in Table 9 revealed that there was a significant moderate negative correlation between time

Fig. 2: Level of stress

Table 8: Distribution of samples according to level of academic performance before and after intervention

Sl. no	Level of academic performance	Scoring	Pre-test		Post-test	
			f	%	f	%
1	Poor	20	79	24.7	40	12.5
2	Average	20-30	235	73.4	205	64.1
3	Good	31-40	6	1.9	75	23.4
N=320						

Fig. 3: Bar diagram to level of academic performance before and after intervention

management score and stress score among nursing students (r=-0.337, p<0.001).

Data presented in Table 10 revealed that there was a significant moderate negative correlation between level of stress and academic performance score among nursing students (r=-0.512, p<0.001).

Table 9: Correlation between time management programme and stress score among nursing students.

Variables	Mean	Standard deviation	r value	p value	Type of correlation
Time management score	98.14	11.46	-0.337	<0.001***	Moderate negative
Stress score	70.77	9.01			
N=320					

*** Significant at 0.001 level

Table 10: Correlation between level of stress and academic performance score among nursing students.

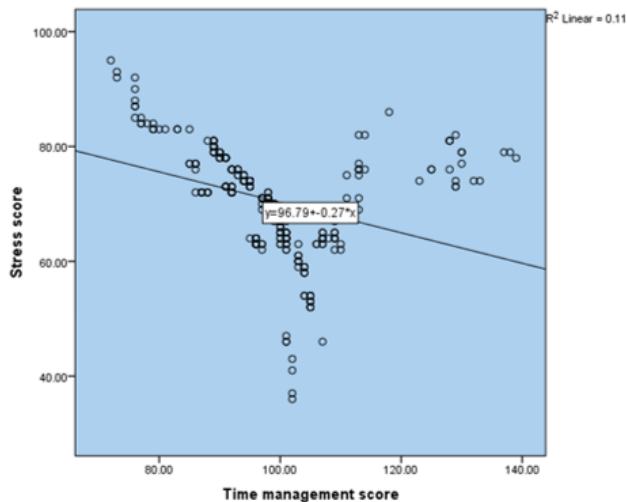| Variables	Mean	Standard deviation	r value	p value	Type of correlation
Stress score	70.77	9.01	-0.512	<0.001***	Moderate negative
Academic performance score	22.79	3.90			
N=320					

*** Significant at 0.001 level

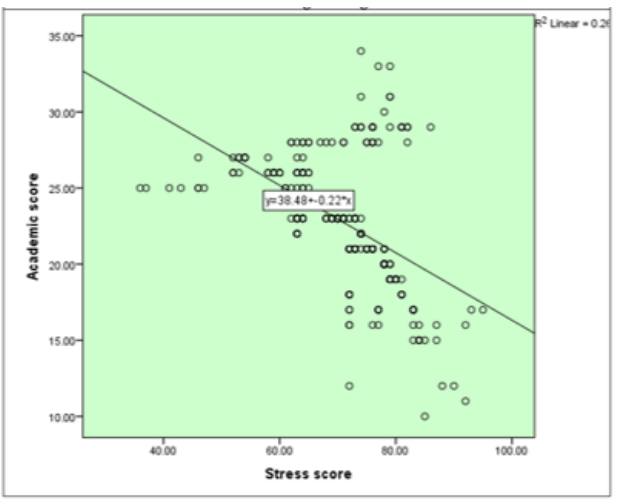**Fig. 4:** Scatter diagram representing correlation between time management programme and stress score among nursing

Fig. 5: Scatter diagram representing correlation between academic performance and stress score among nursing student

Table 11: Association of stress score with demographic variable

Sl.No	Demographic variables	Stress score ≤ Median (≤ 72.0)	Stress score > Median (> 72.0)	Total	χ^2 test
	Age				
	a. 18 years	36	47	83	
	b. 19 years	52	26	78	
1	c. 20 years	41	33	74	χ^2= 13.092, df= 5, p= 0.023*
	d. 21 years	34	34	68	
	e.22 years	7	3	10	
	f. 23 years	8	1	7	
	Year of study				
	a. 1st Year	42	38	80	
2	b. 2nd Year	45	35	80	χ^2= 0.909, df= 3, p= 0.823 (NS)
	c. 3rd Year	42	38	80	
	d. 4th Year	47	33	80	
	Gender				
3	a. Male	20	21	41	χ^2= 0.735, df= 1, p=0.391 (NS)
	b. Female	156	123	279	
	Type of family				
4	a. Joint Family	32	11	43	χ^2= 7.568 df= 1, p= 0.006**
	b. Nuclear Family	144	133	277	
5	Religion				
	a. Christian	109	77	186	
	b. Muslim	40	40	80	χ^2= 2.329, df= 2, p= 0.312 (NS)
	c. Hindu	27	27	54	
	d. Other	-	-	-	
6	Educational status of father				
	a. Primary school	10	10	20	
	b. Middle school	6	3	9	
	c. High school	66	36	102	χ^2= 47.949 df= 5, p= 0.001***
	d. PUC/Diploma	28	64	92	
	e Graduate	54	16	70	
	f. Professional degree	8	15	23	
7	Educational status of mother				
	a. Primary school	10	13	23	
	b. Middle school	5	4	9	
	c. High school	63	49	112	χ^2= 5.190, df= 5, p= 0.393 (NS)
	d. PUC/Diploma	76	50	126	
	e Graduate	18	23	41	

Table 11 continued

	a. Primary school	10	13	23	
8	Number of siblings				
	Nil	16	12	28	
	a. 1	84	75	159	χ^2= 0.617, df= 4,
	b. 2	58	43	101	p= 0.961 (NS)
	c. 3	13	10	23	
	d. 4	5	4	9	
9	Birth order				
	a) 1st born	74	42	116	
	b) 2nd born	87	86	173	χ^2= 6.404, df= 3,
	c) 3rd born	13	12	25	p= 0.094 (NS)
	d) 4th born	2	4	6	
10	Area of residence				χ^2= 2.311, df= 1,
	a) Rural	117	107	224	p= 0.128 (NS)
	b) Urban	59	37	96	
11	Monthly income of family (in Rupees)				
	a) Less than 20,000	121	100	221	
	b) 20,000- 29,000	34	28	62	χ^2= 0.345 df= 4,
	c) 30,000- 39,000	11	7	18	p= 0.987 (NS)
	d) 40,000- 49,000	7	6	13	
	e) Above 50000	3	3	6	
12	Sleep per day				
	a) Less than 5 hours	3	8	11	
	b) 5-6 hours	64	77	141	χ^2= 17.355, df= 3,
	c) 6-7 hours	86	52	138	p= 0.001***
	d) More than 7 hours	23	7	30	
13	Supplementary papers				χ^2= 6.713 df= 1,
	a) Yes	24	36	60	p= 0.010*
	b) No	152	108	260	
14	Number of supplementary papers				
	a) Nil	144	117	260	
	b) 1	20	6	27	χ^2= 14.664, df= 4,
	c) 2	10	9	19	p=0.005**
	d) 3	2	10	12	
	e) 4	0	2	2	

NS- Not Significant **Significant at 0.01 level *Significant at 0.05 level

Data presented in Table 11 shows the association of stress score of nursing students with their demographic variables. Data revealed that there was a significant association between stress score and age (χ^2= 13.092, p<0.001), type of family (χ^2= 7.568, p<0.01), education status of father (χ^2= 47.949, p<0.001), sleep per day (χ^2= 17.355, p<0.001), presence of supplementary papers (χ^2= 6.713, p<0.05) and number of supplementary papers (χ^2= 14.664, p<0.01). Therefore the null hypothesis was rejected and research hypothesis was accepted for these variables.

However no significant association was found between stress score and year of study (χ^2= 0.909, p>0.05), gender (χ^2= 0.735, p>0.05), religion (χ^2= 2.329, p>0.05, education status of mother (χ^2= 5.190, p>0.05), number of siblings (χ^2=0.617, p>0.05), birth order ($\chi^2$6.404, p>0.05), area of residence (χ^2=2.311, p>0.05) and monthly income of family (χ^2= 0.345, p>0.05). Therefore, null hypothesis was accepted for these variables.

6. Discussion

The nursing profession is both stressful and emotionally taxing. Nurses engage with a variety of people in a variety of settings at various times of the day. They deal with incredibly emotional situations that are always changing in their line of work (Forouzanfar MH, et al 2015).

Data presented in Table 1 revealed that the mean post-test time management score (110.88 ± 15.08) ranging from 82 to 143 was higher than the mean pre-test time management score (98.14 ± 11.46) ranging from 72 to 139 and mean post-test stress score (65.79 ± 8.79) ranging from 31 to 86 was lower than the mean pre-test stress score (70.77 ± 9.01) ranging from 36 to 95 which were similar to a study done by Fatemeh Vizeshfar et al, 2006

This study found that the p value of time management scores before and after time management program among nursing students which revealed that the mean time management during post-test (110.88 ± 15.08) was higher than that of pre-test (98.14 ± 11.46). The t value obtained (10.711) was higher than the table value (1.650) at 0.05 level of significance which were similar to study done by Feng Zhang et al, 2020.

This study revealed that the mean stress score during post-test (65.79 ± 8.79) was lower than that of pre-test (70.77± 9.02). The t value obtained (10.761) was higher than the table value (1.650) at 0.05 level of significance. Hence the null hypothesis was rejected and research hypothesis was accepted. Therefore, the mean stress score was significantly different before and after time management programme when compared to mean perceived stress scale score of 22.78 (8.54) which revealed that nearly half of the students (47.92%) reported experiencing moderate levels of stress. Senior nursing students reported feeling more stressed than fresher's as per Maria Dolores Onieva-Zafra et al, 2020.

This study revealed that the mean academic performance score during post-test (26.52 ± 4.84) was higher than that of pre-test (22.79± 3.90). The t value obtained (17.169) was higher than the table value (1.650) at 0.05 level of significance. Hence the null hypothesis was rejected and research hypothesis was accepted. Therefore, the mean academic performance score was significantly different before and after time management programme that compared to the findings showing a substantial correlation between the nursing students' academic performance and the entrance requirements which is significantly correlated with a number of factors in the entrance criteria, including SSC grades (r = 0.32, p 0.001), previous academic performance at the diploma level (r = 0.48, p 0.001), and entry test scores (r = 0.26, p 0.001) as per Imran Inayat Yousafzai et al.

This study reveals that majority of samples (71.6%) were having good level of time management followed by 27.5% having average and 0.9% having excellent time management score during pre-test. Where as in post-test, most of the samples had (83.8%) good time management score followed by 8.8 % having excellent and 7.5 % having average.

Data presented in Table 7 revealed that majority of samples (65.6%) were having moderate level of stress followed by 31.9% having high and 2.5 % having low stress. Where as in post-test, most of the samples had (81.9%) moderate stress score followed by 13.1 % having high and 5% having low stress score which are comparable to study done by Lucia Filomeno et al, 2020

This reveals that majority of samples (73.4%) were having average academic performance score followed by 24.7 % having poor and 1.9% having good academic performance. Where as in post-test, majority of the samples had (64.1%) average academic performance score followed by 23.4 % having good and 12.5 % having poor academic performance score when compared study done on male and female students who had mean grade point averages of 2.88 (SD = 0.220) and 2.61 (SD = 0.204), respectively including grade point average, where female students performed better than male pupils (P< 0.05) as per Damayanthi, H et al, 2016,

This study revealed that there was a significant moderate negative correlation between time management score and stress score among nursing students (r=-0.337, p<0.001) and moderate negative correlation between level of stress and academic performance score among nursing students (r=-0.512, p<0.001 comparable to study that revealed a statistically significant negative association between the students' TMQ scores and their state anxiety and trait anxiety scores (r = 0.282, p <0.001 and r = 0.325, p <0.001, respectively) as per Ghiasv and AM, 2017.

This study shows that the association of stress score of nursing students with their demographic variables. Data revealed that there was a significant association between stress score and age (χ^2= 13.092, p<0.001), type of

family (χ^2= 7.568, p<0.01), education status of father (χ^2= 47.949, p<0.001), sleep per day (χ^2=17.355, p<0.001), presence of supplementary papers (χ^2=6.713, p<0.05) and number of supplementary papers (χ^2= 14.664, p<0.01). Therefore, the null hypothesis was rejected and research hypothesis was accepted for these variables. However no significant association was found between stress score and year of study (χ^2= 0.909, p>0.05), gender (χ^2= 0.735, p>0.05), religion (χ^2= 2.329, p>0.05, education status of mother (χ^2= 5.190, p>0.05), number of siblings (χ^2=0.617, p>0.05), birth order ($\chi^2$6.404, p>0.05), area of residence (χ^2=2.311, p>0.05) and monthly income of family (χ^2= 0.345, p>0.05). Therefore, null hypothesis was accepted for these variables.

7. Conclusion

The results of this study showed that academic stress is a common issue among nursing students because all nursing students reported experiencing moderate to high levels of stress. Academic stress is a multifaceted issue with numerous risk variables, including student age, sex, academic year, location, marital status, and social standing; yet, a sound strategy will result in strong academic achievement and lower dropout rates.

8. Source of Funding

None.

9. Conflict of Interest

None.

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Author biography

Juby Mary Chacko, Research Scholar

Achamma Varghese, Research Guide

Nirmala Rajesh, Research Co - guide