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A correlation study to assess the cognitive function and academic stress among adolescent girls in selected community area

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Abstract

Background: Stress has many effects on cognition that depend on its intensity, duration, origin, and magnitude (Sandi, 2013). Activation of stress results in the production and release of glucocorticosteroids. Because of the lipophilic properties of glucocorticosteroids, they can diffuse through the blood-brain barrier and exert long-term effects on processing and cognition (Sandi, 2013).

Objective: To correlate between cognitive function and academic stress.

Design: Correlational survey was adopted for the study.

Settings: Neikarapatti village, Salem.

Participants: 30 adolescent girls fulfilling the inclusion criteria were selected by simple random sampling.

Method: All participants were given a questionnaire which includes baseline proforma, memory assessment questionnaire, student stress scale each participants was given 30mts to complete the study.

Results: The findings reveals that there is significant correlation between academic stress and cognitive function at level of $p \leq 0.05$. There was no association found between cognitive function and level of stress with their demographic variables.

Conclusion: There was significant correlation between cognitive function and academic stress, as stress of students decreases there is increase in cognitive function.

Keywords: Academic stress, Cognitive function, Adolescent girls

Introduction

In academic life; stress is generally an emotional inequity and is emerging as a global phenomenon. Students often deal with pressure with a specific end goal to procure great positions and to get a top of the line degree. Academic stress mostly caused by intensive academic workloads associated with depression. The perception of not having enough time to widen knowledge base, study for examinations rivalry, mastery of huge amount of study syllabus information in little time period leads to academic stress. This depression can affect students' academic performance such as lack of focusing in class and lower grades. Suicides among students are mostly associated with fear of academic failure or under achievement (WHO, 2012). Stress is a burning issue affecting students of all grades and levels across the World.

Sarafino and Smith (2014), rendering physiological reactions are headaches, increased heart rate, and trembling legs. Besides, academic stress also induces various psychological and social responses which endanger the memory and attention. Individuals will incline to use their emotions in evaluating stressful conditions, which can generate the feelings of sadness or depression, as well as change individuals' behavior towards other individuals.

Higher secondary school education is a very important turning point in the academic life of the individual. the academic performance of the youth/adolescents plays a crucial role in deciding about next higher stage of education, and probably career too (Rosa and Preethi, 2012). Various studies [25-27] have pointed out that such stressful life events have a negative effect on their physical and mental health, and play a potential role in high school dropout [25-27].

According to the American College Health Association (2018), showed that 33.2% of college students say that stress has a negative impact on their academic performance, 26.5% reported that anxiety has a negative impact on their academic performance, and 87.4% reported that they felt overwhelmed at times in college. In another study with over 400 college students, researchers found that 72.9% suffered from psychological distress, 86.3% suffered from anxiety, and 79.3% exhibited depressive symptoms. In addition, the study showed that more than half of the students also suffered from low self-esteem, little optimism, and a low sense of self-efficacy (Saleh *et al*., 2017).

Academic stress is the major source of stress among adolescents and it may lead to low self-esteem. Many psychological problems such as depression and suicide

occur as a result of low self-esteem (Nikitha, *et al.* 2014). Stress is a natural and necessary reaction for survival of students in facing problems in their academic environment. Academic stress if not well handled can generate both optimistic and pessimistic consequences. Stress stimulus beneficially warns the body when facing a potential danger and prompts positive results, for example motivation and enhanced task performance. (Nieman, *et al.* 2015). So this study was undertaken to correlate the cognitive function and academic stress among adolescent girls in selected community area, Salem.

Statement of the problem
A Correlation Study to Assess the Cognitive Function and Academic Stress among Adolescent Girls in Selected Community Area, Salem.

Objectives
1. To correlate between cognitive function and academic stress.
2. To find out the association between academic stress and selected demographic Variables among adolescent girls.
3. To find out the association between cognitive function and selected demographic Variables among adolescent girls.

Hypothesis
H01: There is no significant coorelation between academic stress and cognitive function among adolescent girls.

Materials and Methods
The research approach was Interrelation study, one of the coorelation study. A Descriptive design was chosen for the study. The study was conducted in the Neikarapatti, Salem. Population for the study included all adolescent girls. The adolescent girls who fulfill the inclusion criteria were selected for the study. From the population, samples of 30 adolescent girls were selected from Neikarapatty village. Simple random sampling technique was used to select the adolescent girls. A structured questionaire consists of baseline proforma, memory assessment questionaire and student stress scale was used. The investigator collected the data individually and 30mts was given for each participants to complete the questionaire. Descriptive and inferential statistics were used to analyse the data.

Results and Discussion
Section A: Frequency and percentage wise distribution of Adolescent Girls according to their demographic data. (n=30)
Percentagewise distribution of Adolescent girls according to their demographic variable shows that majority 73. 34% of them were aged 16-17yrs and 66.6% of them were in standard 10. Majority 70% of the parents are non health professionals. Sixty percent of the children were in Grade – B. fifty percent of children had sleep more than 7hrs and had extracurricular activities.

Section B

Table 1: Area wise comparison of Mean, SD and mean percentage of cognitive function among Adolescent Girls

Coping	Max score	Mean	SD	Mean%
Remote memory	6	3.56	1.41	59
Recent memory	5	4	1.05	80
Mental balance	9	4.96	1.27	55
Attention and concentration	13	5.53	1.56	43
Immediate recall	12	5.4	1.59	45
Delayed recall	10	5	1.51	50
Verbal retention for similar pairs	5	3.96	1.22	79
Verbal retention for dissimilar pairs	15	6.07	1.83	40
Visual retention	13	6.23	2.01	48
Visual recognition	10	5.9	1.44	59
Overall	98	50.6	9.0	52

Areawise comparison of cognitive function among adolescents girls showed overall mean percentage (50.6±9.0) which was 52% that they had average memory.

Mean score of (4±1.05) which was 80% was for the area recent memory, showed that adolescent good recent memory.

Table 2: Areawise comparison of Mean, SD mean percentage of level of stress among Adolescent Girls

Stress	Max score	Mean	SD	Mean%
Physical	40	19.77	8.65	49
Interpersonal relations	40	21.46	8.09	54
Academic	40	22.06	7.38	55
Environmental	40	22.43	8.26	56
Overall	160	85.73	29.04	54

Areawise comparison of level of stress among adolescents girls showed that overal mean percentage (85.73 ± 29.04) was 54% revealed that they had varying degrees of stress.
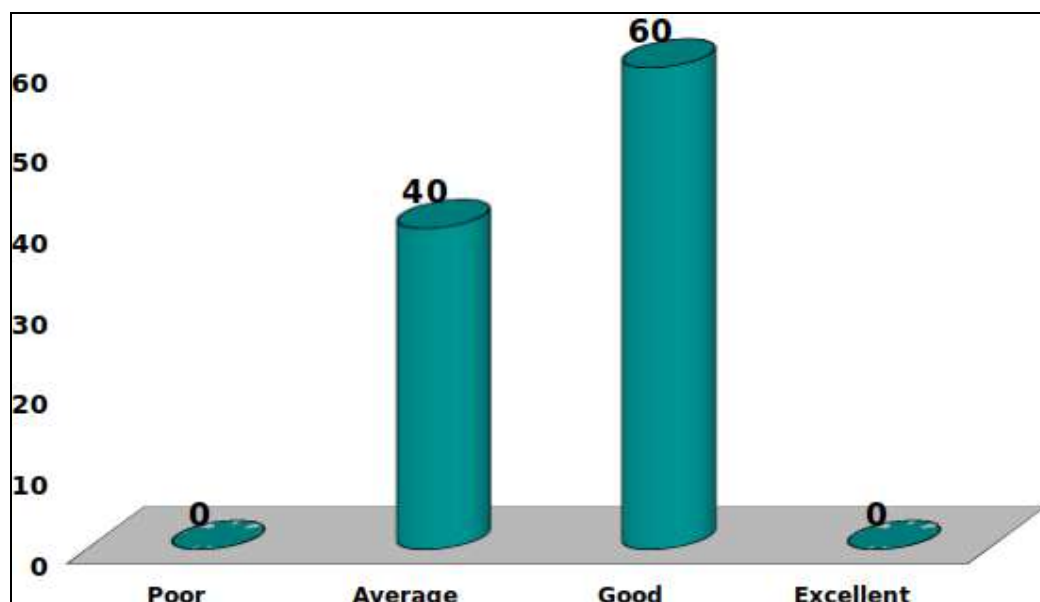
Fig 1: Bar diagram showing Frequency and percentage wise distribution of cognitive function among Adolescent Girls:

Frequency and percentage wise distribution of cognitive function among Adolescent Girls depicts that 60% of them had good cognitive function and 40% of them had average cognitive function.

Bar diagram showing Frequency and percentage wise distribution of level of stress among Adolescent Girls Frequency and percentage wise distribution of level of stress among Adolescent Girls showed that 20% of the girls had severe stress, whereas 50% of the adolescent had mild stress.
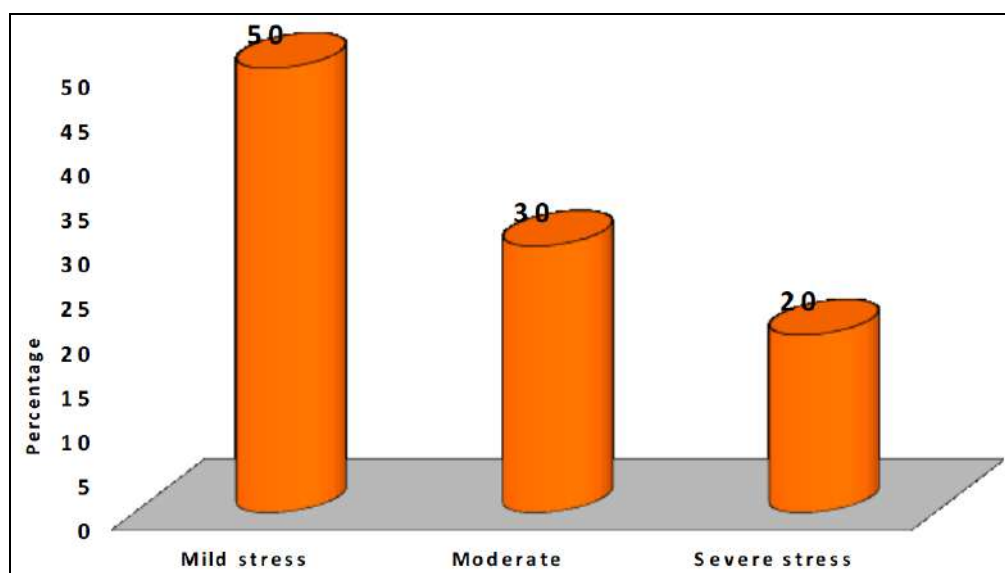

Fig 2: Level of stress

Section D: Association for level of cognitive function and selected demographic data. (*$p < 0.05$ significant, ** $p < 0.01$ & ***$p < 0.001$ highly significant.)

Association between cognitive function and selected demographic variables of adolescent girls reveals that there is no significant association between cognitive function when compared to age, class, education of parents, academic performance, so accept the null hypothesis whereas there is a significant association with occupation of parents, so the null hypothesis is rejected.

Association for level of stress and selected demographic data: Association between level of stress and selected demographic variables of adolescent girls reveals that there is no significant association between level of stress when compared to age, class, education of parents, occupation of parents, academic performance, so accept the null hypothesis.

Section D: Correlation between cognitive function and stress among students:

Table 3: Show the Adolescent girls

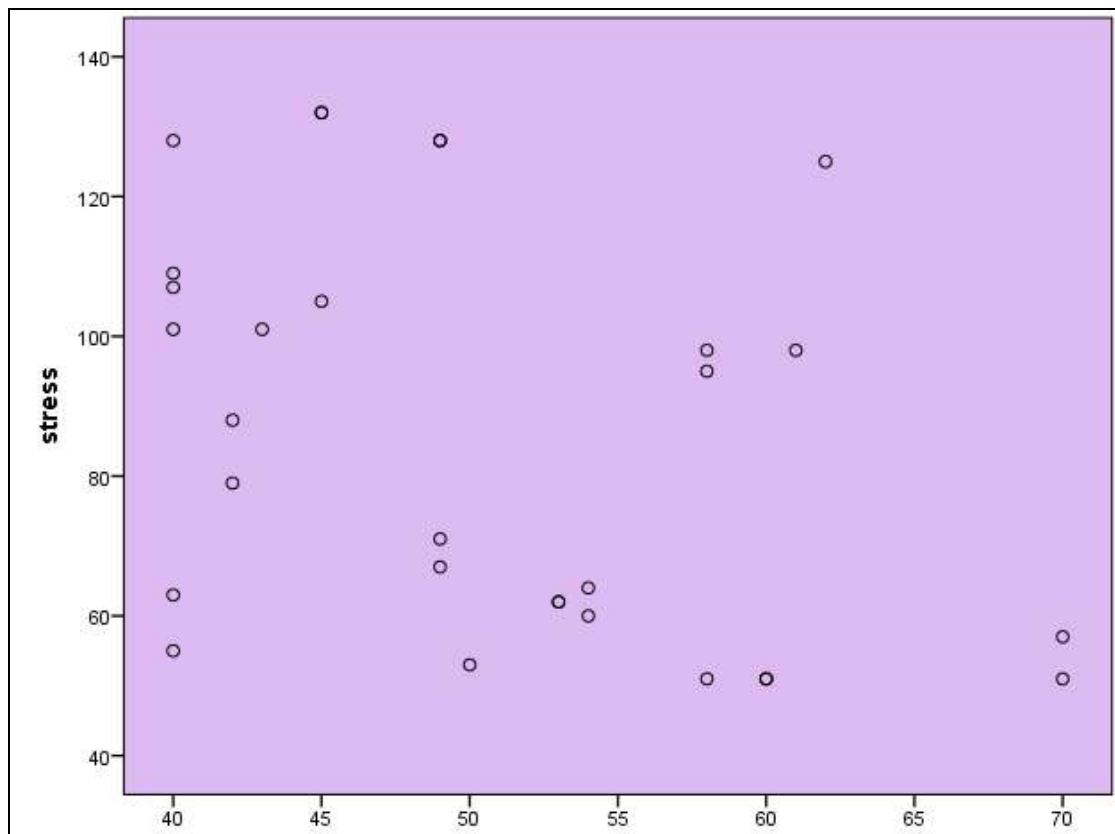| Adolescent girls	Mean	SD	Scores	
			'r' value	p-value
Cognitive function	85.73	29.04	-0.3907	0.0328* (s)
Academic stress	50.6	9.0		

Fig 3: Show the cognitive function

Correlation between cognitive function and stress among students the results suggest that as r- value -0.3907, $p < 0.001$ there is a moderate negative correlation and p- value < 0.05 of 0.0328 is statistically significant, hence the null hypothesis is rejected.

Conclusion
Stress during adolescence are due to parental and peer pressure, inability to cope with studies, lack of competence and more expectations. The family environment should be congenial and the learning process should be made pleasurable and avoid making it as a stressful event for adolescents. Supportive and stimulating atmosphere is very necessary for the student to progress in their academic life and for reaching their aim or goal.

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