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Changes in dietary habits of medical and dental students and its impact on their quality of life and body mass index

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ABSTRACT

Background and Objective: Dietary habits are one of the most important factors that play a significant role in maintaining optimal health and body mass index (BMI). The objective of this study was to investigate and determine how changes in dietary pattern of medical and dental students can impact their BMI and quality of life.

Method: This cross-sectional study included 190 medical and dental students from a local private medical and dental college in Lahore, Pakistan. All participants filled out a validated online questionnaire having 30 questions divided into four sections. The responses were scaled in three tiers and the data was collected and analysed using statistical software.

Results: A total of 32.6% of students rated their quality of life as good with respect to dietary habits while 81.6% rated physical environment as moderately healthy with very many difficulties in concentrating (19.5%) and poor physical energy levels (31.1%). A notable percentage (12.6) reported not to have enough financial stability to meet their dietary needs. Satisfaction levels regarding their own health status varied with mixed responses. Negative feelings were frequent (70.5%), and a majority noted changes in eating habits and observed an increase in weight relating to BMI.

Conclusion: Most of the medical and dental students after enrolling into their respective colleges face adverse changes in dietary habits. Taking educational stress and managing one's daily activities show a limited balance with resultantly lower quality of life and a higher BMI.

Keywords: Body mass Index, diet, dietary habits, eating patterns, nutrition, quality of life, medical, dental students.

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Introduction

An increasing trend of early occurrence of non-communicable systemic diseases in university students has been observed globally and the major cause associated with them is unhealthy lifestyle habits including inappropriate nutrition, lack of exercise, smoking/alcohol consumption, caffeine overuse, and improper sleeping habits.^{1,2} A study on American university students shows that only a small number of students apply the concept of healthy dietary intake when selecting food. In a survey among college students, the biggest deterrent to exercise and cause of bad eating habits was lack of time.³ A questionnaire survey at a Korean University concluded that almost half of the students did not eat one of the three main meals.⁴

Similarly changes in weight with a higher prevalence of obesity has been observed in students which may be attributed to poor dietary habits as well as physical inactivity because of lack of quality time and personal choice.⁵

College life of medical students is a stressful period and because of hectic academic routine, students are not able to adopt healthy practices and compromise their diet, even though they are equipped with the relevant knowledge.⁶ Eating disorders are common in students who are weight conscious. The fear of being overweight gets on their nerves. Similarly, students away from homes are more prone to the dietary changes and its impact on their health is far adverse as they mainly prefer fast foods.⁷

In a study among medical students of Jagiellonian University, Kraków, symptoms of eating disorders were assessed by using the Eating Attitudes Test 26 (EAT26). The intensity of these disorders was particularly strong in underweight students.⁸ Research including 91 Romanian Pharmacy students revealed that one third of them skipped main meals to maintain their weight.⁹

A local study of Agha Khan Medical University Pakistan and the one conducted at Bangalore India, both reported that majority of the medical students were having bad dietary habits and lifestyle due to stress.^{10,11} Similarly a cross-sectional study at a Chinese university showed that caffeinated drinks consumption played a positive role in linking late chronotype.¹² A good and peaceful life requires a healthy and maintained lifestyle. Along with other important factors, dietary habits are one of the most important factors that play a significant role in maintaining a healthy life. Diet serves as an exogenous source of energy and if not from diet, then endogenous sources of body stores are utilized resulting in illness.¹³ Similarly, diet has a major consequence on every system either in negative or positive ways. Almost all crucial functions of a human body, whether they are conscious or not, are managed by the brain. The food one eats is directly linked to brain structure and function, and thus affects the working of the mind as brain consume 20% of daily calories intake.¹⁴

This study was planned to determine the impact of changes in dietary habits of medical and dental students on their healthy development as depicted by BMI and their quality of life through a questionnaire-based analysis.

Methods

This cross-sectional, descriptive study was conducted in at Fatima Memorial College of Medicine and Dentistry, Lahore on the currently enrolled medical and dental students. Ethical approval was taken from the Institutional Ethics Committee. The survey was carried out on 190 medical and dental students, between 19 and 24 years of age, enrolled in different professional years of their MBBS or BDS programme via random sampling. Students diagnosed with serious illnesses, taking any medication and those who refused to take part in the study were excluded. Collection of data was done with help of a self-reported, validated questionnaire compiled in parity with the World Health Organization guidelines available for quality-of-life assessment¹⁵ with validation and customization by the subject experts by standard guidelines.¹⁶ Informed consent form was attached with questionnaire and general information about the study was mentioned on it. The duration of this study was approximately 1 year

(February 2022-March 2023). Questionnaire included total 30 questions divided in four sections: Demographic characteristics, Changes in Quality of life, Dietary changes and Body mass index (BMI). The students were asked to rate each question on a three-tier scale: 'Very Much' which depicts the change to be significant and/or consistent; 'Somehow' which reflects the change to be of moderate impact and/or occasional; 'Not at all' which denotes the change to be insignificant.

Students were asked to fill the questionnaire on campus as well as online via Google forms. Keeping in view the inclusion and exclusion criteria the target population was briefed about components of the questionnaire and its rationale. The medical and dental students satisfying the inclusion criteria after consent filled the questionnaire. The data collected was then compiled and with the help of scoring system and percentages, effects of dietary changes on quality of life and BMI were analysed. BMI measurement was done by the details obtained from the questionnaire about weight and height by each respondent with an instruction to analyse any change in it. Participants' identity was kept confidential in the process.

Statistical analysis

Percentages were used to summarize categorical responses across various aspects of quality of life, health behaviours, and BMI observations. Since the data consists primarily of categorical responses (e.g., percentages of satisfaction/dissatisfaction, changes in habits), the statistical analysis focuses on summarizing and comparing these proportions rather than traditional hypothesis testing.

Results

The response rate of the students was 100%. As regards the quality of life and rating of the physical environment, 32.6% respondents rated their quality of life as good while 81.6% found their environment moderately healthy.

When asked about the concentration level, general physical energy, and financial independence, 70.5% could concentrate moderately well, 48.9% felt somehow energetic while 41.1% had enough money to fulfil their nutritional needs.

A total of 27.4% respondents were not at all satisfied with their health, 67.9% were much satisfied with their present living conditions while 70.5% often experienced negative feelings (Table 1).

Probability of skipping meals was occasional in 45.3% and always in 35.8% respondents while occasional and consistent snacking between meals was reported by 51.6% and 27.4% subjects. Consumption of fast food/sugar-sweetened beverages was reported as very much in

Table 1. Level of changes in quality of life and physical environment after induction in medical /dental school.

Question statement	Very much n (%)	Somehow n (%)	Not at all n (%)
Would you rate your Quality of life as good?	62 (32.6%)	69 (36.3%)	59 (31.1%)
How healthy is your physical environment?	8 (4.2%)	155 (81.6%)	27 (14.2%)
How much do you enjoy life?	31 (16.3%)	128 (67.4%)	31 (16.3%)
To what extent do you feel your life to be meaningful?	56 (29.5%)	112 (58.9%)	22 (11.6%)
How much do you need any medical treatment to function in your daily life?	16 (8.4%)	71 (37.4%)	103 (54.2%)
How well are you able to concentrate?	19 (10%)	134 (70.5%)	37 (19.5%)
Do you have enough energy for everyday life?	38 (20%)	93 (48.9%)	59 (31.1%)
Do you have enough money to meet your needs?	78 (41.1%)	88 (46.3%)	24 (12.6%)
To what extent do you have the opportunity for leisure activities?	18 (9.5%)	139 (73.1%)	33 (17.4%)
How satisfied are you with your health?	58 (30.5%)	80 (42.1)	52 (27.4%)
How satisfied are you with your sleep?	60 (31.6%)	61 (32.1%)	69 (36.3%)
How satisfied are you with your ability to perform your daily living activities?	61 (32.1%)	73 (38.4%)	56 (29.5%)
How satisfied are you with your capacity for work?	59 (31.1%)	77 (40.5%)	54 (28.4%)
How satisfied are you with yourself?	70 (36.8%)	76 (40%)	44 (23.2%)
How satisfied are you with your personal relationships?	82 (43.1%)	67 (35.3%)	41 (21.6%)
How satisfied are you with the support you get from your friends?	93 (48.9%)	62 (32.6%)	35 (18.4%)
How satisfied are you with the conditions of your living place?	129 (67.9%)	44 (23.2%)	17 (8.9%)
How satisfied are you with your access to health services?	121 (63.7%)	56 (29.5%)	13 (6.8%)
How satisfied are you with your transport?	105 (55.3%)	51 (26.8%)	34 (17.9%)
How often do you have negative feelings such as blue mood, despair, anxiety, depression?	33 (17.4%)	134 (70.5%)	23 (12.1%)

Table 2. Changes in diet and exercise routine.

Question statement	Very much n (%)	Somehow n (%)	Not at all n (%)
How has your exercise routine changed?	61 (32.1%)	76 (40%)	53 (27.9%)
How has your probability of skipping one of the main meals (breakfast/ lunch/dinner) changed?	68 (35.8%)	86 (45.3%)	36 (18.9%)
How has your habit of snacking between meals changed?	52 (27.4%)	98 (51.6%)	40 (21%)
How has your quantity/portions of meals and snacks changed?	54 (28.4%)	94 (49.5%)	42 (22.1%)
How has your daily intake of fruits and vegetables changed?	65 (34.2%)	78 (41.1%)	47 (24.7%)
How has your consumption of fast food/sugar-sweetened beverages changed?	71 (37.4%)	83 (43.7%)	36 (18.9%)
How has your consumption of unhealthy food when you are stressed/bored/upset changed?	63 (33.2%)	73 (38.4%)	54 (28.4%)

37.4% respondents while consumption of unhealthy food when stressed/bored was reported as occasional in 38.4% respondents and consistent (very much) in 33.2% subjects (Table 2).

A total of 33.2% respondents observed an obvious weight gain because of altered BMI (Table 3).

Discussion

The above conducted questionnaire-based study reveals that enrolment in medical colleges do effect student’s lifestyle and BMI. The main problems were reported to be faced by the hostellers. They skip mostly breakfast and lunch, and it is compensated by eating unhealthy junk food. A study among

Table 3. Changes in BMI.

Question statement	Very much n (%)	Somehow n (%)	Not at all n (%)
Has there been a change in your body weight?	63 (33.2%)	53 (27.9%)	74 (38.9%)
Has there been a change in your height?	0 (0%)	21 (11.1%)	169 (88.9%)
Has there been an increase in your waist size?	50 (26.3%)	0 (0%)	87 (45.8%)
Has there been a decrease in your waist size?	53 (27.9%)	0 (0%)	0 (0%)

college students of USA and Korea showed students face changes in diet as they have to adapt a new culture when inducting in a new educational environment. As campus food is one of the main reasons for dietary changes, they have to opt for off campus food.^{17,18} These unhealthy eating habits are one of the major causes of non-communicable diseases associated with nutrition leading to decline in physical health and overall quality of life.¹⁹ Another large-scale survey on medical students revealed that high levels of stress induce significant changes in BMI and mental health among them with resultantly increase in trends in substance abuse.¹⁰ This phenomenon was however not regarded in the present study. Similarly, many of the students also take dietary supplements to fulfil the body requirements which has not been discussed in this study.¹⁸ A study among college students of Pakistan to check impact of stress on eating habits also concludes that newly enrolled students adopt unhealthy eating habits due to stress that further leads to systemic and mental problems.²⁰

The students were asked about availability of time for engaging in different recreational or extracurricular activities, for which most of the students responded that it was not possible for them because of academic burden and college routine. A similar study in USA reports that hectic college routines lead to unhealthy life choices in many students.¹⁷ A study among international college students of Korea also explains that students prefer accessible food rather than healthy food.¹⁸ Ready-made food is way easy to have than to make food at home¹⁹ which is consistent with the findings of the present study.¹⁸

Our study replicates a related study in Pakistan that concludes that lack of physical activities, restlessness and irregular eating patterns are most visible barriers to a healthy way of living.²¹ Changes in dietary habits become a significant cause of a stressful life and decreased energy for workload management in these students. Physical activities and wholesome diet are two unavoidable factors that play a major role in maintaining good BMI and a better quality of life.

Conclusion

Changes in diet plan and lack of appropriate attention in taking healthy food is one of the leading causes of health

issues faced by the medical students. Hectic academic routine and lack of physical activities also leads to a lower quality of life and altered BMI.

Limitations of Study

This study held many strengths but on the same time it had some limitations. It was an open-ended qualitative research based on the hypothetical/personal experiences of the respondents without any evidence which may have led to response bias. Further it was a perspective-based study which is why the results were not statistically analysed. Comparison of students' diet before and after enrolment could be a more effective way of achieving the main objective of the study.

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List of Abbreviations

BDS	Bachelor of dental surgery
BMI	Body mass index
FMH	Fatima memorial hospital
US	United States

Conflict of interest

None to declare.

Grant support and financial disclosure

None to declare.

Ethics approval

Ethical approval was taken from the Institutional Ethics Committee of Fatima Memorial Hospital College of Medicine and Dentistry, Lahore, Pakistan vide Letter Number FMH-14/03/2022-IRB-1036 dated 14th March, 2022.

Authors' contributions

MF: Concept and design of study, acquisition and analysis of data

HMA: Drafting of manuscript

MK MT SH: Acquisition and analysis of data

MIKJ: Analysis of data, critical intellectual input

ALL AUTHORS: Approval of the final version of the manuscript to be published.

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