

Food consumption pattern and frequency on Perceived stress among degree students in Davangere, Karnataka

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Date of Submission : 30.12.2019

Date of online Publication : 31-03-2020

Date of Acceptance : 06.02.2020

Date of Print Publication : 31-03-2020

ABSTRACT

Background: Mental diseases are a leading cause of the global burden of disease and highly contribute to life-years lost. Acute and chronic stress is considered to be potential risk factors for mental disorders. Uncontrollable stress changes eating patterns. Degree students are particularly important as they have greater freedom and control over their lifestyles. **Objective:** To assess the association between food consumption pattern and frequency on perceived stress among degree students of Davangere. **Material and methods:** A Cross sectional survey was conducted among 2 selected degree colleges of Davangere city. Around 200 students were given a self-administered questionnaire which included a food pattern and frequency questionnaire and Cohen's perceived stress scale. Mean and standard deviation for the continuous variables was done. Binary Logistic regression analyses were conducted for the outcome. **Results:** A total of 200 degree students participated in the study. Mean age of the participants was 18.8 years. 53% of them were males and 47% of them were female participants. The frequency of food consumption differed by gender. Consumption of sweets, salty junk food was generally more common among women (mean scores 8.7 and 13.6 respectively) when compared to males (8.3 and 12.4 respectively). Eating fresh fruits, salads and cooked vegetables, milk products and cereals was only slightly more common among males. Females displayed higher scores of perceived stress than males. **Conclusion:** Our results showed that unhealthy food consumption was more among women when compared to males. Among females perceived stress scores were also on the higher side.

Key word: Food consumption, Food pattern, Perceived stress scale, students

INTRODUCTION

Dietary habits are a major aspect of people's lifestyle that influences health, morbidity and mortality for a range of conditions. Hence patterns of food consumption and their relation to mental health have received some attention in research.¹ Some research studies have explored the effects of intake of carbohydrates on mood²⁻⁴ and few studies have explored the association between stress and food selection.^{5,6} People with stress reported overeating of foods, that they would normally avoid during other time and they ate these foods to feel better.⁷ Some studies have found eating as a coping strategies for stressful situations.⁸ Less is known about the association of stress with frequency of consumption of various food groups among college students. Degree students are particularly important as they have greater freedom and control over their lifestyles and health behaviours formed during young adulthood may have sustaining impacts on health throughout later life.

Hence the importance of understanding students pattern of consumption of food groups becomes evident. If poor nutritional habits are associated with stress, programs addressing mental health may also lead to the consumption of the healthier foods or vice versa.

Objective: To assess the association between food consumption pattern and frequency on perceived stress among degree students of Davangere.

MATERIAL AND METHODS

A Cross sectional survey was conducted among 2 selected degree colleges of Davangere city. The questionnaire was developed in English. Approval of the study and data collection at the participating college took place in the month of July 2019. The participating colleges were selected based on the appointment. The protocol was the same across the two colleges. Around 200 students were given a self-administered questionnaire towards the end

of a course lecture. Students were informed about the objectives of the study and by completing a questionnaire they provided their informed consent to participate in the study. Participation was voluntary and anonymous and withdrawal from the study was possible at any stage.

Assessment of Variables: Dietary intake was assessed where students were given a food pattern and frequency questionnaire which assessed their pattern of consumption of sweet junk, salt junk food, fresh fruits, raw and cooked vegetables, salads, meat, fish, milk and milk products, cereals and these questions were framed keeping in mind the dietary habits, and which are similar in other research studies.

Assessment of Stress: Perceived stress was measured with Cohen’s Perceived Stress Scale.⁹ It was rated using a 5-point Likert scale. (0=never to 4= very often)

Statistical Analysis: The analysis was done using SPSS 16. Descriptive data was presented using means and Standard deviation. Logistic regression analyses were done to see the association between food pattern and perceived stress.

RESULTS

Mean age of the participants was 18.8 years among which 53% were male students and 47% were female students. Majority of the participants were Hindu by religion, major proportion of the students were from urban areas, staying at home whereas 16% of the students were staying at hostels. Around 28% of the students belonged to class III Socio-economic status according to Modified B G Prasad classification. Majority of the parents of these students were either illiterate or completed their primary schooling.

Mean consumption of sweet and salt junk food is more among female students. Mean perceived stress scores are higher for female students. Mean consumption of sweet and salt junk food is more common among urban participants. Consumption of vegetable salads and cooked vegetables is more common among rural participants. Mean Perceived stress scores were higher among the urban participants.

Among females, higher consumption of sweet and salt junk food was associated with higher perceived stress and less frequent consumption of fruits and vegetables was associated with higher perceived stress. This association was not seen among males.

DISCUSSION

Su Wei Ngan in their study reported that around 75% of the students were having higher scores of stress and majority of the students also reported consumption of junk food and were at risk of developing eating disorder.¹⁰ In our study the association was found between the consumption of sweet or salt junk food and

Table1: Socio-demographic variables of the participants

Variables	Number	Percentage	
Age in Years	18-20	185	92.5
	21-27	15	7.5
Gender	Male	106	53
	Female	94	47
Religion	Hindu	198	99
	Muslim	2	1
Residence	Urban	111	56
	Rural	89	44
Place of living	Hostelite	31	16
	Day scholar	169	84
Type of Family	Nuclear	173	87
	Joint	27	13
Socio-Economic Status	Class I	14	7
	Class II	49	24.5
	Class III	56	28
	Class IV	38	19
	Class V	43	21.5
Fathers Education	Illiterate	40	20
	Primary school	65	32.5
	High school	54	27
Mothers Education	PUC/Diploma	26	13
	Graduate and above	15	7.5
	Illiterate	61	30.5
Fathers Occupation	Primary school	60	30
	High school	58	29
	PUC/Diploma	14	7
Mothers Occupation	Graduate and above	7	3.5
	Unemployed	8	4
	Unskilled	34	17
Fathers Occupation	Semi-skilled	29	14.5
	Skilled	123	61.5
	Professional	6	3
Mothers Occupation	Unemployed	153	76.5
	Unskilled	20	10
	Semi-skilled	1	0.5
	Skilled	25	12.5
	Professional	1	0.5

Table 2: Pattern of food consumption and Perceived Stress by gender

Food Item	Males Mean±SD	Females Mean±SD
Sweet Junk Food	8.3±3.4	8.9±2.8
Salt Junk Food	12.4±4.9	14.1±4.8
Fresh Fruits	1.8±1.2	1.4±1.2
Veg Salads	2.2±1.3	2.1±1.2
Cooked Veg	2.7±0.9	2.4±1.1
Beverages	2.6±1.3	2.6±1.3
Meat	1.3±1.1	1.01±0.9
Milk Products	2.5±1.1	2.4±1.2
Cereals	2.9±0.9	3.07±0.9
Perceived Stress Scores	18.1±4.9	21.2±5.6

Table 3: Pattern of food consumption and Perceived Stress according to place of living

Food Item	Urban Mean±	Rural Mean±
Sweet Junk Food	8.7±3.1	8.1±3.3
Salt Junk Food	13.6±4.3	11.7±5.2
Fresh Fruits	1.8±1.1	1.7±1.2
Veg Salads	2±1.2	2.4±1.3
Cooked Veg	2.4±1.1	2.7±1.0
Beverages	2.6±1.3	2.6±1.4
Meat	1.1±1.0	1.3±1.1
Milk Products	2.4±1.1	2.6±1.2
Cereals	2.9±0.9	3±0.9
Perceived Stress Scores	19.4±5.8	18.7±4.8

Table 4: Association between Food Consumption and Perceived Stress Score (Binary Logistic Regression models separate for Male and Female)

Food Group	Perceived Stress Score(Male)		Perceived Stress Score(Female)	
	Estimate	P value	Estimate	p value
Sweet Junk Food	0.31	0.37	0.54	0.05
Salt Junk Food	0.3	0.46	0.66	0.04
Fresh fruits	0.04	0.92	-1.17	0.001
Vegetable salads	0.84	0.04	-1.21	0.001
Cooked vegetables	-0.32	0.37	-0.82	0.003
Beverages	0.17	0.23	-0.14	0.52
Meat	0.09	0.8	-0.52	0.06
Milk products	-0.34	0.34	0.72	0.09
Cereals	0.41	0.17	-0.33	0.17

perceived stress as it showed higher consumption of sweet or salt junk food and higher perceived stress. In a similar way higher consumption of fruits or vegetables was associated with decreased perceived stress among students which is similar to a study conducted by Oliver G et al.,⁵. El Ansari W et al., described in their study that higher perceived stress score was significantly associated with less frequent food intake of fruits and vegetables among males and females.¹¹Kandiah et al., reported that among the study subjects 81% experienced a change in appetite and 62% experienced an increased appetite when stressed. Majority of them had unhealthy while stressed, chose more of sweet and salt junk food items.¹²Maged MY in their study described that, In general females consumed sweets, snacks, fresh fruits and raw vegetables more commonly than males, whereas males generally consumed fast food or canned food, cakes, meat, fish, dairy products more commonly than females which is similar to our study. They concluded that University/college students used food whether unhealthy/healthy as a coping strategy to reduce tremendous or continuous stress.¹³A Study done in

Uttarakhand showed that 67% of the males and 41% of the females are stressed and their total energy intake has been increased during the period of stress with no increase in intake of good nutrients.¹⁴A study conducted among 1300 adult population in Boston described that greater perceived stress was associated with lower fruit, vegetables, protein intake and greater consumption of salty snacks. Their findings suggested a link between stress, cortisol, dietary and activity patterns among study population.¹⁵A Study done by Mouchacca J described the associations between stress and measures of food habits. Stress was associated with increased odds of high intake of fast foods (OR=1.09). Stress and fast food intake were longitudinally associated, such that greater scores predicted increased likelihood of consuming high intake of fast food.¹⁶

Conclusion: Mean perceived stress scores were higher for women who had higher mean scores for sweet and salt junk food consumption. Our results showed an association between perceived stress and junk food consumption, which was slightly higher among female students. Consumption of fresh fruits, vegetables and cooked vegetables was slightly higher among males. Less consumption of fresh fruits, vegetable salads and cooked vegetables was associated with increased stress among female participants.

Recommendation: Our findings suggest that interventions oriented towards perceived stress should also address the issue of healthy nutrition. Additionally, efforts to reduce stress among students may lead to the consumption of healthier foods and vice versa.

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Conflict of Interest : None

Source of funding support : Nil

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