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ASSESSMENT OF BODY MASS INDEX, ORAL HYGIENE HABITS AND PHYSICAL ACTIVITY AMONG DENTAL STUDENTS - A SURVEY

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Abstract

Background: Obesity has a well-established effect on people's oral health, as well as on Dental treatment regimens. It should be the aim of Dental curriculum to educate their patients and students about diet counselling and good oral hygiene practices in order to maintain healthy lifestyle. Hence the aim of the study is to assess oral hygiene practices, physical activity, dietary habits and the BMI status among Dental students at Sharda University. **Method:** A cross-sectional web-based survey was conducted at Sharda University among first year Dental students. Students were grouped according to Asian classification of body mass index (BMI) of World health organization (WHO). The questionnaire was close ended with one appropriate response. The collected data was analyzed using Chi-square test and p-value ≤ 0.05 were considered significant. **Result:** Majority (76.7%) of participants belonged to normal BMI group and had a regular Dental visit in 6 months. About (44.4%) used scrubbing tooth brushing technique, whereas there was no usage of mouthwash among (33.3%) and no usage of floss among (71.1%) participants. Junk foods were found to be most consumed snacks among the study population. More than half (58.9%) of the participants did not have regular physical workouts and the results were statistically significant. **Conclusion:** Dental students should be educated regarding importance of normal BMI status and oral health maintenance from the initial years of their career so that they can guide their patients for healthy lifestyle.

Keywords: Body Mass Index (BMI), Oral Hygiene Habit, Physical Activity, Dietary Habit, Oral Health Status.

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INTRODUCTION

A higher-than-optimal body mass index (BMI) was expected to have contributed to 3.7 million deaths in 2021 from non-communicable diseases (NCDs), including Cancer, Diabetes, Heart disease, Neurological disorders, Chronic respiratory conditions and Digestive problems.[1] Although some people are genetically inclined to obesity, recent rapid environmental changes, readily available "high fat food," and a decrease in physical activity have led to an increase in obesity rates in both industrialized and developing countries worldwide.[2] Body mass index (BMI) was developed by Adolphe Quetelet, a Belgian statistician, mathematician, and astronomer in 1835 as a specific anthropometric metric to characterize the proportion of body fat in a person's body.[3] It has long been regarded as a simple technique for analyzing nutritional status and is expressed in kilograms per square meter (kg/m2), which is calculated by multiplying the weight in kilograms by the square of the height in meters.[3,4] However, as compared to the non-Asian population, the Asian population has a lower BMI cut-off point.[5] Hence WHO suggested the BMI cut-off point of Asian populations for public health measures.[6]

Body Mass Index (BMI) is significantly impacted by physical activity,[7] that is any movement involving skeletal muscles that requires using more energy than one would use at rest. Physical activity comes in a variety of forms, including sports, employment, and active transportation. Numerous physical functions are improved by regular exercise in connection to overall human health.[8] In general, a lower body fat percentage and BMI are linked to increased physical activity whereas a sedentary lifestyle may be a factor in elevated body fat and BMI.[7]

Physical activity, dietary habits and oral hygiene habits influences oral health, which significantly impacts general health.[9] A person's daily and conscious eating habits, which are impacted by social and cultural influences, are referred to as "eating patterns" which include quantity and frequency. [4.10] An unhealthy diet is viewed as a risk factor for both excess body weight and poor oral health. Besides sugar, there are a number of additional cariogenic bacteria, saliva volume, and poor dental hygiene which are some of the variables that lead to the development of caries.[11] Additionally research indicates that while poor oral health may raise BMI and raise the risk of some systemic disorders, effective oral hygiene may be favourably linked to lower BMI and better health. [4] As the future foundation of Dentistry, dental students are important part of society.[12] Early education in Dentistry schools aims to make them learn and educate their patients about diet counselling and good oral hygiene practices that will help to maintain their health. [11,12]

However previous studies reported that college students frequently disregard maintaining good dental hygiene, eating a balanced diet, and exercising and they may begin consuming junk food that is high in calories and tobacco products. [12-16] Evaluating dietary habits, Oral hygiene practice, physical activity and BMI profile is an efficient way to assess their impact on Dental students.

Hence this study aims to assess Oral hygiene practice, physical activity, dietary habits and BMI status among Dental students.

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METHODOLOGY

A cross-sectional web-based survey was conducted at Sharda University among first year Dental students for a duration of 3 months (March–May 2025). The study population was selected by purposive sampling technique and included all Dental students of first year who gave consent to participate in the study.

A self-structured questionnaire was developed after reviewing the literature along with demographic details and was also peer-reviewed. The body mass index (BMI) was calculated using Quetelet index. Asian classification of Body Mass index (BMI) of the World health organization (WHO) was used [16]. The questionnaire consisted of 28 close ended questions with one appropriate answer based on general information, oral hygiene practices, dietary habits and physical activity among Dental students. A pilot study was done among 10 Dental students of first year to check the feasibility of the main study in the month of March, 2025. The study was approved by the Ethical Committee of Sharda University, Greater Noida. The "Google Form" was shared with 90 Dental students of first year. The privacy and confidentiality of the filled questionnaires were maintained. 90 Dental students completed the questionnaires. The completed questionnaires were subjected to statistical analysis using IBM SPSS Statistics for Windows, Version 23 Armonk, NY: IBM Corp. Descriptive statistics such as frequency and percentage were calculated. A Pearson Chi-square test was used to test the significant differences ($P < 0.05$).

RESULTS

In present study, among total participants 71(78.9%) were females and 19(21.1%) were males and half of the study subject belongs to 20 years of age. It was found that majority 69(76.7%) of study participants belonged to normal BMI group with 11(12.2%) overweight subjects and 8(8.9%) underweight subjects. Least no. of participants belonged to obese group of BMIS. Majority 55(61.1%) of participants visited Dentist when it was a necessity and 16(17.8%) of participants never had regular Dental visits. Two percent of participants had a history of smoking which was found to be statistically non-significant (p-Value$\geq$0.05) using Pearson Chi square test. [Table:1] In present study, tooth brush is used by 87(96.7%) participants among which 40(44.4%) used scrubbing techniques and 42(46.7%) used circular technique twice a day which was found to be statistically non-significant (p-Value$\geq$0.05) using Pearson Chi square test. About 22(24.7%) participants brush their teeth for less than 2 minutes and 23(25.8%) for more than 2 minutes.

More than half 47(52.8%) of participants used soft bristles and 57(63.3%) used fluoridated toothpaste (Dentrifice) to clean their teeth whereas 31(34.4%) participants change their tooth brush after 3-4 months of its use. Half of the participants belonging to normal BMI group used mouthwash once a day 4(4.4%) and 64(71.1%) of participants did not use Floss to clean their teeth. This was found to be statistically non-significant (p-Value$\geq$0.05) using Pearson Chi square test. [Table: 2] Table:3 depicts responses to the questions related to the dietary habits which revealed equal distribution for Vegetarian and mixed diet among study population. Majority 77(85.6%) of participants used filtered water to

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drink and 52(57.8%) participants had meal three times a day. Almost half i.e 41(47.7%) of the studied population had chips as a snack in between meal once a day among 49(55.7%) participants which was found to be statistically non-significant (p-Value≥0.05) using Pearson Chi square test. Majority of the participants 27(30%) used to consume coffee as a drink once a day among 63(70.8%) studied participants. [Table:4] depicts responses to the questions related to the physical activity which revealed statistically significant (p-value≤0.05) differences for workout among 37(41.1%) of the participants among which 53(58.9%) participants workout for 30 minutes a day and 34(37.8%) of participants used to watch television or social media more than an hour a day which was found to be statistically non-significant (p-Value≥0.05) using Pearson Chi square test.

Table 1: general information

S. No	QUESTIONS	OPTION	Under weight	Normal	Over weight	Obese	Total	p-Value
1	GENDER	Female	5 (5.6%)	53 (58.9%)	11 (12.2%)	2 (2.2%)	71 (78.9%)	0.176^{NS}
		Male	3 (3.3%)	16 (17.8%)	0 (0%)	0 (0%)	19 (21.1%)	
2	AGE	18	0 (0%)	7 (7.8%)	4 (4.4%)	0 (0%)	11 (12.2%)	0.236^{NS}
		19	1 (1.1%)	18 (20.0%)	3 (3.3%)	1 (1.1%)	23 (25.6%)	
		20	6 (6.7%)	36 (40.0%)	2 (2.2%)	1 (1.1%)	45 (50.0%)	
		>20	1 (1.1%)	8 (8.9%)	2 (2.2%)	0 (0%)	11 (12.2%)	
3	MEDICAL HISTORY (IF ANY)	Yes	2 (2.2%)	9 (10.0%)	2 (2.2%)	0 (0%)	13 (14.4%)	0.731^{NS}
		No	6 (6.7%)	60 (66.7%)	9 (10.0%)	2 (2.2%)	77 (85.6%)	
4	DENTAL HISTORY (IF ANY)	Yes	5 (5.6%)	17 (18.9%)	2 (2.2%)	0 (0%)	24 (26.7%)	0.088 ^{NS}
		No	3 (3.3%)	52 (57.8%)	9 (10.0%)	2 (2.2%)	66 (73.3%)	
5	FREQUENCY TO VISIT DENTIST	Never	1 (1.1%)	13 (14.4%)	1 (1.1%)	1 (1.1%)	16 (17.8%)	0.933 ^{NS}
		When require	7 (7.8%)	40 (44.4%)	7 (7.8%)	1 (1.1%)	55 (61.1%)	
		Yearly	0 (0%)	9 (10.0%)	2 (2.2%)	0 (0%)	11 (12.2%)	
		> 6 months	0 (0%)	1 (1.1%)	0 (0%)	0 (0%)	1 (1.1%)	
		Every 6 month	0 (0%)	6 (6.7%)	1 (1.1%)	0 (0%)	7 (7.8%)	
6	SMOKING HABIT	Yes	0 (0%)	2 (2.2%)	0 (0%)	0 (0%)	2 (2.2%)	0.891 ^{NS}
		No	8 (8.9%)	67 (74.4%)	11 (12.2%)	2 (2.2%)	88 (97.8%)	
7	HOOKAH HABIT	Yes	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	NA
		No	8 (8.9%)	69 (76.7%)	11 (12.2%)	2 (2.2%)	90 (100.0%)	
8	SMOKELESS TOBACCO CONSUMPTION	Yes	0(0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	NA
		No	8(8.9%)	69(76.7%)	11(12.2%)	2(2.2%)	90(100.0%)	
TOTAL DISTRIBUTION FOR BMI			8(8.9%)	69(76.7)	11(12.2%)	2(2.2%)	90(100.0%)	NA

^{NS} = non-significant

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Table 2: Questions related to Oral hygiene practice

S.No.	QUESTION	OPTION	Under weight	Normal	Over weight	Obese	Total	p-Value
1	TYPE OF ORAL CLEANING	Tooth brush	8 (8.9%)	66 (73.3%)	11(12.2%)	2 (2.2%)	87 (96.7%)	0.988 NS
		Electric brush	0 (0%)	2 (2.2%)	0 (0%)	0 (0%)	2 (2.2%)	
		Other	0 (0%)	1 (1.1%)	0 (0%)	0 (0%)	1 (1.1%)	
2	METHOD OF ORAL CLEANING	Scrubbing	4 (4.4%)	29 (32.2%)	7 (7.8%)	0 (0%)	40 (44.4%)	0.249 NS
		Circular	4 (4.4%)	33 (36.7%)	4 (4.4%)	1 (1.1%)	42 (46.7%)	
		Other	0 (0%)	7 (7.8%)	0 (0%)	1 (1.1%)	8 (8.9%)	
3	FREQUENCY OF CLEANING TEETH	Once a day	6 (6.7%)	27 (30.3%)	6 (6.7%)	1 (1.1%)	40 (44.9%)	0.250 NS
		Twice a day	2 (2.2%)	41 (46.1%)	5 (5.6%)	1 (1.1%)	49 (55.1%)	
		None	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
4	DURATION OF TOOTH BRUSHING	Less than 2 minutes	2 (2.2%)	18 (20.2%)	2 (2.2%)	0 (0%)	22 (24.7%)	0.512 NS
		2 minutes	3 (3.4%)	34 (38.2%)	6 (6.7%)	1 (1.1%)	44 (49.4%)	
		More than 2 minutes	3 (3.4%)	16 (18.0%)	3 (3.4%)	1 (1.1%)	23 (25.8%)	
5	TYPE OF TOOTH BRISTLES	Soft	2 (2.2%)	39 (43.8%)	6 (6.7%)	0 (0%)	47 (52.8%)	0.570 NS
		Medium	5 (5.6%)	29 (32.6%)	5 (5.6%)	2(2.2%)	41 (46.1%)	
		Hard	0 (0%)	1 (1.1%)	0 (0%)	0 (0%)	1 (1.1%)	
6	FREQUENCY OF CHANGING TOOTH BRUSH	3 months	2 (2.2%)	25 (27.8%)	4 (4.4%)	1 (1.1%)	32 (35.6%)	0.967 NS
		Less than 3 months	1 (1.1%)	10 (11.1%)	1 (1.1%)	0 (0%)	12 (13.3%)	
		3-4 month	4 (4.4%)	23 (25.6%)	3 (3.3%)	1 (1.1%)	31 (34.4%)	
		More than 4 months	1 (1.1%)	11 (12.2%)	3 (3.3%)	0 (0%)	15 (16.7%)	
7	TYPE OF TOOTHPASTE	Fluoridated tooth paste	6 (6.7%)	40 (44.4%)	9 (10.0%)	2 (2.2%)	57 (63.3%)	0.511 NS
		Non-Fluoridated toothpaste	0 (0%)	15 (16.7%)	0 (0%)	0 (0%)	15 (16.7%)	
		Anti-hypersensitive tooth paste	1 (1.1%)	11 (12.2%)	2 (2.2%)	0 (0%)	14 (15.6%)	
		Other	1 (1.1%)	3 (3.3%)	0 (0%)	0 (0%)	4 (4.4%)	
8	USAGE OF MOUTHWASH	Yes	7 (7.8%)	45 (50.0%)	6 (6.7%)	2 (2.2%)	60 (66.7%)	0.340 NS
		No	1 (1.1%)	24 (26.7%)	5 (5.6%)	0 (0%)	30 (33.3%)	
9	FREQUENCY OF MOUTHWASH	None	7 (7.8%)	36 (40.0%)	6 (6.7%)	2 (2.2%)	51 (56.7%)	0.450 NS
		Once a day	1 (1.1%)	13 (14.4%)	0 (0%)	0 (0%)	14 (15.6%)	
		Twice a day	0 (0%)	4 (4.4%)	1 (1.1%)	0 (0%)	5 (5.6%)	
		Occasionally	0 (0%)	16 (17.8%)	4 (4.4%)	0 (0%)	20 (22.2%)	
10	FLOSS USAGE	Yes	7 (7.8%)	47 (52.2%)	8 (8.9%)	2 (2.2%)	64 (71.1%)	0.537 NS
		No	1 (1.1%)	22 (24.4%)	3 (3.3%)	0 (0%)	26 (28.9%)	

NS = non-significant

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Table 3: Questions related to Dietary habits

S.No.	QUESTION	OPTION	Under weight	Normal	Over weight	Obese	Total	p-Value
1	DIET	Vegetarian	5 (5.6%)	34 (37.8%)	4 (4.4%)	2 (2.2%)	45 (50.0%)	0.323 NS
		Mixed	3 (3.3%)	35 (38.9%)	7 (7.8%)	0 (0%)	45 (50.0%)	
2	SOURCE OF WATER IN EARLY YEARS OF CHILDHOOD	Tap water	1 (1.1%)	12 (13.3%)	0 (0%)	0 (0%)	13 (14.4%)	0.440NS
		Filter Water	7 (7.8%)	57 (63.3%)	11 (12.2%)	2 (2.2%)	77 (85.6%)	
3	FREQUENCY OF MEAL	One meal	0 (0%)	3 (3.3%)	2 (2.2%)	0 (0%)	5 (5.6%)	0.321 NS
		Two meals	4 (4.4%)	24 (26.7%)	5 (5.6%)	0 (0%)	33 (36.7%)	
		Three meals	4 (4.4%)	42 (46.7%)	4 (4.4%)	2 (2.2%)	52 (57.8%)	
4	SNACKS IN BETWEEN	Biscuits	0 (0%)	13 (15.1%)	4 (4.7%)	1 (1.2%)	18 (20.9%)	0.371 NS
		Chips	4 (4.7%)	32 (37.2%)	5 (5.8%)	0 (0%)	41 (47.7%)	
		Chocolates	2 (2.3%)	9 (10.5%)	1 (1.2%)	0 (0%)	12 (14.0%)	
		Vegetable	0 (0%)	13 (15.1%)	1 (1.2%)	1 (1.2%)	15 (17.4%)	
5	FREQUENCY OF SNACKS CONSUMPTION	Once a day	3 (3.4%)	40 (45.5%)	6 (6.8%)	0 (0%)	49 (55.7%)	0.823 NS
		Twice a day	5 (5.7%)	21 (23.9%)	2 (2.3%)	1 (1.1%)	29 (33.0%)	
		More than 2	0 (0%)	6 (6.8%)	3 (3.4%)	1 (1.1%)	10 (11.4%)	
6	TYPE OF DRINK CONSUMED	Tea	1 (1.1%)	16 (17.8%)	4 (4.4%)	1 (1.1%)	22 (24.4%)	0.829 NS
		Coffee	2 (2.2%)	19 (21.1%)	5 (5.6%)	1 (1.1%)	27 (30%)	
		Milk	3 (3.3%)	13 (14.4%)	0 (0%)	0 (0%)	16 (17.8%)	
		Green tea	0 (0%)	2 (2.2%)	0 (0%)	0 (0%)	2 (2.2%)	
		Carbonated drink	1 (1.1%)	10 (11.1%)	2 (2.2%)	0 (0%)	13 (14.4%)	
		Juice	1 (1.1%)	9 (10.0%)	0 (0%)	0 (0%)	10 (11. %)	
7	FREQUENCY OF CONSUMING DRINK	Once a day	4 (4.5%)	50 (56.2%)	8 (9.0%)	1 (1.1%)	63 (70.8%)	0.593 NS
		Twice a day	4 (4.5%)	15 (16.9%)	2 (2.2%)	1 (1.1%)	22 (24.7%)	
		More than twice a day	0 (0%)	3 (3.4%)	1 (1.1%)	0 (0%)	4 (4.5%)	

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Table 4: Questions related to Physical activity

S. No	QUESTIONS	OPTION	Under weight	Normal	Over weight	Obese	Total	p-Value
1	INCLUSION OF EXERCISE	Yes	6 (6.7%)	24 (26.7%)	5 (5.6%)	2 (2.2%)	37 (41.1%)	0.048*
		No	2 (2.2%)	45 (50.0%)	6 (6.7%)	0 (0%)	53 (58.9%)	
2	DURATION OF WORKOUT	30 minutes a day	2 (2.2%)	9 (10.0%)	2 (2.2%)	0 (0%)	13 (14.4%)	0.750 NS
		More than 30 minutes a day	5 (5.6%)	41 (45.6%)	5 (5.6%)	2 (2.2%)	53 (58.9%)	
		One hour a day	1 (1.1%)	8 (8.9%)	3 (3.3%)	0 (0%)	12 (13.3%)	
		More than an hour a day	0 (0%)	11 (12.2%)	1 (1.1%)	0 (0%)	12 (13.3%)	
3	DURATION OF TELEVISION WATCHING OR SOCIAL MEDIA	30 minutes a day	0 (0%)	11 (12.2%)	0 (0%)	0 (0%)	11 (12.2%)	0.582 NS
		One hour a day	1 (1.1%)	13 (14.4%)	1 (1.1%)	1 (1.1%)	16 (17.8%)	
		Two hours a day	3 (3.3%)	20 (22.2%)	5 (5.6%)	1 (1.1%)	29 (32.2%)	
		More than an hour a day	4 (4.4%)	25 (27.8%)	5 (5.6%)	0 (0%)	34 (37.8%)	

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DISCUSSION

Present study reported that majority of first year dental students belong to normal BMI group and least from obese group of BMIS. [Table: 1] In present study, only about 7(7.8%) of participants reported about Dental visit every six months whereas 55(61.1%) of participants visited Dentist only when it was required, among which 40(44.4%) belongs to normal BMI group. These results are similar to the results of Alam BF et. al. [11] and in contrast to Jouhar R et. al. [12] Regular dental visits help in regular screening, early diagnosis which helps to prevent major health issues due to oral malnourishment [17] that can affect BMI. Almost all of the participants in present study, do not have any kind of tobacco consumption. However, tobacco use has a detrimental effect on BMI. Nicotine inhibits hunger by causing the hypothalamus to produce neurotransmitters that decrease hunger, such as serotonin and dopamine.

Additionally, it may raise metabolic rate, which raises the body's energy expenditure. Chewing tobacco has a direct effect on the absorption of nutrients and the digestive system, which lowers BMI.[18]

[Table: 2] In present study, 29(32.2%) of study participants belonging to normal BMI group used scrubbing technique which is in contrast to results reported by Jouhar R et. al.[12] The association between tooth brushing and obesity is probably due to leptin-linked pathways, which control the balance between energy and appetite. Therefore, brushing regularly with appropriate techniques helps to reduce appetite and hence risk of Obesity.

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[4] Almost half of the participants brush their teeth twice a day which is more than the results of Alam BF et. al. [11] and less than the results reported by Jouhar R et. al.[12] Additionally, a study in Japan revealed that obesity was linked to low tooth brushing frequency. Poor oral hygiene results in enhancement of C reactive protein levels with an inflammatory reaction in the oral cavity, which has been linked to obesity. [20] More than half of participants used fluoridated tooth paste in present study which is in contrast with the results of Almadi EM. et. al. [20] where 30% used whitening toothpaste. Tooth surfaces bacterial biofilm is removed with the help of fluoride toothpaste which might lead to the formation of major dental disorders.[4] Present study reported that (34.4%) participants change their tooth brush after 3-4 months of its use which is in contrast to the results of Jouhar R et. al. [12]. Majority of the participants does not use mouthwash and floss in present study as well as in results reported by Alam BF et. al. [11] and Jouhar R et. al. [12] Additionally, Moradi et al. [21] presented important results about the use of dental floss, mouthwash, and toothbrushes. As measured by the DMFT (Decayed, Missing and Filled teeth) index, study participants who frequently used dental floss, mouthwash, and brushing had lower score of DMFT.

Present study revealed equal distribution for vegetarian and mixed diet among studied population. In comparison to non-vegetarian diets, vegetarian diets are frequently linked to low BMIs. According to research, those who consume plant-based diets typically have lower average BMIs than people who eat meat.[22] Although, the possible dietary inadequacies linked to vegetarian diets must be addressed. Particularly lacto-ovo vegetarians appear to profit much from their dietary choices in terms of their health.[23] Present study reported meal for three times a day among normal BMI group which is less than the results of Alam BF et. al. [11] and Syed R Habib et. al. [24] which reported meal thrice a day among overweight BMI group. Majorly there was intake of chips as a snack once day in present study which is in contrast to the results of Jouhar R et. al. [12] among which consumption of nuts as a snack in between the meals was high. Though consistent consumption of one handful of nuts was linked to reduced weight gain over the long term [12] but frequent between-meal snacking has been connected to chronic conditions including obesity.[11] Additionally Radhika B et. al. [25] reported that improper dietary habits including high calorie/protein intake was associated with increased BMI among the dental students.[25] Both the obesity and dental caries epidemics are significantly influenced by dietary practices [11]. Majority of participants of obese BMI group used to consume soft drink in study of Syed R Habib et. al. [24] and tea consumption was high among overweight participants in results of Alam BF et. al. [11whereas present study reported consumption of coffee majorly among normal BMI participants once a day. Higher prevalence of dental caries was reported among younger people with high BMIs with consumption of sugary beverages and had sedentary lives.[11] Also high consumption of sour sweets and beverages with a high pH could raise the risk of dental erosive wear.[19]

Statistically significant differences for workout of 30 minutes a day was reported among about half of the present study participants which is in align with study of Syed R Habib et. al. [24] Overall (37.8%) of participants of present study used to watch television or social media more than an hour a day whereas (43%) of the obese students were found to be

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spending more than 3 hours per day on the screens and Internet in results of Syed R Habib et. al. [24] Overweight and obesity are inversely correlated with physical activity [12], an increase in fast food intake, and insufficient sleep brought on by the demands of long study time. [11] This is a unique study to assess BMI status and its association with oral hygiene habit, physical activity and dietary habits among Indian Dental students of first-year. However, further detailed multi-centric study with larger sample size and oral health status assessment have to be conducted to link direct relation between BMI and other variables.

CONCLUSION

It can be concluded from the results of the present study that in order to prevent future issues, dental students' knowledge about oral hygiene practices, physical activity and a healthy diet with the negative effects of overweight and obesity on their health and careers must be raised. Thus, it is advised that the curriculum for dental school should emphasis on oral health education as well as knowledge about diet counselling and healthy lifestyle. This will assist our Dental students in understanding the value of physical well-being, from the initial years of their careers.

References

1) GBD 2021 Risk Factor Collaborators. “Global Burden of 88 Risk Factors in 204 Countries and Territories, 1990–2021: a systematic analysis for the Global Burden of Disease study 2021”. Lancet. 2024; 403:2162-2203.

2) Galgani J, Ravussin E, Energy metabolism, fuel selection and body weight regulation. Int. J. Obes. 2008;32: S109–S119.

3) Suvan J, Petrie A, Moles D.R, Nibali L, Patel K, Darbar U, Donos N, Tonetti M, D’Aiuto F. Body mass index as a predictive factor of periodontal therapy outcomes. J. Dent. Res. 2014; 93:49–54.

4) Issrani R, Reddy J, Bader AK, Albalawi RFH, Alserhani EDM, Alruwaili DSR, Alanazi GRA, Alruwaili NSR, Sghaireen MG, Rao K. Exploring an Association between Body Mass Index and Oral Health-A Scoping Review. Diagnostics (Basel). 2023 Feb 27;13(5):902.

5) Misra A. Ethnic-specific criteria for classification of body Mass Index: a perspective for Asian indians and American Diabetes Association Position Statement. Diabetes Technol Ther. 2015; 17:667–71.

6) WHO Expert Consultation. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. The Lancet. 2004.

7) Dewi RC, Rimawati N, Purbodjati P. Body mass index, physical activity, and physical fitness of adolescence. J Public Health Res. 2021 Apr 14;10(2):2230.

8) Medapati AR, Pachava S. Effect of physical activity on oral health: A systematic review. J Indian Assoc Public Health Dent. 2022; 20:125–30.

9) Shrivastav S. Gupta A. Awasthi M. Siddhiqui MZ. Roy A.Awareness About The Role Of Physical Activity And Diet On Oral Health And Respiratory Health: A Questionnaire Based Cross Sectional Study.2024;14(6):407-410.

10) Sarma, S.; Sockalingam, S.; Dash, S. Obesity as a multisystem disease: Trends in obesity rates and obesity-related complications. Diabetes Obes. Metab. 2021, 23 (Suppl. S1), 3–16.

ISSN: 1673-064X
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Vol: 68 Issue 08 | 2025
DOI: 10.5281/zenodo.16917416

11) Alam, B.F., Abbasi, N., Hussain, T. et al. Relationship of BMI with the diet, physical activity and oral hygiene practices amongst the dental students. BMC Oral Health 22, 311 (2022).

12) Jouhar R, Ahmed MA, Khurshid Z, Bokhari SAH. Association of BMI, Diet, Physical Activity, and Oral Hygiene Practices with DMFT Index of Male Dental Students at King Faisal University, Al-Ahsa. Nutrients. 2021; 13(1):224.

13) Irwin, J.D. The prevalence of physical activity maintenance in a sample of university students: A longitudinal study. J. Am. Collage Health 2007, 56, 37–42.

14) Steptoe, A.; Wardle, J. Health behaviour, risk awareness and emotional well-being in students from Eastern Europe and Western Europe. Soc. Sci Med. 2001, 53, 1621–1630.

15) Rivera-Rivera, L.; Allen, B.; Rodríguez-Ortega, G.; Chávez-Ayala, R.; Lazcano-Ponce, E. Dating violence and associations with depression and risk behaviors: Female students in Morelos, Mexico. Salud. Publica Mex. 2006, 48, 288–296.

16) World Health Organization.WHO. International Association for the study of Obesity (IASO). The Asia-Pacific Perspective: Redefining Obesity and Its Treatment. Geneva. World Health Organization. 2000: 378-420.

17) Francisco RG et.al. Visit to the Dentist for Oral Health Prevention at “Age One”: A proposed policy report from the Indian perspective. Journal of Indian Society of Pedodontics and Preventive Dentistry 42(1): p 3-8, Jan–Mar 2024.

18) Verma M, Kapoor N, Jaiswal AK, Kumar P, Halder P, Esht V, Ahamed WM, Singh O, Kakkar R, Kalra S, Goel S. Relationship between tobacco use and body mass index- a propensity score matching analysis of an indian National Survey. PLoS One. 2025 May 28;20(5): e0323274.

19) Almadi EM. et. al. Dietary Habits and Oral Hygiene Practice amongst Dental Students at the College of Dentistry, Princess Nourah University. 2016.Open Journal of Stomatology;6:28-35.

20) Furuta M., Takeuchi K., Takeshita T., Tanaka A., Suma S., Shinagawa T., Shimazaki Y., Yamashita Y. Longitudinal Associations of toothbrushing with obesity and hyperglycemia. J. Epidemiol. 2020; 30:556–565.

21) Moradi, G.; Bolbanabad, A.M.; Moinafshar, A.; Adabi, H.; Sharafi, M.; Zareie, B. Evaluation of Oral Health Status Based on the Decayed, Missing and Filled Teeth (DMFT) Index. Iran. J. Public Health 2019, 48, 2050.

22) Tonstad S, Butler T, Yan R, Fraser GE. Type of vegetarian diet, body weight, and prevalence of type 2 diabetes. Diabetes Care. 2009 May;32(5):791-6.

23) Turaga AH. Vegetarianism and Its Implications for Body Mass Index, Health, and Dietary Awareness in a Metropolitan City in India: A Cross-Sectional Study. Cureus. 2023 Jul 20;15(7): e42187.

24) Habib SR, Alghofaily S, Alshamrani H, Alhammad A, Awan KH. Relationship of Body Mass Index with Diet, Physical Activities, and Lifestyles of Dental Students. J Contemp Dent Pract. 2017 Oct 1;18(10):899-904.

25) Radhika B, Vrushabhendra HN, Surendar R, Arthi S. Association of diet and physical activity with BMI among dental students in Puducherry. Int J Community Med Public Health 2018; 5:3410-2.