Section A-Research paper
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Relationship between BMI and Nutrition in an Indian Adult Population: Findings from an exploratory study

Dr Anupama Vithalkumar Betigeri ,Professor & Head ,Department of Physiology, (Corresponding author)
Manav Rachna Dental College ,Faculty of Dental Sciences,MRIIRS,Faridabad Haryana
articlespublications90@gmail.com
Urvi Vashistha,
3rd year BDS Student
Department of Physiology
Manav Rachna Dental College ,Faculty of Dental Sciences,MRIIRS,Faridabad Haryana
Vidushi Aggarwal
3rd year BDS Student
Department of Physiology
Manav Rachna Dental College ,Faculty of Dental Sciences,MRIIRS,Faridabad Haryana
Vanshika Batra
3rd year BDS Student
Department of Physiology
Manav Rachna Dental College ,Faculty of Dental Sciences,MRIIRS,Faridabad Haryana
Vikram Sain Jain
3rd year BDS Student
Department of Physiology
Manav Rachna Dental College ,Faculty of Dental Sciences,MRIIRS,Faridabad Haryana
Taruna Singh
3rd year BDS Student
Department of Physiology
Manav Rachna Dental College ,Faculty of Dental Sciences,MRIIRS,Faridabad Haryana

ABSTRACT

Adolescence is characterized by increasing independence and the ability to make independent choices. Adolescent obesity is largely caused and prevented by personal factors, such as unhealthy eating habits and poor lifestyle choices. Anthropometric and body composition measurements are widely used to detect or diagnose a wide range of important dietary concerns in both adults and children. College students need to receive nutrition education in order to understand how to make sensible dietary and lifestyle decisions that can impact their long-term health and wellness. For considerable success, it is necessary to have precise rules and accurate nutrition environment assessments.

Between January 2022 and July 2022, the adult population of Delhi NCR—including students—was questioned. Surveys using a structured questionnaire created after literature searches were used to gather data. The questionnaire asked socio-demographic questions.
Key words : Adolescence, BMI, Health, Nutrition

INTRODUCTION

Adolescence is a time of growing independence and making decisions on one's own; it establishes health habits that may last a lifetime. Adolescent obesity is largely caused and prevented by individual factors like poor dietary habits and bad lifestyle choices. There have been research on nutrition literacy in parents and other adults, but few have looked at how teenagers' nutrition literacy affects their eating patterns.The average Body Mass Index (BMI), defined as weight in kilograms divided by height in meters squared (kg/m2) has increased dramatically since the 1980s. The literature attributes the dramatic increase in average BMI to economic changes that alter adolescents' preferences for exercise and high calorie, low-nutrient food and drinks (1).

The condition of the body as a result of an appropriate balance of nutrient intake, absorption, and utilization as well as the impact of a particular physiological and pathological status on a person's health is known as nutritional status. (2,3) Anthropometric and body composition measurements are routinely used to detect or diagnose a number of important dietary concerns in both adults and children. Some of these include being overweight, obese, malnourished, osteoporotic, sarcopenic, and sarcopenic obesity. The assessment of nutritional status is crucial for both clinical practice and for individuals (3).
Around 20% of the world's population is adolescent , and 90% of them live in low- and middle-income countries (LMICs). Many adult non-communicable disease risk factors start to develop in adolescence. When they are adolescents, they can gain from health interventions specifically targeted at them (2, 4,5).

Young adult nutritional consumption contributes to physical health, influences disease risk in the future, and helps prevent excessive weight gain (6,7). The risk of developing a chronic illness in late adulthood directly correlates with dietary intake that is low in fruits and vegetables and high in refined carbohydrates and fats.College students must receive nutrition education in order to learn how to make appropriate food and lifestyle decisions that could impact their long-term health and wellness (8). The advice to "eat less and move more" ignores the complex influences of the built and social environments on access to inexpensive, healthy food and communities that support physical activity (9,10).Individual-level psychological and social variables of dietary and physical activity behaviors can not adequately account for the widespread incidence of obesity (11,12). To make considerable progress, it is necessary to have clear principles and trustworthy nutrition environment measurements (13,14,15).

MATERIAL AND METHODS

Settings and Sampling:

A cross-sectional examination of Delhi NCR's adult population, including students, was conducted for this survey. We surveyed a diverse group of participants from many fields, including the general public, BDS students , and the nutrition department between January 2022 and July 2022. With dentistry students making up the majority of the sample, young teenagers were chosen at random.

Data collection tools:

The data was collected through surveys with a structured questionnaire designed after thorough literature searches, questions were adapted and modified from previously published studies as per the requirement, and questions were added which were considered relevant. The questionnaire consisted of four parts. The first part included questions on socio demographic data, e.g., name, age, height, weight and gender.

The second part included questions on their knowledge about nutrition which consist of a series of questions inquiring if the person knows about , the meals they consume, the calorie intake, the components of a healthy diet and the difference between normal weight and obesity and the type of lifestyle they follow. The third part further included questions about the attitude like what is their main meal of the day and what does it consist of with the method of preparation. In the last part of the questionnaire, the participants were questioned on their perception about themselves.

The e-questionnaire is formed using google forms and shared by personal and institutional whatsapp and messenger.

RESULTS:

Table 1: Mean age, height , weight and BMI

	N	Mean	Std. Deviation	Std. Error Mean
Age -	278	26.16	10.913	.655
Height - (in cm)	278	166.49	14.681	.881
Weight -	278	68.739	20.2091	1.2121
bmi	278	80.3070	930.12718	55.78532

Table 2: Frequency distribution for different responses on nutritio

Question		N	%
Monitor calorie	Yes	53	19.1

intake	No	225	80.9
Components of healthy diet	P,F,C,M	253	91.0
	P,M	13	4.7
	Others	12	4.3
Describe yourself as	Healthy	188	67.6
	Overweight	72	25.9
	Underweight	18	6.5
Type of lifestyle	Active	56	20.1
	Moderate	200	71.9
	Sedentary	22	7.9
Consume milk	Yes	251	90.3
	No	22	7.9
	Didn't answer	5	1.8
Best type of milk	Low fat	68	24.5
	Skimmed	37	13.3
	Whole	173	62.2
Cooking oil	Castor oil	6	2.2
	Olive oil	50	18.0
	Ghee	61	21.9
	Sesame oil	10	3.6
	Vegetable oil	151	54.3
Check the food label	Yes	228	82.0
	No	50	18.0
Main meal of the day	Breakfast	42	15.1
	Lunch	199	71.6
	Dinner	37	13.3
Main meal comprises of	Bread	15	5.4
	Confectionary	3	1.1
	Fast food	3	1.1
	Fruits	7	2.5
	Traditional meal	250	89.9
Preparation of meal	Freshly home cooked	258	92.8
	Pre cooked	11	4.0

	Restaurant meal	9	3.2
Inclusion of fresh fruits, salad	Every time	63	22.7
	Less than once a week	15	5.4
	Once a day	171	61.5
	Once a week	29	10.4
Days of exercise	Never	32	11.5
	Daily	32	11.5
	1-2 times a week	168	60.5
	5-6 times a week	46	16.6
Easy way to clear junk	Consume healthy snacks	117	42.1
	Consume fruits	87	31.3
	Minimise snacks between meals	74	26.6
Meat and meat products	Do not consume	192	69.1
	50-75%	81	29.2
	90% or more	5	1.8

Table 3

No. of meals per day	2	26	9.4
	3	119	42.8
	>3	133	47.8
Milk glasses per day	0	39	14.0
	1	185	66.5
	2	51	18.3
	3	3	1.1
Right pattern of meal	2 balanced meals and 2 snacks	70	25.2
	3 balanced meals and 2 snacks	193	69.4
	3 large meals and 2 snacks	13	4.7
	One main meal	2	0.7

Right meal habit	Non veg	56	20.1
	Veg	206	74.1
	Vegan	16	5.8
BMI reflects in the way you see	Yes	241	86.7
	No	37	13.3

DISCUSSION

The participants' average age was 26.16 (26-27) years, and their average BMI was 80.30 kg/m2. Participants had mean weights of 68.73kg and average heights of 166.49m.

90.3% of them admitted to not drinking milk, although the majority of them 62.2% thought whole milk was the greatest kind of milk.A higher percentage of them 54.3% used vegetable oil to prepare meals. It was also discovered that 82% of them demonstrating promise and awareness checked the food label for information on ingredients and calories before purchasing. In terms of their daily routine, it was observed that 92.8% exclusively ate food that had been freshly prepared at home, 61.5% added some sort of fiber to their meals to include roughage, and 69.1% did not eat any animal products at all.Only 11.5% of participants demonstrated daily activity, whereas 60.5% did so once or twice per week. It was determined that 42.1% of the participants tried to reduce their intake of junk food by switching to healthy snacks.

74.1% of respondents said eating a vegetarian meal was a better eating habit, while 69.4% had three balanced meals and two snacks daily. 86.7% of the participants were convinced that BMI reflects in the way you see diet and nutrition.

The frequency distribution for nutrition was checked and the interpretation showed majorly 80.9% of the people do not monitor their calorie intake on a daily basis. This affects their health and results show 25.9% of them are overweight. 71.9% of the population has a moderate lifestyle and 7.9% of them have a sedentary lifestyle due to which they are more prone to diseases such as obesity. This also shows that 60.5% of the population does not exercise on a daily basis that causes a sedentary lifestyle. 71.6% of the population's main meal is lunch and 13.3% of the population has dinner as their main meal. 5.4% of the population mainly consume bread as a main source of meal.

CONCLUSION

This generation is less likely to eat healthy meals and is more likely to be inactive as a result of the increased availability of processed food in recent years. Furthermore, a huge section of the population now consumes processed foods to satiate their hunger, which results in decreased

intake of a balanced or nutrient-rich diet. This is due to the availability of instant food. We were able to draw the conclusion from our research that the majority of people lead sedentary lives and are less active than the recommended amount of exercise.

A significant percentage of the population was discovered to be overweight. A lot of variables affect obesity (high BMI number), which typically results in ingesting more calories than the body requires.Physical inactivity, food, lifestyle, socioeconomic background, exposure to specific chemicals, medical issues, and drug usage are a few examples of these variables.Obesity increases the risk of various diseases, including diabetes, high blood pressure, and heart disease. Treatment for obesity requires a combination of increasing activity and lowering caloric consumption.

The fact that the majority of people ate lunch as their main meal and only a small percentage ate dinner as their main meal suggests that the majority of people had metabolisms that were functioning at their peak, allowing them to fully utilize the energy from the food they consumed. In contrast, people who ate dinner as their main meal had all the extra calories stored as fat because of the slower metabolism that occurs at night while people are sleeping.

People will be more susceptible to health-related diseases if we are unable to resist the negative impact that processed foods, unhealthy snacks, and irregular mealtimes have on our health. In light of the fact that diet directly affects BMI, it is important to ensure that good eating is combined with sufficient exercise and regular meals in order to lead a hearty and healthy lifestyle.

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