



CORRELATION BETWEEN BODY MASS INDEX AND BLOOD GLUCOSE AMONG UNDERGRADUATE STUDENTS

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ABSTRACT Young adults are having greater risk of developing weight gain and vulnerable to get increase glucose levels in the blood due to unhealthy dietary and lifestyle practices. The descriptive cross-sectional study was conducted to find the correlation between Body Mass Index (BMI) and Fasting Blood Glucose (FBG) among undergraduate students in a selected nursing college, Mangaluru. Total 84 students both male and female having age from 18 to 22 years were selected by simple random sampling technique. Body weight, height and 12 hours fasting blood glucose were measured. A study results showed that there was no significant Correlation between BMI and FBG ($r=0.138, p=0.212$) among undergraduate nursing students.

KEYWORDS : Body Mass Index, Fasting Blood Glucose, Undergraduate students

INTRODUCTION:

Adolescence is the transitional period that begins with puberty. During this period there are many changes occur in the body composition such as increases in subcutaneous fat and visceral fat in the abdomen, breast, hips and buttocks for both boys and girls respectively. These changes are one of the risks of overweight due to inappropriate dietary habits, lack of exercise, increased television watching, spending more time on computer or mobile phone and spending less time on outdoor sports. (1) (2) Overweight is associated with an inflammation that releases a protein known as cytokines. Cytokines then block the signals of insulin receptors, thus gradually causing the cells to become resistant to insulin as a result in increased blood glucose level leads to morbidity and mortality. (3) (4) Insulin resistance occurs during puberty are associated with insulin sensitivity fluctuations. Insulin resistance is associated with body mass index at any degree of weight gain. Insulin sensitivity also differs for lean and obese persons. (5) Therefore, the assessment of height, weight, BMI and routine estimation of fasting blood glucose is important for prevention of complication related to obesity for leading a healthy life.

METHODOLOGY

A descriptive cross-sectional study was conducted among 84 undergraduate nursing students by simple random sampling techniques. Data were collected using a brief questionnaire, measuring tape, weighing machine and blood glucose meter. Flexible, non-stretchable, narrow plastic inch tape was used to measure height to the nearest 0.5 cm. It was recorded with barefoot, with the participant standing on a flat surface with heels together and looking forward. The measurement of the vertical distance was taken from the bottom of the feet to the top of the head. The hands and the fingers were kept out of the way during reading as per WHO norms. Weight was recorded using a standard weighing machine kept on a firm surface. The participant was asked to stand on the weighing machine without footwear with light clothes worn on their body. Weight was recorded by standing straight in the center of weighing machine with body evenly distributed between the feet. The weighing machine calibration and blood glucose meter was done. After getting height and weight of the women BMI was calculated as weight in kg/ height in m². Normal Values of BMI is 18-23 kg/m². Data was collected by giving proper instruction to the participants to fill the questionnaire by themselves. Followed by these height and weight and blood glucose were measured using standard techniques by standard equipment. Blood glucose was

estimated for the participants in the morning with empty stomach using glucometer by the capillary finger prick after cleaning the left middle finger of the participants, a lancet was used to prick the finger. 0.02 mL of blood was collected and put it in the strip.

RESULTS:

The data entry and analysis was performed by using statistical package for social science software version 23. Mean age of height was 160.92 ±7.309, weight was 56.25 ±11.207 and BMI was 21.68 ±3.464. Demographic characteristics of participant shows in the Table 1 and Table 2 shows there was no significant relation between height, weight, BMI and blood glucose among undergraduate nursing students.

DISCUSSION:

But obesity is very common among college and university students due to unhealthy lifestyle changes leading to overweight and obesity. (6) (7) (8) Continuous increasing weight gain is associated with increased risk for developing Type 2 Diabetes in future. (9) The present study was conducted to find the relationship between BMI and blood glucose among undergraduate nursing students. The study results show that there was no significant relation between BMI and blood glucose. It may be due to small sample size so further research is needed for this group of population with larger sample size.

CONFLICT OF INTEREST

There is no conflict of interest

Table 1: Distribution Of Demographic Characteristics In Terms Of Frequency And Percentage Of Participants N = 84

SL. NO	DEMOGRAPHIC VARIABLES	FREQUENCY	PERCENTAGE
1	Age (in completed years)		
	a) 18-22	80	95.2
	b) 23 and above	4	4.8
2	Sex		
	a) Male	19	22.6
	b) Female	65	77.4
3	Area of residential		
	a. Urban	38	45.2
	b. Rural	46	54.8

4	Family Monthly income in Rs a. 15000 and below b. 16000-25000 c. 26000-35000 d. 36000 and Above	32 34 11 7	38.1 40.5 13.1 8.3
5	Type of diet a. Vegetarian b. Mixed	1 83	1.2 98.8
6	Dietary habit a. Regular b. Irregular	66 18	78.6 21.4
7	Physical exercise a. Present b. Absent	53 31	63.1 36.9
8	Addiction of fast food a. Present b. Absent	30 54	35.7 64.3

Table 2: The correlation between Height, weight and BMI

S.NO	PARAMETERS	FASTING BLOOD GLUCOSE	SIGNIFICANCE
1	Height	r=0.078 p=0.479	Non-significant
2	Weight	r=0.167 p=0.129	Non-significant
3	BMI	r=0.138 p=0.212	Non-significant

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