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### A study to assess the level of knowledge and practice of dietary pattern and association between the perceived stress with body mass index among adolescent

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#### ABSTRACT

Adolescence is a transitional stage of physical and psychological development that generally occurs during the period from puberty to legal adulthood. Adolescence obesity is one of the main factors to predict adulthood obesity. The objective of the study was to assess the BMI and level of Perceived Stress and to correlate the perceived stress with body mass index among adolescent. Cross sectional study was conducted SIMATS at Chennai. The 50 samples selected as study samples by using the purposive sampling technique and who met the inclusion criteria. Self-administered questionnaire like demographic data, dietary practice, level of perceived stress was collected and BMI were assessed. Collected data were analysed by descriptive and inferential statistics. Among 50 samples 47 (94%) belongs to female gender; 34 (68%) had moderate knowledge and practicing of dietary pattern; 40 (80%) of the samples had a moderate level of perceived stress; 30 (60%) of the samples belonged to the normal weight class in the BMI class. There is a moderately positive correlation between the perceived stress and BMI range among adolescents. There is a moderately positive correlation between the perceived stress and BMI range among adolescents. The results of this study finding revealed that need of educating adolescent students on good dietary habits. The health team workers should consider risk factors like psychological and metabolic conditions along with dietary habits in the management of obesity among university students and to create a healthy lifestyle.

**Keywords:** Dietary pattern, Perceived stress, Body mass index, Adolescents.

#### INTRODUCTION

Adolescence is a transitional stage of physical and psychological development that generally occurs during the period from puberty to legal adulthood. Adolescence is usually associated with the teenage years, but its physical, psychological or cultural expressions may begin

earlier and end later. Adolescence is subject to high levels of stress due to various factors such as health related and psychosocial stressors as perceived by the adolescence. Under various stressful conditions, these adolescence develops unhealthy dietary habits and patterns leading to an overall poor lifestyle. The disease occurrence of adolescent is due to an overweight, according to World Health

Organization 4.8 million people affected to disease by a reason of overweight adolescent undergoing major health problem and suffer from varying degree because of many reason, one of the major associated to overweight because of dietary habits and lifestyle modified and lacking knowledge regarding weight management the adolescent are mostly modified for the obesity. Dietary patterns emerged as an alternative method for the study of the relationship between diet and chronic diseases; traditionally, nutritional epidemiology studies are focused on some diseases and their relation to specific nutrients or foods [1] Most of the studies regarding dietary patterns have been performed in adult populations. There are few reports in adolescents. It has been suggested that unhealthy dietary patterns are present from early stages of life. The impact on unhealthy outcomes like overweight, obesity or some other metabolic disorder are still controversial in children and adolescents. [2] Stress is a part and parcel of human lifestyle. It can serve as a driving force in terms of obtaining results, but on the other hand, non-stop stress can act as a killer in terms of performance. It is a known fact that adolescent are subjected to different kinds of stress, such as the pressure of academics with an obligation to succeed, an uncertain future, and difficulties of integrating into the system. While stress may directly influence processes that lead to or exacerbate metabolic (e.g., diabetes) and psychiatric (e.g., depression) disease, the effects of stress on health may also act indirectly through its effects on dietary and physical activity patterns. Stress is a risk factor for dietary relapse [11] and it can trigger binge eating and disinhibition in restrained eaters [1]. Experimentally induced stress has been shown to increase intake of highly palatable, energy-dense foods and to inhibit intake of high-fibre, low fat foods in humans. [21] Experimental stress has also been shown to increase snacking [16] and, when evaluated under free living conditions, daily hassles were positively associated with snacking. [16] Other indices of increased stress, such as student exams and workload have been associated with greater intakes of fat. [14] high fat-sugar foods energy or less healthy foods. However, dietary response to stress varies and, while some individuals may be classified as stress-eaters, others are characterized by decreasing energy intake in response to

psychological stress. The **World Health Organization (WHO)** has stated that in 2014, approximately 39% of the world's adults (38% of males and 40% of females) were overweight, [1] while in KSA, the corresponding percentage was 68.2% (67.5% of men and 69.5% of women). [1] The overall percentage of obese adults in the world aged 18 years and more reached 13% (11% of males and 15% of females). In this regards, **Borjalilu et al. in 2015** described that 83% of the adolescent perceived stress and also indicated that subjects in clinical phase perceived more stress than basic scientific ones. Thus the investigator was interested to conduct the study on dietary pattern and association of BMI and perceived stress among adolescence.

## OBJECTIVES

- To assess the level of knowledge and practice on dietary habits
- To assess the BMI and level of Perceived Stress among adolescent
- To correlate the perceived stress with body mass index among adolescent.
- To assess the association between level of Perceived Stress among adolescent with their demographic variables

## Ethical Consideration

The study was conducted after getting approval from the Institutional Ethical Committee of Saveetha Medical College and Hospital. Permission was obtained to conduct the study from the institution authority. Informed consent and assent forms were translated into Tamil. Written informed consent was obtained by the participants for their willingness to participate in the study. Ethical principles were followed and adhered to protect the rights of the participants. Confidentiality of the data was ensured throughout the study. Data was collected using structured multiple choice questionnaire and stress scale. After a brief introduction about the self and study consent was obtained. Privacy of the information was assured. The Respondent was made comfortable and data was collected using multiple choice questionnaires. The Investigator was able to complete data collection within the stipulated period of 10 days.

## METHODOLOGY

A Cross sectional study was chosen to assess the dietary pattern and association of perceived stress with BMI among adolescents. The study was conducted in Saveetha Institute of Medical and Technical Science. The sample Size for the study is 50 adolescents and sampling technique is non-probability, purposive sampling technique. The sample who met the inclusion criteria (adolescent in the age group Of 17-24, willing to participate) were selected for the study. The data collection instruments were developed through an extensive review of literature of tool in consultation with the opinion of the nursing exports and medical officer of SIMATS. The study period was about 08.07.18 to 18.07.18. We administered a self-reported questionnaire. The survey questionnaire comprised of three sections. The first section included questions on socio demographic variable data such as age, sex, year of study, weight and height of the participants. Body mass index (BMI) was calculated using the formula weight in kilograms divided by the square of the height in meters (kg/m<sup>2</sup>). The second section was a dietary practice questionnaire. A self-administered questionnaire was developed to elicit information on the dietary habits of students. Third section is assessed by using perceived stress scale. Participants were required to fill in the survey form and return it to the researcher once completed. Before distribution of questionnaire, a brief explanation was given by the researchers to inform the participants about the study objectives and instructions to complete the survey form.

## SCORING INTERPRETATION

### Structured questionnaires

- Above 70 - adequate knowledge and practicing
- 40-70 - moderate knowledge and practicing
- below 40 - inadequate knowledge and practicing

### Body mass index

- Less than 18.5 - underweight
- 18.5- 24.9 - normal weight
- 25.0-29.9 - overweight
- 30.0-34.9 - class I obesity
- 35.0- 39.9 - class II obesity
- greater than 40.0 - class III obesity

### Perceived stress scale score

- 0-13 - Low stress
- 14-26 - Moderate stress
- 27-40 - High perceived stress

## STATISTICAL ANALYSIS

The collected data were analysed by using descriptive and inferential statistics. The association between the dietary pattern and BMI, perceived stress with chi square test and relationship between the perceived stress and BMI is assessed using Pearson correlation coefficient. All reported probability values were compared to a significant level of 0.05. For all statistical tests a p-value of < 0.05 was considered as statistically significant. Data entry and statistical analysis was performed with the SPSS Statistics version.

## RESULTS

Regarding the demographic variables shows that out of 50 samples were 2 (4%) in the age group of 17-19years; 48(96%) in the age group of 19-21years. 3(6%) were male and 47(94%) were female; 2(4%) students from third year and 48(96%) were students from final year; 4(8%) had the previous source of information through television, 11(22%) had through books, 23(46%) through internet, 12 (24%) had through other kinds of sources. Regarding the knowledge of dietary pattern 4(8%) had inadequate knowledge and practicing; 34(68%) had moderate knowledge and practicing; 12(24%) had adequate knowledge and practicing of dietary pattern. Regarding the Body Mass Index out of 50 samples 11(22%) in the underweight class, 30(60%) in the normal weight class, 7(14%) in the overweight class, 2(4%) in the class I obesity. Regarding the perceived stress shows that out of 50 samples 6(12%) had low level of perceived stress, 40(80%) had moderate level of perceived stress, 4(8%) had high level of perceived stress among adolescents. In association of dietary pattern and BMI among adolescents and has no significant on medication and beverages, other than that had a significant association with all the components. In association of dietary pattern and Perceived stress among adolescents and has no significant on type of diet and crash diet, other than that had a significant association with all the components. In the association of perceived stress

on BMI was calculated by correlation using Pearson's coefficient. In the total study population, the correlation is significant at  $r = 0.07$  where

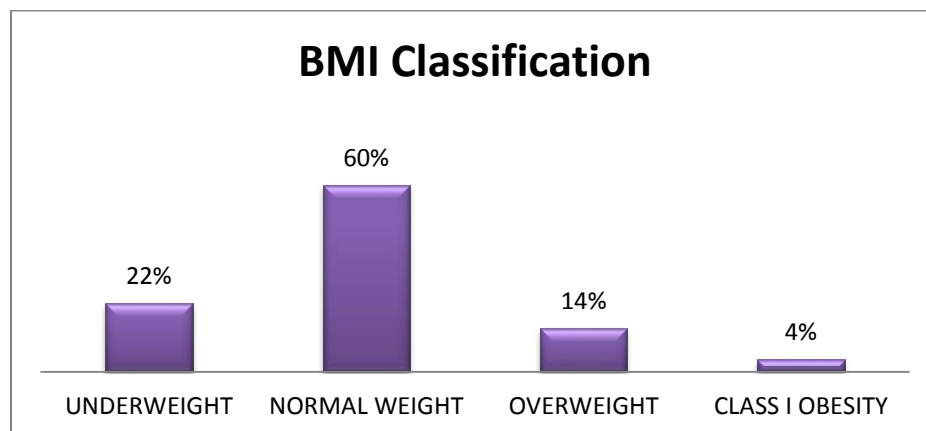
( $0 < r < 1$ ) and thus conclude that there is a moderately positive correlation between the BMI and perceived stress.

**Table1: Frequency and percentage distribution of demographic variables among adolescents**

S.NO	DEMOGRAPHIC VARIABLES	FREQUENCY	PERCENTAGE DISTRIBUTION
1.	<b>Age</b>		
	a) 11-14years	0	0
	b) 15-17 years	2	4%
	c) 18-21 years	48	96%
2.	<b>Gender</b>		
	a) male	3	6%
	b) female	47	94%
3.	<b>Year of Study</b>		
	a) First year	0	0
	b) Second year	0	0
	c) Third year	2	4%
	d) Final year	48	96%
4.	<b>Previous source of information</b>		
	a) television		
	b) books	4	8%
	c) internet	11	22%
	d) others	23	46%
		12	24%

**Table 2: Frequency and percentage distribution on level of knowledge and practicing of dietary pattern among adolescents**

	Inadequate		Moderate		Adequate	
	No	%	No	%	No	%
Knowledge and practicing of dietary pattern among adolescents	4	8%	34	68%	12	24%



**Figure 1: Frequency and percentage distribution of the level of Body Mass Index class among adolescents**

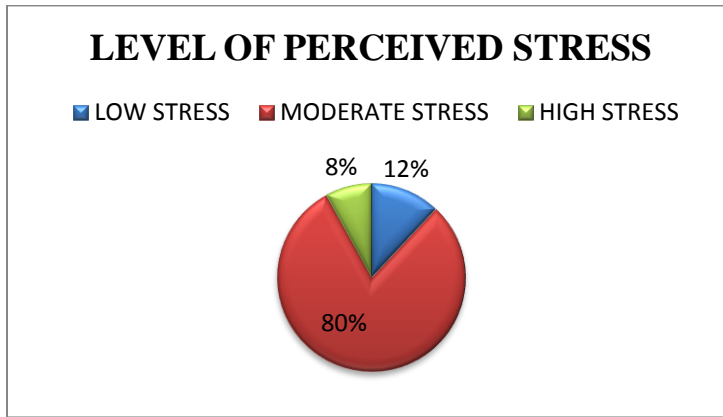


Figure 2: Frequency and percentage distribution on level of perceived stress scale score among adolescents

Table 3: Association of dietary pattern and perceived stress scale score among adolescents

S.NO	DIETARY PATTERN	LOW STRESS		MODERATE STRESS		HIGH STRESS		CHI SQUARE
		NO	%	NO	%	NO	%	
1.	<b>Type of diet</b>							X2= 18.58
	a)vegetarian	2	4	0	0	0	0	df = 9
	b) non vegetarian	3	6	11	22	2	4	p= 16.92
	c) eggterian	0	0	0	0	0	0	not significant
	d) veg & non-veg	1	2	29	58	2	4	
2.	<b>knowledge of balanced diet</b>							X2=5.74
	a) yes							df = 6
	b) no	4	8	31	62	4	16	p= 12.59
	c) dont know	0	0	6	12	0	0	significant
		2	4	3	6	0	0	
3.	<b>practicing of balanced diet</b>							X2= 1.06
	a) yes							df =6
	b) no	2	4	14	28	1	2	p=12.59
	c) don't know	3	6	21	42	3	6	significant
		1	2	5	10	0	0	
4.	<b>consumption of junk foods</b>							X2=16.67
	a) daily							df = 9
	b) often	1	2	5	10	0	0	p=16.92
	c) rarely	0	0	8	16	3	6	significant
	d) never	3	6	26	52	1	2	
		2	4	1	2	0	0	
5.	<b>practice of skipping meals</b>							X2= 3.667
	a) everyday							df =6
	b) 2 to 3 days/ week	0	0	3	6	1	2	p=12.59
	c) never	2	4	21	42	1	2	significant
		4	8	16	32	2	4	
6.	<b>diet frequency</b>							X2=4.4
	a) regular	3	6	18	36	4	8	df =3
	b) irregular	3	6	22	44	0	0	p=7.82
								significant
7.	<b>food consuming mostly</b>							X2=9.9
	a) vegetarian	3	6	16	32	4	8	df =9

	b) non vegetarian	0	0	17	34	0	0	p=16.92
	c) junk foods	0	0	3	6	0	0	significant
	d) mixed foods	3	6	14	28	0	0	
8.	<b>habit of doing exercises</b>							X2=2.46 df =9
	a) regularly							
	b) often	0	0	1	2	0	0	p= 16.92
	c) rarely	0	0	5	10	1	2	significant
	d) never	3	6	20	40	2	4	
		3	6	14	28	1	2	
9.	<b>heavy work at night time</b>							X2=6.84 df =9
	a) regularly							
	b) often	0	0	3	6	1	2	p=16.92
	c) rarely	1	2	5	10	2	4	significant
	d) never	3	6	19	38	1	2	
		2	4	13	26	0	0	
10.	<b>medication to maintain weight</b>							X2=0 df =3
	a) yes							
	b) no	0	0	0	0	0	0	p=7.82
		6	12	40	80	4	8	significant
11.	<b>special diet to maintain weight</b>							X2=6.064 df =3
	a) yes							
	b) no	2	4	2	4	0	0	p=7.82
		4	8	38	76	4	8	significant
12.	<b>intake of fruits per week</b>							X2= 9.072 df =9
	a) one fruit							
	b) daily one fruit	1	2	3	6	0	0	p=16.92
	c) 2-3 a week	2	4	4	8	0	0	significant
	d) rarely taking fruit	2	4	10	20	3	6	
		1	2	23	46	1	2	
13.	<b>beverages mostly in a week</b>							X2=9.392 df =9
	a) coffee							
	b) tea	1	2	16	32	1	2	p=16.92
	c) sweetened drinks	0	0	7	14	0	0	significant
	d) other beverages	2	4	9	18	3	6	
		3	6	8	16	0	0	

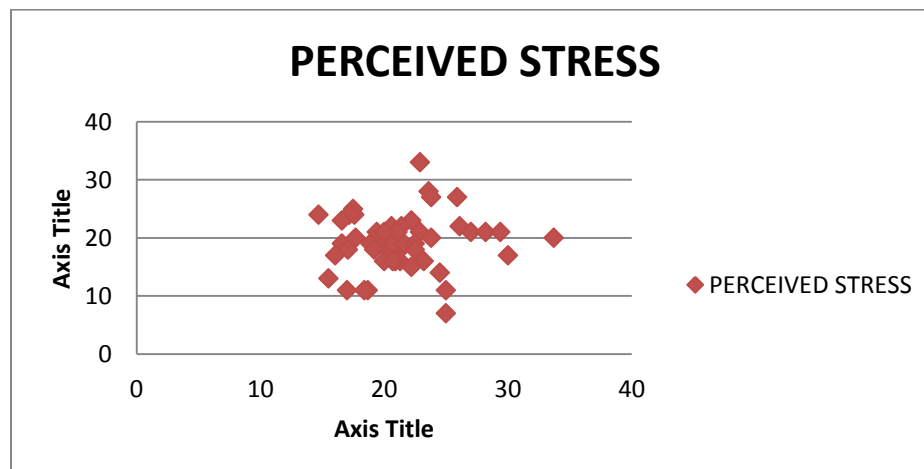


Figure 3: Frequency and percentage distribution of perceived stress scale score on BMI among adolescents by using Pearson correlation coefficient

## DISUSSION

The aim of the study is dietary pattern and association of perceived stress on BMI among adolescents. The nurse should encourage creating knowledge about the dietary patterns and the importance of body mass index and their levels. Advanced education in nursing prepares a nurse to take independent decision and function, to advance health care which is appropriate and effective. The instruction module and education prepared by the nurse to the adolescents helping in improving their practice of dietary pattern. The nurse as the administrator should take part actively in recommending the methods and impact of health on

perceived stress. Nurse administrator should know the control measures regarding body mass index by assessing them. The administrator should initiate community based awareness program with appropriate measures in the community area and it should reach all adolescents.

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