



STRESS LEVEL AND ITS RELATION TO EATING PATTERN AMONG RESEARCH SCHOLARS RESIDING IN GIRLS' HOSTEL OF UTTARAKHAND

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ABSTRACT

In the present scenario, the stress level is touching sky heights due to changing lifestyle and life trends. Various studies have estimated the top five sources of stress as change in sleeping habits, unemployment, change in eating habits, increased work load and new responsibilities. The present study aimed to establish a relationship between stress level and eating pattern among 200 girls (24-30 age) residing in student's hostel of Uttarakhand, India. In the study, different interview schedules like stress factor identification schedule, stress assessment schedule and food frequency questionnaire were developed to collect necessary information regarding the stress status and eating pattern of the subjects. The results of the schedule revealed that the factor causing highest stress among subjects was increased work load (89%), followed by still to clear important exam (74.5%) and sitting for tests/exams frequently (64%). From the stress assessment scale, it was found that 48.5% girls were moderately stressed, 35.5% were highly stressed and remaining was mildly stressed.

Eating pattern was found fair enough as the subjects were not freaky for fast foods. Frequency of fast food consumption was once in a month in most of the subjects. Only 38.7% girls have expressed feeling for eating during stress. A negative correlation ($p=0.05$, $r= -0.201$) was found between stress level and unhealthy eating pattern. On the basis of findings of the present study, it can be concluded that all subjects were going through some level of stress. Increased work load was the highest stress causing factor among subjects. In order to cope up with the stress caused by increased work load about 8 percent subjects were found to be following unhealthy eating pattern implying that people are modifying their eating pattern (healthy food to fast food) as a coping strategy against stress.

Key words: Stress, Eating pattern, Food frequency questionnaire, Work load, Research scholar

INTRODUCTION

Stress can be defined as “any challenge to homeostasis or to the body’s internal sense of balance”. In the present scenario, the stress level is touching sky heights due to changing lifestyle and life trends. Various studies and surveys has estimated the top five sources of stress as change in sleeping habits, unemployment, change in eating habits, increased work load and new responsibilities. Some people use food as a stress coping mechanism. Stress might increase the craving to eat in two ways, either directly or via its arousal-provoking properties. When individuals experience stressful events, they may more likely develop disordered eating attitudes and behaviours. Dietary habits play an important role in coping with stress as well as neurological and psychiatric breakdowns. It has been stated that some food items lead to quite increased stress reactions, making individuals much more sensitive towards stress [1].

Hudd et al [2] studied to compare the inclination of stressed and non-stressed students towards unhealthy eating behaviour. The study revealed that the students with high stress level were eating unhealthy food more than the students with low stress level. Among college students, stress may arise from making necessary lifestyle changes while managing the challenges of course loads [3]. Also, stress has been shown to be associated with alcohol use and problem eating behaviour among the college students [4]. Stress has been reported to affect dietary behaviours. Adler and Matthews [5] reported that stress had influences on health behaviours, particularly dietary behaviours such as increasing dietary intakes. One study of elementary, middle and high school students in Korea showed that dietary

behaviours changed during the school examination periods when students were under stress [6].

Some studies on the relationship between stress and certain nutrients showed that individuals with higher levels of stress consumed more carbohydrates [7] or more carbohydrates with high fat foods [8]. A study by Wurtman and Wurtman [9] explained the mechanism for the increased need of carbohydrates during stress. According to them, Serotonin (5-hydroxytryptamine) is an important neurotransmitter in the central nervous system and is involved in the modulation of various aspects of mood and behaviours including depression, anxiety, and aggression. Tryptophan is the precursor of serotonin. It is transformed by the enzyme tryptophan hydroxylase. Normally tryptophan hydroxylase is not fully saturated and any increased transportation of tryptophan into the brain results in an increase in serotonin synthesis. Carbohydrate-rich foods may raise glucose and trigger insulin secretion, which facilitates the uptake of most large neutral amino acids (tyrosine, phenylalanine, leucine, isoleucine and valine) except tryptophan, into peripheral tissues such as muscle. The result is that the plasma ratio of tryptophan to large neutral amino acid increases and gives tryptophan the advantage in the competition for access to the brain. Hence, serotonin synthesis increases and the behavioural consequences of increased serotonin activity. That is, the individual may elevate mood by the raising brain serotonin level. A study by Yeom [10] reported that students with higher stress levels had higher intakes of fat and vitamin B₁ and lower intakes of calcium and vitamin C.

Common problems assumed to be associated with increased stress levels include the uncertainty of their future, constant academic pressures, sleeping habits and continuous financial difficulties, sleeping patterns etc. The incessant exposure of students to such stressors is causing an increasing concern for their well being. Therefore, the current study primarily aimed to explore the relationship between stress and eating behaviour and its direction of change in youth.

METHODOLOGY

Locale and sample of the study:

The study was conducted among girls residing in a hostel of residential University of Uttarakhand. Study was carried out with a sample size of 200 girls during the year 2015.

Target group and sampling method:

Unmarried female research scholar between the age of 24 and 30 years residing in hostel and willingly agreed to participate in the study were enrolled for study using cluster sampling method.

Development of tools and pretesting:

In the first phase of study, different interview schedules like stress factor identification schedule, stress assessment schedule and food frequency questionnaire were developed to collect necessary information regarding the stress state and dietary pattern of the subjects. After development of the schedules, these were pre-tested on 20 subjects for their accuracy and accordingly necessary corrections were made.

Administration of tools and data collection**Stress factor identification schedule:**

To find out the factors associated with subject's possible stress status, a schedule was administered among all subjects. The schedule used was modified form of Perceived Stress Scale by Sheldon Cohen [11]. It consisted of 20 parameters/factors which were supposed to be causing stress. Subjects were asked to answer in 'yes' or 'no' for whether the subject ever experienced such event or not. For each yes, one mark and for each no, zero mark was assigned, leading to a highest of 20 and lowest score of zero.

Students stress assessment schedule:

The schedule was administered on each subject to assess the level of stress within her. This scale is the modified form of Student stress scale given by Insel and Roth [12]. The schedule comprised of 10 experiences. Each experience was scored on five frequencies ranging from never to very often with the scores ranging from zero to four, respectively. Maximum marks a subject could score were 40 and lowest was zero. Subjects were then classified into different categories of stress as per the scale given below in table 1.

Table 1. Student stress assessment scale

Scores	Categories
0-10	Normal or not stressed
11-20	Mildly stressed
21-30	Moderately stressed
>30	Highly stressed

Food frequency questionnaire

Food frequency questionnaire administered to the subjects in the present study was modified form of questionnaire given by Gibson [13]. The questionnaire consisted of two components:

- a) List of food items
- b) Set of frequency

This modified food frequency questionnaire consisted of a list of routine consumed food groups i.e. cereals and pulses, fruits and vegetables, oils and fats, milk and milk products and meat, fish, egg and poultry along with a separate list of fast viz Maggi, pizza, burger, chocolates, candy, cake, pastries, biscuits, chips, wafers, puff corns, soft drinks and shakes, which generally hostlers consume. For daily consumption of each fast food item one mark was allotted. This score ranged to a highest of six for the subjects who never consumed the particular fast food item. Highest score for the schedule came out to be sixty and lowest was ten. On the basis of scores, subjects were then divided into different categories as per the scale given in table 2.

Table 2: Eating pattern scores

Score obtained	Eating pattern
45-60	Healthy
30-45	Fair
20-30	Average
< 20	Unhealthy

Statistical analysis

The statistical analysis was done on computer in MS–Excel. The data was analyzed for percentage and correlation coefficient. Percentage was used for simple comparisons. Information regarding the stress status and eating patterns of the subjects was reported in percentage. Correlation coefficient was calculated between stress status and eating patterns to see association between the two.

RESULTS AND DISCUSSION

The present study was conducted on research scholars residing in a hostel of Uttarakhand to assess the level of stress among them and to find out the stress causing factors. The findings of stress factor identification schedule are presented in table 3.

Table 3: Stress factor identification among subjects (N=200)

Stress causing factors	Subjects facing stress factor	
	n	%
Major personal injury or illness	54	27
Changes in health of a close one	81	40.5
Serious argument with a close one	63	31.5
Change in financial status	85	42.5
Trouble with parents	49	24.5
Still to clear important exam	149	74.5
Increased work load	178	89
Outstanding personal achievement	46	23
First quarter/semester in college	91	45.5
Change in living conditions in hostel	97	48.5
Serious argument with the instructor	55	27.5
Lower grades than expected	83	41.5
Change in sleeping habits	110	55
Too many missed classes	30	15
Change of the college	67	33.5
Dropped more than one class	43	21.5
Trouble with the curriculum and instructor	96	48
Trouble in communicating with batch mates	49	24.5
Lack of clarity in the subject	97	48.5
Sitting for tests/exams frequently	128	64

The results of the schedule revealed that the factor causing highest stress among subjects was increased work load (89%), followed by still to clear important exam (74.5%), sitting for tests/exams frequently (64%) and change in sleeping pattern (55%). Other factors like lack of clarity in the subject, trouble with the curriculum and instructor and change in living conditions (hostel) were also found to be causing stress in about 48% subjects. Too many missed classes was the factor causing least stress (15%) among the subjects. On the basis of above findings, it can be concluded that the course programme perused by the subjects are actually demanding hard work and time, which is ultimately causing mental

tension and stress among subjects. A study by Fogle and Pettijohn [14] demonstrated that college students experience stress from sources like self-care habits, educational demands, daily hassles and career in future.

The study comprised of administration of stress assessment schedule on the subjects. On the basis of scores obtained in the schedule, subjects were classified into different categories of stress. The categorization of subjects under stress status/category is presented in table 4.

Table 4: Stress status of subjects (N=200)

Scores	Stress status/category	Number	Percentage
0-10	Not stressed	0	0
11-20	Mildly stressed	32	16
21-30	Moderately stressed	97	48.5
>30	Highly stressed	71	35.5

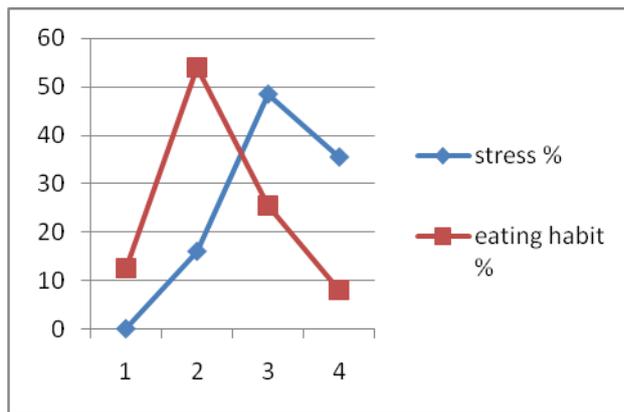
The findings of stress assessment scale revealed surprising fact that none of the subjects was found to be normal or non-stressed. Majority of the subjects i.e. 48.5% fell in the category of “moderately stressed” followed by 35.5% subjects who were found to be “highly stressed”. On the basis of above findings, it can be understood that research scholars’ studies are really hard work and time demanding, which is ultimately causing stress among them.

Subjects were categorized into different categories of eating pattern on the basis of scores obtained by them in the food frequency questionnaire. The findings are presented in table 5. On the basis of findings presented in table 5, it can be understood that majority of the subjects i.e. 54% were having “fair” eating pattern, showing that they were not freaky for fast foods. Normal frequency of fast food consumption among 12.5% subjects was “once in a month”. Only 8% subjects were found to be following “unhealthy eating pattern”.

Table 5: Eating pattern of subjects (N=200)

Scores	Eating pattern	Number	Percentage
45-60	Healthy	25	12.5
30-45	Fair	108	54.0
20-30	Average	51	25.5
< 20	Unhealthy	16	8.0

During interview, subjects were asked whether they feel like eating something when they are stressed. About 39% subjects gave their response in “yes” showing that they felt like eating some energy dense fast food when they are stressed.



Stress	Eating habit
1 Normal or not stressed	1 Healthy
2 Mildly stressed	2 Fair
3 Moderately stressed	3 Average
4 Highly stressed	4 Unhealthy

Fig 1. Relationship between stress level and eating habits

The correlation analysis of stress level and eating pattern showed negative correlation ($p=0.05$, $r=-0.201$) showing that higher the stress level, lower is the inclination of subjects towards eating healthy foods and vice-versa (Fig 1). Thus, the present study supports the findings of various studies [2], [6], [8]. According to Ansari et al [15], consumption of unhealthy foods (sweets, cookies, fast food) was found to be significantly and positively correlated with perceived stress. A study by Liu et al [16] on college students in China also concluded that consumption of ready-to-eat food and fast food was significantly and positively correlated with the condition of stress and depression.

CONCLUSION

On the basis of findings of the present study, it can be concluded that all research scholars residing in hostel were going through some level of stress. Increased work load was the highest stress causing factor among subjects. In order to cope up with the stress caused by increased work load about 8 percent subjects were found to be following unhealthy eating pattern implying that people are modifying their eating pattern (healthy food to fast food) as a coping strategy against stress.

In the present scenario, college students face stresses at different levels. Colleges, society and parents should pay necessary attention to this phenomenon and help college students to cope with various stresses from study, work, and life, by means of education and psychological assistance. Students may need guidance and reassurance from a positive role model and someone whom they can trust to talk to about such pressures, otherwise they may

chose negative ways to cope with the stress in their lives. Teachers, parents, and college administration should work together to reduce the level of stress and enhance their coping strategy that promote a healthy lifestyle.

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