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ORIGINAL ARTICLE

Comparison of Body Mass Index among smokers and nonsmokers in medical students of AFMDC Faisalabad.

Mahnoor Mujeeb[1], Muhammad Sarim Mumtaz[2], Maham Mujeeb[3], Uzma Sagheer[4], Humayun Suqrat Hasan Imam[5], Qaisar Sohail[6]

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ABSTRACT… Objective: To compare Body Mass Index among smokers and non-smokers. **Study Design:** Cross-sectional study. **Setting:** Aziz Fatima Medical and Dental College. **Period:** January to September 2018. **Material & Methods:** Study was conducted and 200 male students of age 18 to 25 years of college were included in this study. Height and weight were measured and data was collected and analyzed by SPSS version 22. As data was not normally distributed, Shapiro-Wilk test was applied for normality and then compared by independent t-test and value of ≤ 0.05 was taken significant. **Results:** Out of 200 study participants, 116 (58%) with mean and St. Deviation of 25.2886 ± 4.417 were smokers and 96 (42%) with mean and St. Deviation of 23.1026 ±4.46 were nonsmokers. This study result showed that 10% of individuals were underweight; 45% were normal, 32% were pre obese, 10% belonged to obese class 1 and 3% were of obese class 2. Results showed that BMI is associated with smoking as value is of .017 which is highly significant. **Conclusion:** Our study underlined the comparison of BMI among smokers and nonsmokers among students. The study results showed that association between smokers and obesity according to their BMI was statistically significant.

Key words: BMI, Non-smokers, Smokers.

INTRODUCTION

Smoking is the periodic or constant use of tobacco or tobacco products as defined by World Health Organization (WHO). Health and life quality of the people surrounding the smoker is negatively affected by smoking. Smoking among university students is an important health concern and every 5th medical student is a smoker globally.[1]

More than 4.7 million primary and secondary school students used tobacco presently. However smoking among adolescent has decreased significantly in the past 40 years, almost one in 20 secondary school students smoked on regular basis. Meanwhile, obesity rates exceeded 30% in most of the age groups. Overweight and obesity are now considered as one of the leading health challenges among children and adolescents.[2] Adolescent age group also in a strong belief, that smoking controls body weight and body mass index (BMI) can also be lowered by smoking.[3]

In 21st century, smoking tendency among youth is very frequent. Smoking is very common among South East Asian countries according to WHO.[4] Prevalence of smoking as reported by WHO is 47% in both male and females of age 15 years and above.[5]

Among dominant risk factors of preventable morbidity and mortality, cigarette smoking is one of them. Smoking behavior is related to body weight and obesity.[2] Variety of mechanisms has a strong effect of smoking on weight is intake of energy, physical alertness and metabolism.[6]

It is also important to note that smoking and obesity relationship have been probed in Western ethnicities on greater extend, but not in Asian populations.[7] Smoking and BMI linkage

1. MBBS, Lecturer Community Medicine, Aziz Fatima Medical and Dental College Faisalabad.
2. MBBS, PGR Surgery, Aziz Faima Trust Hospital Faisalabad.
3. MBBS, Lecturer Anatomy, Aziz Fatima Medical and Dental College Faisalabad.
4. MBBS, MPH, Assistant Professor Community Medicine, Aziz Fatima Medical and Dental College Faisalabad.
5. MBBS, MPH, M.Phil, Professor Community Medicine, Aziz Fatima Medical and Dental College Faisalabad.
6. M.Phil (Biostatistics), Lecturer Allied Health Sciences, Aziz Fatima Medical and Dental College Faisalabad.

Correspondence Address:
Dr. Uzma Sagheer
Department of Community Medicine
Aziz Fatima Medical and Dental College
Faisalabad.
uzmasagheer25@gmail.com

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is complex and not totally understandable, and studies have shown vary results. No significant association between smoking behavior and BMI were proven by some studies, while others have concluded that smoking is related with decrease BMI and quiet smoking with increased BMI.[7]

Adult smokers began smoking during their adolescent life mostly. In young smokers, there is no significant association between smoking and weight and, in old age smokers; heavy smoking can be associated with elevated BMI.[8] Studies have shown that cigarette smokers had a decreased BMI, on average, than non-smokers. Nicotine has minute metabolic effects and suppresses appetite. Smoking has anti-estrogenic effect among youth, which may decrease fat deposition resulting in weight reduction.[2] This study was conducted to compare BMI among smokers and non-smokers.

MATERIAL & METHODS

A cross-sectional study was conducted at Aziz Fatima Medical and Dental College Faisalabad. After Institutional Ethical committee approval with ERC number of IEC/196-22, the study was conducted from January to September 2018. 200 male college students were included in this study having age of 18 to 25 years. Participants were included voluntarily in this study and were questioned by using structured proforma. Participants were classified into smokers and non-smokers. Height and weight were measured and body mass index of participants was calculated by a formula of weight in kg/ height in m^2. WHO defines overweight and obesity for adults, BMI greater than or equal to 25 will be overweight and BMI greater than or equal to 30 is obese. Analysis was done by SPSS 22. Variables like age, height, weight, and BMI were represented as mean ± standard deviation (SD). As data was not normally distributed, Shapiro-Wilk test was applied for normality and then compared by independent t-test and value of ≤ 0.05 was taken significant.

RESULTS

Study conducted on 200 participants with mean age of 20.71±1.87 years. Out of 200 participants, 116 (58%) with mean and St. Deviation of 25.2886 ± 4.417 were smokers and 96 (42%) with mean and St. Deviation of 23.1026 ±4.46 were nonsmokers. This study result showed that 20 (10%) of individuals were underweight; 90 (45%) were normal, 64 (32%) were pre obese, 20 (10%) belonged to obese class 1 and 6 (3%) were of obese class 2. Independent t test was applied for comparison of BMI with smokers and non-smokers and showed that BMI is associated with smoking as value is of .017 which is highly significant. Frequencies and percentages presented in Table-I. Demographic characteristics were shown in Table-II which showed that height, weight and BMI with mean and standard deviation of 1.17±1.75, 77.26±17.87 and 25.3±7.1 respectively. Independent t test was applied for comparison of BMI with smokers and non-smokers. Table-IV showed that BMI is associated with smoking as value is of .017 which is highly significant.

	N	Mean	St. Deviation
Smokers	116	25.2886	±4.417
Non smokers	96	23.1026	±4.464

Table-I Descriptive statistics of smokers and nonsmokers

Demographic Variables	Mean	St. Deviation
Age (years)	20.71	±1.87
Height (meters)	1.17	±1.75
Weight (Kg)	77.26	±17.87
Body Mass Index (BMI)	25.3	±7.1

Table-II. Demographic characteristics of participants

BMI Kg/m^2		Frequency
Below 18.5	Underweight	20
18.5-24.9	Normal	90
25.0-29.9	Pre obesity	64
30.0-34.9	Obesity class 1	20
35.0-39.9	Obesity class 2	6
>40	Obesity class 3	Nil

Table-III. Study population with BMI classification

		t	df	Sig (2-tailed)
BMI Among Smokers	Equal variances assumed	2.432	98	0.017
BMI among non-smokers	Equal variances assumed	3.432	90	1.005

Table-IV. t-test application among Smokers with their BMI.

DISCUSSION

Smoking is the periodic or constant use of tobacco or tobacco products as defined by WHO.[1] WHO defines overweight and obesity for adults, BMI greater than or equal to 25 will be overweight and BMI greater than or equal to 30 is obese.

Smoking is the dominant risk factor for developing non-communicable diseases like (cardiovascular diseases, chronic obstructive pulmonary disease, malignant diseases, etc.) and also causes early death.[9] Increased BMI and tobacco smoking are major risk factors for number of non-infectious diseases, but their association is complex and is difficult to understand.[10]

Study consisted of 200 participants of mean age 20.71±1.87 years. Out of total study participants, 116 (58%) with mean and St. Deviation of 25.2886 ± 4.417 were smokers and 96 (42%) with mean and St. Deviation of 23.1026 ±4.46 were nonsmokers. Our study results showed that out of 200, 45% participants had normal BMI and 32% were pre obese, which is comparable to study, conducted in Saudi Arabia with obesity in (17.7%) and overweight (12.9%).[11] it is shown by another study with obesity 6.5% and overweight 22.2% among medical students.[12]

This study result showed that BMI is associated with smoking as value is of .017 which is highly significant, in contrast to this, another study showed that there is no statistical significance between BMI and smoking.[13] comparable to this study, a study showed that BMI was significantly associated with smoking frequency.[14] This was also stated that nicotine causes stimulation of metabolism and suppression of appetite, cessation or reducing smoking could lead to weight gain.[15] and frequent cigarette smoking among both adolescents and young adults of lowering BMI suggest that smoking could be used to curb or suppress appetite.[16] A study was conducted in Peru, their results showed that male smokers were with high BMI.[17] Another study also stated positive correlation between BMI and smoking intensity.[10]

This study results showed association between smoking and BMI, as it was done in under developed country and further studies should be done to evaluate such results.

LIMITATIONS

Non-random selection and limited sample size were the limitations of this research study. The results of this study cannot be generalized as it was a single centered study.

CONCLUSION

Our study underlined the comparison of BMI among smokers and nonsmokers among students. This study results showed that association between smokers and obesity according to their BMI was statistically significant.

RECOMMENDATION

It is essential to evaluate smoking and BMI status among students in order to determine all the risk factors and should take proper actions for the prevention of cigarette smoking and regulation of BMI among students.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Mahnoor Mujeeb	Data collection, Helping manuscript writing, Proof reading.	
2	M. Sarim Mumtaz	Data collection, Helping manuscript writing, Proof reading.	
3	Maham Mujeeb	Data collection, Helping manuscript writing, Proof reading.	
4	Uzma Sagheer	Designed the study, Data analysis, Proof reading, final draft.	
5	Humayun Suqrat Hasan Imam	Helping in manuscript writing, Proof reading, Final draft.	
6	Qaisar Sohail	Data analysis.	