eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

Association of Stress and dietary habits with Socio-demographic Factors among young adults: a cross- sectional study Gurugram (Haryana)

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Received: 20 Jan 2026, Accepted: 25 Jan 2026, Published with Peer Reviewed on line: 31 Jan 2026

Abstract

This cross-sectional research aimed to investigate the association of stress and dietary habits with socio-demographic factors among young adults aged 18 to 35 years residing in Gurugram, Haryana. A total of 500 participants were selected using a snowball sampling approach via an online Google Form questionnaire. Data on perceived stress were obtained using the standardized Perceived Stress Scale (PSS-10), while dietary habits and socio-demographic information collected through a structured self-administered questionnaire. Statistical methods, including t-tests and ANOVA, were utilized to assess mean differences. The findings demonstrated a significant relationship between perceived stress levels and certain socio-demographic factors, especially gender a highly significant difference was observed between male and female respondents in their mean stress scores (t = 8.75, p = 0.000). A significant difference was also observed in stress levels across age groups (F = 9.06, p = 0.00). Income level showed a significant effect on stress (F = 11.00, p = 0.00). Respondents in the highest income category (>₹10 lakh p.a.) reported the greatest stress mean (25.87 ± 7.81), followed by those in the ₹5–10 lakh (23.04 ± 7.59) and ₹1–5 lakh (22.00 ± 7.90) groups. A highly significant difference was observed in dietary habits between male and female respondents (t = -6.00, p = 0.000). The effect of age on dietary habits was statistically non-significant (F = 1.78, p = 0.150), income level was found to have a significant impact on dietary habits (F = 6.92, p = 0.001). The results emphasize the connection between stress and dietary habits with socio-demographic variables among young adults.

Keywords: Dietary habits, stress, young adults

Introduction

According to some studies, it has been proved that diet and nutrition play important roles in maintaining health and preventing some diseases. young adults are at risk for making poor dietary choices that can cause significant health problems. It was found that barriers to healthy eating among adults include a lack of time, limited availability of healthy foods in PG or at working place.

Young adults aged18-25 experiencing a crucial transition from adolescence to adulthood.[1] personal, social, and environmental transformation took place in this period, such as relocating from home, starting higher education, living with peers or partners, and commencement of professional job. This stage is sherardized by increased in instability, where young adults frequently experience a multiple relationships and frequent employment changes before taking long-term choces.[2] These transitions can lead to unhealthy lifestyle choices, including weight gain, inadequate dietary habits, and sedentary lifestyle habits. Across the globe, young adults showed a higher rate of overweight and obesity compared to young adult women (~18% vs ~17%), these disparities being more significant in developed countries (~37% vs ~29%). A notable concern is the rapid weight gain that begins at age 18, resulting in nearly 60% of males by the age of 35-39 from

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developed countries were classified in the category of overweight or obese .[3] The significant changes during this time create instability and uncertainty, posing a significant risk to mental health and cause stress.[4]

Hans Selye, recognized as the father of stress and described stress as, Stress is the nonspecific response of the body to any demand. Our overall well-being is significantly influenced by our ability to manage stress.[5] Over the last twenty-five years, many studies has examined the association between stress and dietary pattern, significant portion of studies indicating the association of stress with modification in dietary choices among children and young adults.[6] Understanding how stress affects health is an emerging difficulty because of the complicated characteristics of stress and its natural behaviour. Previous studies found that high stress levels are directly related to higher risk of several diseases and health conditions, including cardiovascular disease, hypertension, stroke, obesity, immune function, and accelerated disease progression. Stress levels often increase during young adulthood as individuals are required to adapt to various physical and emotional changes while managing life challenges.[4] If you are experiencing a significant mental strain every day, your general health as a young adult is at risk. Stress significantly influences our emotional state, sense of well-being, behaviors, and both mental and physical health.[7] There exists a significant relation among nutritional status, physical and mental well-being in young adults.[8] During time of stress individuals generally eat not because they are hungry, but as a method to manage their stress.[10] Stress can impact dietary habits, including restraint behaviours, emotional eating, and eating promoted by external factors.[9]

Chronic stress has been found to negatively influence eating patterns and nutritional well-being. For example, high levels of stress are correlated with unhealthy eating behaviors, such as an increased consumption of food high in fat and sugar, these played a role in weight gain and obesity. Conversely.[10] Recent studies have highlighted the reciprocal relationship between stress and nutritional status. According to a systematic review, stress significantly impacts eating habits, and individuals experiencing stress are more likely to engage comfort food eating and binge(overeating) eating habits and lead malnutrition or overnutrition may be due to obesity or undernutrition.[11] Young adults have the poorest dietary habits of any age group, characterized by high consumption of soft drinks and fast food, along with a low obedience to for fruit and vegetable intake as per recommended nationally. Certain dietary habits formed at the age of young adults including irregular meal intake habits, frequently skipping meal, frequent snacking of junk food items, and the consumption of commercially prepared foods items, particularly pre-cooked and pre-packaged items contributed to poor diet and nutritional status.[12]

The study underscores the need for integrated health strategies that address psychosocial stressors while promoting balanced nutrition, particularly among vulnerable young adult populations.

2. Material and Methods

Study Design

A cross-sectional survey was conducted from july2023 to march 2024.The study inclusion criteria include both male and female young adults age (18-35) years residing in Gurugram, (Haryana). Participants were recruited from different working domain. Data collection permission was granted company manager at working site of the participants. Young adults who consented to participate were instructed to complete the questionnaire. For taking consent by participants ‘I agree’ button on the digital questionnaire was provided. Snow ball sampling technique as used. The sample size was calculated using an online Cochrane sample size calculator, with a 5% margin of error and a 95% confidence level. According to provided sample size formula, the minimum recommended sample size was determined to be 217 from a target population of 500. There were defined demographic factors include gender, age, income.

Data Collection Tool

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An online questionnaire was created using Google Forms and sent to all eligible young adults via Microsoft Teams, email, and WhatsApp. An online structured questionnaire, comprising three parts, was developed using Google Forms. The first part included questions on socio-demographic data such as age, sex, marital status, place of living, literacy and annual family income were included in this part. Stress was assessed in the second part using the Cohen Perceived Stress Scale (PSS). The third part included assessment of dietary habits self-constructed questionnaire.

Measures

Socio-demographic characteristics

Sociodemographic information comprised questions related to sex, age, place of residence, highest educational qualification, employment status (unemployed, self-employed), family type (nuclear or joint), status of marital (married or unmarried), and the monthly income of adults was classified as low (1-5 lakh rupees per annum), medium (6-10 lakh rupees per annum), and high (> ₹ 10 lakh). Anthropometric measures height (cm) and weight in (kg) were dictated by subjects noted based upon these parameters (BMI) body mass index was assessed.

Assessing perceived stress level

Perceived stress scale (PSS-10) for assessing stress was developed by Cohen.[13] and further taken by Lee et al.[14] Stress assessed in the third part using a validated 10-item questionnaire that evaluate how respondents view their life circumstances are unpredictable, stressful, uncontrollable, and overwhelming. The questions asked individuals about their stress levels over the month prior to being surveyed by utilizing scale consist of four points rating having 0 for (never) to 4 (very often) for each question, question number 4, 5, 7, and 8 scores were reversed. By summing the responses to all 10 questions individual scores were calculated. Total stress score lies between 0 to 40. The stress score further classified in to three categories as mentioned score for low stress (0-13), moderate stress (14-26), and high stress (27-40). It is important to note that perceived stress scale is not a diagnostic tool and therefore there are no cut-offs for identifying individual who are stressed Higher scores correlate with higher perceived stress levels.

Measuring dietary habits

The dietary habits segment of the questionnaire used to evaluate the dietary habits (categorized as good, average, and poor) of the participants. The dietary behaviour questionnaire was constructed based on existing relevant literature and questionnaire on young adults eating habits. The questionnaire was prepared in simple and lucid language. It was closed ended questionnaire with given options (usually, occasionally, rarely and never). It was filled by the investigator through the personal interview technique and by subject using a google form. Data was collected regarding meal skipping, the frequency of meals consumed per day, eating out, and the consumption of unhealthy junk food. The dietary habits questionnaire comprises a total of 9 questions, with scoring applied to 8 questions using a 4-point Likert scale. Scores were given to each option like(Never-4,rarely-3,occasionally-2 and for usually-1 and reverse scoring was applied to question regarding taking meal on time as (Never-1,rarely-2.occasionally-3 and for usually-4) .one question not included in scoring was related to the type of diet followed (vegetarian, non-vegetarian, or eggetarian).A higher score indicates better dietary habits. In this study, scores ranging from 0 to 13 points were classified as poor eating habits, 14 to 26 points as average eating habits, and scores above 27 points as good eating habits for analysis. The validity and reliability of the questionnaire were established prior to the study with expert review and pilot study.

Statistical analysis

The collected data were analysed using an IBM SPSS Statistics Software, version 20. Descriptive statistics were used to generate percentages, frequencies, means, standard deviations, and total scores for the Cohen

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Perceived Stress Scale. Independent-sample T test and one-way ANOVA were employed to compare means related to sociodemographic factors, dietary habits, and stress levels. Karl Pearson correlation was applied to find significant correlations between dietary habits and stress levels. The significance level was defined as ($p < 0.05$)

3.Results and Discussion

Table 1: Socio-demographic profile description

Sociodemographic characteristics	Category	Frequency & Percent		
		Male (n263)	Female (n237)	Total (N500)
		No. (%)	No. (%)	No. (%)
Age	(18-21)	2(0.4)	0	2(0.4)
	(22-25)	48(9.6)	27(5.4)	75(15.0)
	(26-30)	111(22.2)	105(21.0)	216(43.2)
	(31-35)	102(20.4)	105(21.0)	207(41.4)
Literacy	12th	20(4.0)	29(5.8)	49(9.8)
	Diploma	58(11.6)	0	58(11.6)
	Graduate	99(19.8)	40(8.0)	139(27.8)
	Postgraduate	49(9.8)	105(21.0)	154(30.8)
	Doctorate	37(7.4)	63(12.6)	100(20.0)
Place of living	Home	107(21.4)	124(24.8)	231(46.2)
	Rent	119(23.8)	73(14.6)	192(38.4)
	Hostel/PG	37(7.4)	40(8.0)	77(15.4)
Marital status	Single	114(22.8)	89(17.8)	203(40.6)
	married	149(29.8)	148(29.6)	297(59.4)
Type of family	Nuclear	202(40.4)	185(37.0)	387(77.4)
	Joint	61(12.2)	52(10.4)	113(22.6)
Family household income	1-5 Lakh pa	84(16.8)	121(24.2)	205(41.0)
	5-10 Lakh pa	40(8.0)	59(11.8)	99(19.8)
	>10 Lakh pa	139(27.8)	57(11.4)	196(39.2)
Expenditure on food	1-10 k pm	214(42.8)	197(39.4)	411(82.2)
	10-20 k pm	49(9.8)	40(8.0)	89(17.8)

N= Total number of subjects, n= number of subjects gender-wise, pa= per annum, pm= per month

Table 1 depicted a socio-demographic profile of (N=500), young adults including male were (52.4%) and females (47.6%). A large percentage (43.2%) of participants were under (26-30) years of age followed by (31-35) age profile (41.4%) including many of the were in late adulthood. In terms of educational status, 30.8% were postgraduates, 27.8% were graduates, and 20.0% had attained a doctoral qualification, reflecting a relatively high literacy profile within the study group. Majority of respondents were married (59.4%) compared to single participants (40.6%). The distribution of family household income showed that 41.0% of

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the participants reported an annual income between ₹1–5 lakh, 19.8% between ₹5–10 lakh, and 39.2% above ₹10 lakh per annum.

Table 2: Assessment of Perceived Stress level among young adults

Stress level	Number & percent with Mean±SD					
	Male(n263)		Female(n237)		Total(N=500)	
	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD
High stress	137(27.4)	32.36±3.22	72(14.4)	29.97±2.94	209(41.8)	31.54±3.14
Moderate stress	111(22.2)	21.53±3.96	142(28.4)	18.11±4.25	253(50.6)	19.61±4.45
Low stress	15(3.0)	11.73±2.05	23(4.6)	8.65±2.32	38(7.60)	9.86±2.67
Total	263(52.6)	26.61±7.28	237(47.4)	20.79±7.56	500(100)	23.85±7.96
Statistical result	F=3.11, t=8.75, P=0.00					

The assessment of stress levels among the participants in the study indicated significant differences based on gender and intensity categories. As shown in table 2 the majority of participants reported either high or moderate stress levels with only a small percentage classified as low-stress. Out of total participants 41.8% (n=209) were categorized as high-stress showing that stress is a major issue for young adults. The largest group 50.6% (n=253) experienced moderate stress levels reflecting a widespread occurrence of stressors. Only 7.6% (n=38) of participants reported low stress. The analysis of stress levels by gender revealed distinct differences. Among males, 27.4% (n=137) reported high stress, which was greater than the 14.4% (n=72) reported by females. Moderate stress was more frequently reported by females (28.4%, n=142) compared to males (22.2%, n=111). The low-stress category included 3.0% (n=15) of males and 4.6% (n=23) of females, indicating only slight gender differences in this group. Further examination of mean stress scores showed significant inter-gender differences across all categories. The overall mean stress score for all young adults was 23.85 ± 7.96, with males mean score 26.61 ± 7.28 and females 20.79 ± 7.56. Males in the high-stress group had a mean score of 32.36 ± 3.22, while females reported a lower stress mean score was 29.97 ± 2.94. In the moderate-stress group, males had a mean of 21.53 ± 3.96, which was higher than females at 18.11 ± 4.25. Males also had higher mean scores (11.73 ± 2.05) in the low-stress group compared to females (8.65 ± 2.32). The independent sample t-test (t=8.75, p=0.000) demonstrated a highly significant difference between male and female participants, F=3.11 indicating variability in stress scores across gender-based categories.

Table 3: Distribution of the subjects according to food habits

Dietary pattern	Response	Frequency & Percent		
		Male (n263)	Female (n237)	Total (N500)
	Option	N (%)	N (%)	N (%)
Food habits	Vegetarian	59(11.8)	121(24.2)	180(36.0)
	Non-Vegetarian	163(32.6)	57(11.4)	220(44.0)
	Eggetarian	41(8.2)	59(11.8)	100(20.0)
$\chi 2 = 74.51$ df= 2 P = 0.000				

Food habits analyses

The findings regarding food preferences showed that 44.0% (n = 220) of the participants were non-vegetarians, followed by 36.0% (n = 180) who identified as vegetarians and 20.0% (n = 100) as eggetarians. Significant

eISSN 2581-8996
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Volume 09, Issue 01, January 2026

differences were observed between genders majority of females (24.2%, n = 121) were vegetarian compared to males (11.8%, n = 59). Conversely, the preference for non-vegetarian food was significantly greater among males (32.6%, n = 163) than females (11.4%, n = 57). Eggetarians were nearly evenly distributed, with females (11.8%, n = 59) slightly more than males (8.2%, n = 41). The association between food preference among gender was statistically significant ($\chi^2 = 74.51$, df = 2, p = 0.00) and shown in Figure 1.

Figure 1: Distribution of the subjects according to food habits

Table 4: Distribution of the subjects according meal pattern

Dietary pattern	Response	Frequency & Percent		
		Male (n263)	Female (n237)	Total (n500)
	Option	N (%)	N (%)	N (%)
Meal intake/day	1 meal	21(4.2)	5(1.0)	26(5.2)
	2meal	72(14.4)	7(1.4)	79(15.8)
	3 meals	89(17.8)	135(27.0)	224(44.8)
	4 meals	81(16.2)	90(18.0)	171(34.2)
$\chi 2$ =72.09, df= 3, P = 0.000				

Meal pattern

The frequency of meal patterns analysis revealed that the most commonly adopted schedule was three meals per day, with 44.8% of respondents (n = 224) were following this pattern. This was followed by four meals a day at 34.2% (n = 171). A smaller segment of the population reported having only two meals (15.8%, n = 79), one meal followed by (5.2%, n = 26) each day. Gender analysis indicated that females were more likely to stick to the three-meal pattern (27.0%, n = 135) compared to males (17.8%, n = 89). Similarly, females had a higher representation in the four-meal category (18.0%, n = 90) than males (16.2%, n = 81). males were more inclined to limit their meals to two meals a day (14.4%, n = 72) and one meal a day (4.2%, n = 21). The differences observed were statistically significant ($\chi^2 = 72.09$, df = 3, p = 0.000).

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Volume 09, Issue 01, January 2026

Table 5: Distribution of the subjects according to the frequency of food intake

Dietary habits	Response	Frequency & Percent		
		Male (n263)	Female (n237)	Total (n500)
	Option	N (%)	N (%)	N (%)
Taking meals on time	Usually	40(8.0)	53(10.6)	93(18.6)
	Occasionally	92(18.4)	106(21.2)	198(39.6)
	Rarely	47(9.4)	74(14.8)	121(24.2)
	Never	84(16.8)	4(0.8)	88(17.6)
	$\chi 2$ =80.42, df=3, P =0.00			
Breakfast skipping	Usually	111(22.2)	40(8.0)	151(30.2)
	Occasionally	40(8.0)	56(11.2)	96(19.2)
	Rarely	51(10.2)	63(12.6)	114(22.8)
	Never	61(12.2)	78(15.6)	139(27.8)
	$\chi 2$ = 38.14, df=3, P =0.00			
Lunch skipping	Usually	31(6.2)	6(1.2)	37(7.4)
	Occasionally	97(19.4)	52(10.4)	149(29.8)
	Rarely	52(10.4)	88(17.6)	140(28.0)
	Never	83(16.6)	91(18.2)	174(34.8)
	$\chi 2$ =38.86, df=3, P =0.00			
Dinner skipping	Usually	29(5.8)	2(0.4)	31(6.2)
	Occasionally	62(12.4)	60(12.0)	122(24.4)
	Rarely	78(15.6)	56(11.2)	134(26.8)
	Never	94(18.8)	119(23.8)	213(42.6)
	$\chi 2$ = 28.82, df=3, P =0.00			
Outside eating	Usually	136(27.2)	57(11.4)	193(38.6)
	Occasionally	62(12.4)	110(22.0)	172(34.4)
	Rarely	50(10.0)	57(11.4)	107(21.4)
	Never	15(3.0)	13(2.6)	28(5.6)
	$\chi 2$ = 45.10, df=3, P =0.00			
Prefer Junk/outside food	Usually	145(29.0)	106(21.2)	251(50.2)
	Occasionally	75(15.0)	65(13.0)	140(28.0)
	Rarely	17(3.4)	28(5.6)	45(9.0)
	Never	26(5.2)	38(7.6)	64(12.8)
	$\chi 2$ = 10.38, df=3, P =0.016			
Prefer packed or outside food in place of meal	Usually	110(22.0)	33(6.6)	143(28.6)
	Occasionally	82(16.4)	115(23.0)	197(39.4)
	Rarely	39(7.8)	66(13.2)	105(21.0)
	never	32(6.4)	23(4.6)	55(11.0)
	$\chi 2$ = 54.20, df=3, P =0.00			

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Meal Regularity

In response to inquiries about meal timing, the highest percentage of participants indicated that they occasionally followed a schedule (39.6%, n = 198). About 24.2% (n = 121) reported rarely took meal on time while 18.6% (n = 93) usually ate on time, and 17.6% (n = 88) never adhered to meal timing. A gender comparison revealed that females were more consistent, with 10.6% (n = 53) indicating usually took meal on time compared to 8.0% (n = 40) of males. In contrast, irregular meal timing (never on time) was more prevalent among males (16.8%, n = 84) than females (0.8%, n = 4). This relationship meal regularity pattern was statistically significant among gender as shown by results ($\chi^2 = 80.42$, df = 3, p = 0.000).

Breakfast Skipping behaviour

Breakfast was the most commonly frequently overlooked. About 30.2% (n = 151) generally skipped breakfast, with a significantly larger share among males (22.2%, n = 111) than females (8.0%, n = 40). Occasionally skipping was done by 19.2% (n = 96), rarely by 22.8% (n = 114), and never by 27.8% (n = 139). The difference was statistically significant among gender ($\chi^2 = 38.14$, df = 3, p = 0.000).

Lunch Skipping

Lunch skipping was relatively infrequent. The majority of participants either never skipped lunch (34.8%, n = 174) or did so rarely (28.0%, n = 140). Occasionally skipping was done by 29.8% (n = 149), while few 7.4% (n = 37) usually skipped lunch. Males (6.2%, n = 31) reported a higher frequency of usually skipping lunch than females (1.2%, n = 6). This association was significant among gender ($\chi^2 = 38.86$, df = 3, p = 0.000).

Dinner Skipping

Dinner was the meal least likely to be skipped. A considerable number of individuals never skipped dinner (42.6%, n = 213), while 26.8% (n = 134) reported rarely skipping, 24.4% (n = 122) occasionally skipped, and only 6.2% (n = 31) usually skipped dinner. Males were more likely to skip dinner regularly (5.8%, n = 29) compared to females (0.4%, n = 2). The differences were statistically significant ($\chi^2 = 28.82$, df = 3, p = 0.000)

Frequency of Eating Outside

A significant number of participants indicated that they consumed food from outside sources. About 38.6% (n = 193) regularly consumed outside food, while 34.4% (n = 172) consumed occasionally. Rarely consumption was reported by 21.4% (n = 107), and 5.6% (n = 28) reported never eating outside food. Majority of males were frequently consumed outside food (27.2%, n = 136) compared to females (11.4%, n = 57). This relationship was found to be significant ($\chi^2 = 45.10$, df = 3, p = 0.000).

Junk foods consumption

Preference for junk or outside food was frequently observed. Majority of participants 50.2% (n = 251) typically consumed junk food, with 28.0% (n = 140) consumed occasionally, 9.0% (n = 45) rarely, and 12.8% (n = 64) never consumed. Gender based analysis revealed that males had a higher usually preference (29.0%, n = 145) than females (21.2%, n = 106) for outside food. The association was statistically significant ($\chi^2 = 10.38$, df = 3, p = 0.016).

Preference for Packed/Outside Food Instead of Home Meals

In response to the question of whether participants replaced their meals with packed or outside food, a significant portion 28.6% (n = 143) stated they usually consumed outside instead of home-made food, 39.4% (n = 197) occasionally consumed, 21.0% (n = 105) mentioned they consumed rarely, and 11.0% (n = 55) reported never took. Males were more likely to usually replace home-made meals with outside or packed food items (22.0%, n = 110) compared to females (6.6%, n = 33). Females reported occasional meal replacement

eISSN 2581-8996
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more often (23.0%, n = 115) than males (16.4%, n = 82). The association was statistically significant (χ^2 = 54.20, df = 3, p = 0.000).

Table: 6 Dietary patterns among young working adults as per obtained mean scores

Dietary habits	Number & percent with Mean±SD					
	Male(n263)		Female(n237)		Total(N=500)	
	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD
Poor	76(15.2)	10.65±1.60	0	0	76(15.2)	10.65±1.60
Average	158(31.6)	20.94±3.37	205(41.0)	21.04±3.34	363(72.6)	±
Good	29(5.8)	28.0±1.06	32(6.4)	28.34±1.09	61(12.2)	±
Total	263(52.6)	18.75±6.25	237(47.4)	22.03±4.01	500(100)	20.30±5.55
Statistical test	F=69.33, t= (-6.90), P=0.00					

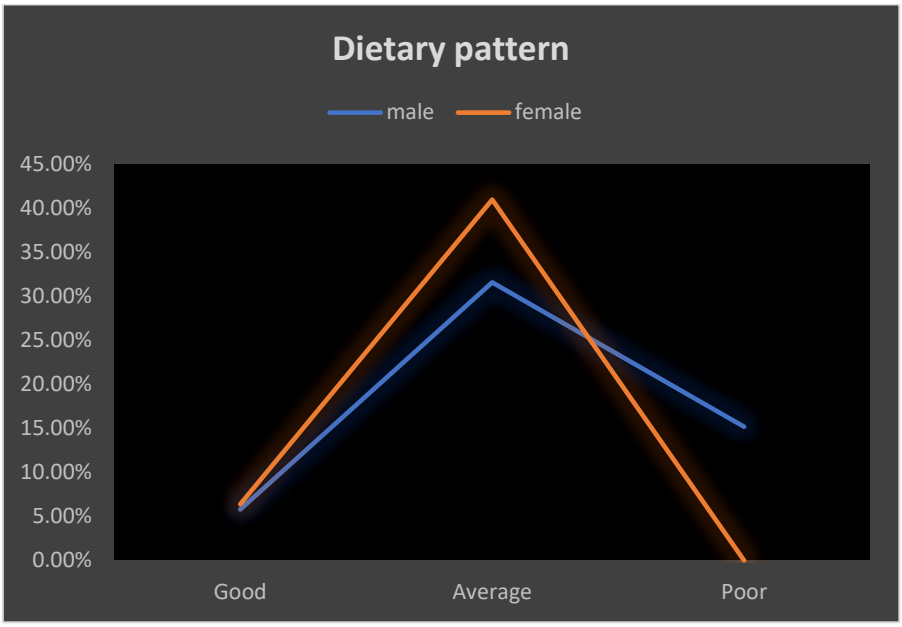

Figure 2: Distribution of subject based on dietary patter

The dietary pattern of young adults based on their obtained dietary scores

The dietary pattern of young adults was analysed based on their obtained dietary scores, as presented in table 6. These results demonstrated a distinct variation in dietary practices between male and female participants. Out of the total 500 participants, a majority (72.6%) exhibited average dietary habits, followed by 15.2% who showed poor dietary habits, and 12.2% who demonstrated good dietary habits. The overall mean dietary score of the study population was 20.30 ± 5.55, indicating that the general dietary pattern among the respondents tended to be moderately but not optimal.

A gender-wise comparison revealed that male participants (N = 263) had a mean dietary score of 18.75 ± 6.25, whereas female participants (N = 237) recorded a comparatively higher mean score of 22.03 ± 4.01. The findings highlight that a greater proportion of males (15.2%) were classified under the poor dietary category, with a mean score of 10.65 ± 1.60, reflecting an inadequate dietary quality and irregular eating practices. In contrast, none of the female participants were found in the poor dietary category, which implies better adherence to nutritional guidelines among females. Within the average dietary category, 158 males (31.6%) and 205 females (41.0%) were included, with mean scores of 20.94 ± 3.37 and 21.04 ± 3.34, respectively. However, the good dietary category was represented by only 29 males (5.8%) and 32 females (6.4%), with

eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

mean scores of 28.0 ± 1.06 and 28.34 ± 1.09, reflecting a relatively small number of participants adhering to optimal dietary practices such as regular meal consumption, inclusion of fruits and vegetables, and limitation of processed foods. The application of independent sample t- test revealed a statistically significant difference between male and female dietary scores (t=-6.90, F = 47.61, P = 0.00), indicating that gender had a significant influence on dietary behaviour among the participants.

Table 7: Impact of socio-demographic variables on perceived stress among young adults(N=500).

Socio-economic variables		Stress mean score Mean ±SD	t value	f value	Sig (p-value)
Gende	Male	26.61±7.28	8.75	3.11	0.000
	Female	20.79±7.56			
Age group	18-21	23.5±0.70	-	9.06	0.000
	22-25	22.70±7.70			
	26-30	22.16±7.80			
	31-35	26.04±7.77			
Income group	1-5 lakh pa	22.0±7.90	-	11.0	0.000
	5-10 lakh pa	23.04±7.59			
	>10 lakh	25.87±7.81			

The present study investigated the impact of socio-demographic variable defined as gender, age group, and income level on perceived stress among young adults showed in Table 7. To found out presence of significant difference across the group independent t test and Anova were used.

Gender wise comparison stress level

Assessment of stress level based on gender showed a statistically significant difference in average stress scores. Males reported a higher mean stress score (26.61 ± 7.28) than females (20.79 ± 7.56). The determined t-value 8.75, along with a p-value 0.00, indicated an observed difference was highly significant as ($p<0.01$). This result implies that male respondents experienced relatively high levels of perceived stress than females.

Comparison of Age Group with Stress

A variance analysis (ANOVA) was performed to evaluate stress levels across four age groups (18–21, 22–25, 26–30, and 31–35 years). The findings indicate a statistically significant difference between the groups (F = 9.06, p = 0.000). The mean stress scores showed that participants aged 31–35 years were experienced the highest levels of stress (26.04 ± 7.77), followed by those in the 18–21 age range (23.5 ± 0.70), while the 26–30 age group reported lower stress levels (22.16 ± 7.80).

Comparison of Income Group with Stress

A strong corelation was found in income category and stress level (f=11.0, $p<0.01$). Participants with an annual income of ₹5–10 lakh had higher mean stress scores (23.04 ± 7.59) compared to those earning ₹1–5 lakh per year (22.0 ± 7.90). The results reflected that individuals in higher income levels may experience higher stress due to increased occupational demands, ti

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eISSN 2581-8996
ONLINE
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A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

Table 8: Impact of socio-demographic variables on dietary habits among young adults (N=500).

Impact of sociodemographic variable Gender, Age and income over Dietary habits

Socio-demographic variables		Dietary habits mean score Mean ±SD	t value	f value	Sig (p-value)
Gende	Male	18.75±6.25	-6.00	69.33	0.000
	Female	22.03±4.01			
Age group	18-21	18.5±2.12	-	1.78	0.150
	22-25	20.82±5.12			
	26-30	20.77±5.09			
	31-35	19.64±6.10			
Income group	1-5 lakh pa	20.90±5.10	-	6.92	0.001
	5-10 lakh pa	21.23±4.85			
	>10 lakh	19.17±6.13			

The impact of socio-demographic variables gender, age, and income on dietary habits was examined using an independent sample *t*-test and one-way ANOVA presented in the Table 8.

Gender and Dietary Habits

A highly significant difference was observed in dietary habits between male and female respondents (t = -6.00, p = 0.000). Female participants reported a significantly higher mean dietary habit score (22.03 ± 4.01) compared to males (18.75 ± 6.25) indicating that females tended to follow healthier and more consistent dietary practices.

Age and Dietary Habits

The effect of age on dietary habits was statistically non-significant (F = 1.78, p = 0.150), although minor variations in mean scores were observed across age categories. Participants aged 22–25 years (20.82 ± 5.12) and 26–30 years (20.77 ± 5.09) reported slightly better dietary habits compared to the youngest (18–21 years, 18.50 ± 2.12) and oldest (31–35 years, 19.64 ± 6.10) groups.

Income and Dietary Habits

Income level was found to have a significant impact on dietary habits (F = 6.92, p = 0.001). Participants with an annual household income between ₹5–10 lakh reported the highest mean dietary habit score (21.23 ± 4.85), followed by those in the ₹1–5 lakh category (20.90 ± 5.10), while individuals earning more than ₹10 lakh per annum had comparatively lower scores (19.17 ± 6.13). This trend indicates that middle-income groups may maintain more balanced and structured eating patterns, whereas higher-income individuals could be more prone to irregular dietary behaviours.

Conclusion

present study highlights the relationship among socio-demographic determinants, stress, and dietary pattern in shaping young adults physical and mental well-being. The evidence suggests that psychosocial stress and lifestyle factors influence dietary habits, nutritional status and body composition. The findings revealed that socio-demographic variable such as gender, age, and income, significantly influenced perceived stress and further states that stress was associated with dietary pattern.A majority of participants experienced moderate to high stress levels, indicating that psychological distress is a pervasive concern among young adults. The phase of emerging young adults considered as a crucial period identified by numerous transformations with a notable risk for mental health issues. Many social roles changes and high stress occurred at this young adult's

stage, which can affect their health status later in age. The gender-based disparity observed, in this study as p-value of 0.000, identified difference was highly significant ($p < 0.01$). This result implies that male respondents experienced relatively high levels of perceived stress than females. The analysis also demonstrated that stress levels increased with age and income, with the high stress level was observed among aged 31–35 years young adults and those in the upper-income group. This trend aligns with the life-course model of stress, which suggests that the accumulation of stress is related to the increase in familial, occupational, and financial responsibilities. High income group may experience greater occupational demands, time constraints, and social expectations having higher stress despite economic stability. The combination of elevated perceived stress poor dietary quality among young adults may increase their risk for early-onset metabolic disorders, non-communicable diseases like diabetes, hypertension, heart diseases and mental health issues.

The findings suggests that need for targeted interventions integrating stress management, nutritional counselling, and lifestyle modification strategies. Educational campaigns promoting balanced diets rich in micronutrients, along with programs addressing work-life stress and mental health resilience, could mitigate these emerging risks.

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