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Profiling Body Composition and Physiological Fitness Among Female Students Enrolled in Different Vocational Streams at Punjabi University, Patiala

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ABSTRACT

The purpose of present study was to compare the body mass index and blood glucose to various department of Punjabi university Patiala. For this study, total 30 females (10 Physical education, 10 dance and 10 computer department) belongs to 21 to 28 years of age were taken. The study was conducted on females of Punjabi university Patiala. All the samples were taken by applying purposive sample technique. The level of significance was set at 0.05. The variable chosen only BMI and Blood Glucose. Comparative statistics were used to analyses the results, which conclusively showed non significance difference in BMI between dance, physical education and computer department student. But there is significant difference in blood glucose in dance, physical education and computer departments students. The calculated BMI f-value is 1.55658. The p-value is .229192 and blood glucose f-value is 533236. The p-value is .011176.

INTRODUCTION:

Obesity is a common chronic health problem which contributes significantly to morbidity as well as overall mortality. Simple anthropometric measurements have been used as surrogate measurements of obesity and have more practical value in both clinical practice and for large-scale epidemiological

studies. Obesity in the workplace can have economic costs as well: obese employees in Australia had more frequent and lengthier work absences **(Australian Institute of Health and Welfare, 2005),** and in the United States obesity was associated with 39 million lost work days, 239 million restricted -activity days, 90 million bed days and 63 million physician visits in 1994 **(Wolf and Colditz 1998).**

Obesity has become a major global health challenge. Although epidemiological data show that regular physical activity helps prevent obesity, cardiovascular disease, diabetes, and hypertension **(R.R. Pate et.al, 1995).** According to global recommendations on physical activity for health 2010 report, participation in 150 minutes of moderate physical activity each week is estimated to reduce the risk of ischemic heart disease by approximately 30 Percent, the risk of diabetes by 27 percent, and the risk of breast and colon cancer by 21-25 Percent. Additionally, physical activity drops the risk of stroke, hypertension and depression. Physical activity is key determinant of energy expenditure and thus fundamental to energy balance and weight control **(World Health Organization, 2010)**

Body mass index (BMI) is an estimate of body fat based on height and weight. It doesn't measure body fat directly, but instead uses an equation to make an approximation. BMI can help determine whether a person is at an unhealthy or healthy weight. A high BMI can be a sign of too much fat on the body, while a low BMI can be a sign of too little fat on the body. The higher a person's BMI, the greater their chances of developing certain serious conditions, such as heart disease, high blood pressure, and diabetes. A very low BMI can also cause health problems, including bone loss, decreased immune function and anemia.**(Dagan,s.s.2013)** Although BMI has traditionally been the chosen method by which to measure body size in epidemiological studies, alternative measure, such as waist circumference (WC) **(Wei et al., 1997: Welborn and dhaliwal, 2007),** waist –hip ratio (WHR) **(Jesses et al., 2004; Bigaard et al.,2005**) and the waist: height ratio (WHtR) **(Ho et al., 2003; Ashwell & Hsieh, 2005)** which reflect control adiposity, have been suggested to be superior to BMI in predicting CVD risk. It is used as a screening tool to identify whether an adult is at a healthy weight in kilograms is divided by height in meters squared (kg/m^2).

TABLE-1: The International Classification of Adult Underweight,

Overweight and Obesity According To BMI

Category	BMI range- kg/m^2	BMI Prime
Very severely underweight	Less than 15	Less than 0.60
Severely underweight	From 15 to 16	From 0.60 to 0.64

Underweight	From 16 to 18.5	From 0.64 to 0.74
Normal (healthy weight)	From 18.5 to 25	From 0.74 to 1.0
Overweight	From 25 to 30	From 1.0 to 1.2
Obsess class 1(Moderately Obese)	From 30 to 35	From 1.2 to 1.4
Obese Class 2 (Severely obese)	From 35 to 40	From 1.4 to 1.6
Obese class 3 (very severely Obese)	Over 40	Over 1.6

Blood Glucose :- normal value ranges may vary slightly between laboratories. Many factors affect a person's blood sugar level. The body's homeostatic mechanism of blood sugar regulation (known as glucose homeostasis), when operating normally, restores the blood sugar level to a narrow range of about 4.4 to 6.1 mmol/L(79 to 110mg/dL)(as measured by fasting blood glucose test). (clinical diabetes,2000). Normal blood glucose level (tested while fasting) for non-diabetics is between 3.9 and 7.1 mmol/L (70 and 130 mg/dL). The global mean fasting plasma blood glucose level in humans is about 5.5 mmol/L(100mg/dL);(danaei, G,2011). However, this level fluctuates throughout the day. Blood sugar levels for those without diabetes and who are not fasting should be below 6.9 mmol/L(125mg/dL).(national institute of health). The blood glucose target range for diabetics, according to the amrican diabetes association, should be 5.0-7.2 mmol/L (90-130mg/dL) before meals and less than 10 mmol/L(180mgdL) two hours after meals(as measured by a blood glucose monitor**).(Davidson NK 2011 & Schuster D 2008).**

Blood Glucose is also known as Random Blood Sugar the significant sugar in the body. It is the individual basis of vigor fir maximum body cells, and is mainly required for brain cells and red blood cell. Glucose Is also known as dextroglucose and grape cells **(Mukherjee,1998).**

MATERIALS AND METHODS

In this chapter, the researcher has described the methodology used for the sampling procedure, sampling method, selection of subjects, selection of variables, collection of data, procedure of administration of the test and the statistical procedure which will employed for the analysis of data.

SELECTION OF SUBJECTS

1. Total number of sample was be 30 (N=30)
2. Ten sample (n=10) from each department of physical education, dance and computer.
3. The age of the subject ranges from 21-28

SELECTION OF VARIABLES: - In the light of the expert opinion, administrative feasibility, availability of subjects, availability of testing equipment and materials, the following variables will be selected for this study:

1. BMI
2. Blood glucose

   First of all, we measure the height and weight of the subject for BMI.

HEIGHT

PURPOSE: To measure the vertical distance from the vertex to floor.

EQUIPEMENT: Anthropometry rod or Stadiometer, scoring sheet.

SCORING: Height recorded in meter.

PROCEDURE: The subject will be to stand erect, bare foot on a plane horizontal surface against a wall. With heels, back of the shoulder and head touching the wall, and requested to stretch the body upward such as possible without heel leaving the ground. The stadiometer scale will be adjusting to touch the landmark vertex a measurement will be rescored nearest to the half of an inch.

WEIGHT

PURPOSE: To determine the mass of the body.

EQUIPEMENT: weighing machine or scoring sheet.

SCORING: The weight will be measure in nearest kilogram.

PROCEDURE: The weight will be taken of the subjects wearing minimum clothes and without shoes. Weighing machine will be used to measure the weight of the subjects. The pointer to the machine will be set as zero and each subject will be asked to stand on the machine and reading will be taken from vertical angle and weight will be recorded to the nearest kilogram.

THEN CALCULATE BMI BY WEIGHT IN KG/ HEIGHT (m^2)

Blood Glucose (Random Blood Sugar) (mg/dl)

Method Used – God- Pod method, End point

Objective: To measure the Random Blood Sugar level of male type-II diabetes patients. Equipment: Erba Chem. – 5 V2 Plus Analyzer, Incubator, Centrifuge Machine, Needle Cutter, Test Tubes (Ria vials), One-use Needles, Cotton, Spirit, Test tube Stands, Distilled water, Hypochlorite Resolution (HCL), Tourniquet, Auto Pipettes, Micro tips, Pen, Copy.

Reagents:

1) Glucose Reagent

2) Glucose Standard.

Procedure: Medical expert collected the blood sample from the subjects and follow the standard method to assess the blood glucose. ErbaChem – 5 V2 plus Analyzer. Take one test tube in a test tube stand. Add (500ul) glucose reagent in it and then add (5ul) Serum in it. Mix well and incubate for 15 minutes at 370 C.

STATICAL ANALYSIS: After the collection of relevant data, it was processed and analyzed with descriptive statistics. To compare the BMI and Blood glucose of subjects, mean, standard deviation and one way ANOVA was employed with the help of statistical package of SPSS.

Results of the study are summed up in following tables and figures discussed as required.

TABLE:-1: Mean and standard deviation of female's BMI of different departments.

	DANCE	PHYSICAL EDUCATION	COMPUTER	TOTAL
N	10	10	10	30
$\sum X$	24.4	184.9	191.8	581.1
MEAN	20.44	18.49	191.8	19.37
$\sum X^2$	42206.7	3432.81	3805.54	11445.05
STD.DEV.	1.7877	1.2476	3.7538	2.5539

Level of significance 0.05

RESULT DETAILS

SOURCE	SS	DF	MS	
BETWEEN GROUPS	19.554	2	9.777	F= 1.55658
WITHIN GROUPS	169.589	27	6.2811	
TOTAL	189.143	29		

Figure:- 1 Mean and standard deviation of female's BMI of different departments.

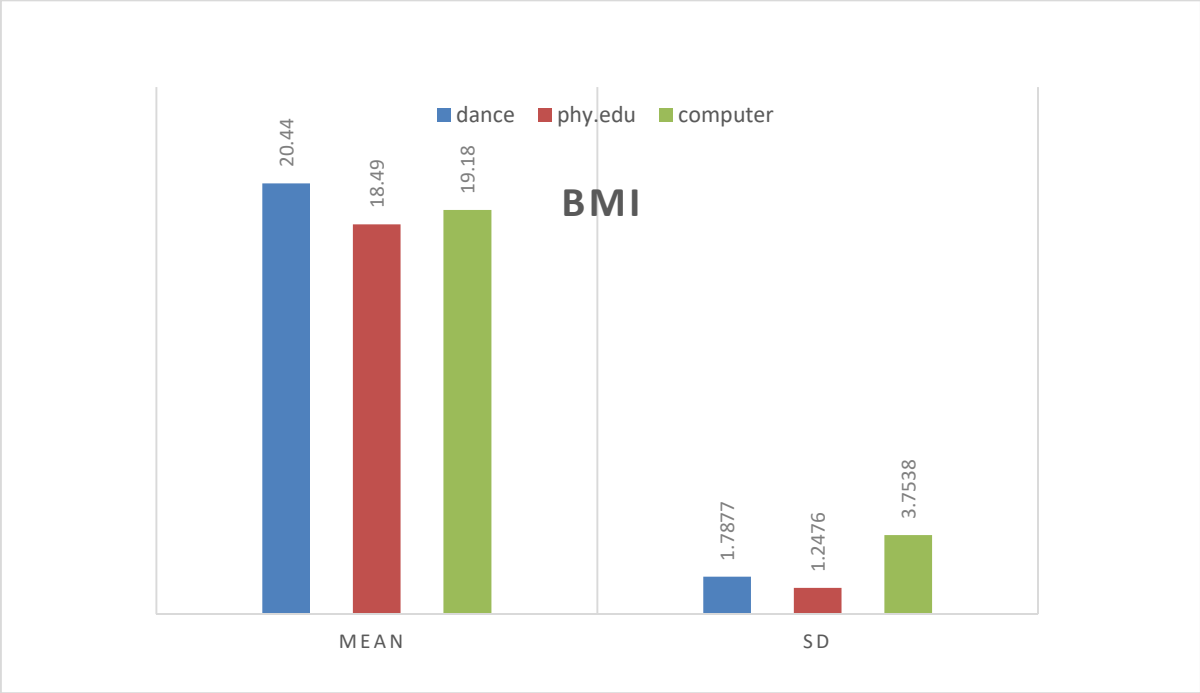

Table and **figure 1** statistically depict that the mean and standard deviation with regard to females of Where as in case of female dance students is 20.44 ±1.7877,physical education students is 18.49 ± 1.2476. and last female computer student is 19.18± 2.5539 respectively. The f-ratio value is 1.55658. The p-value is .229192. Therefore, the result shows that there exists non-significant difference between all the three departments' dance, physical education and computer for their BMI parameter.

TABLE:- 2 : Mean and standard deviation of female's Blood glucose of different departments.

	DANCE	PHYSICAL EDUCATION	COMPUTER	TOTAL
N	10	10	10	30
∑X	869	986	1054	2909
MEAN	86.9	98.6	105.4	96.967
$\sum X^2$	76239	99362	112660	288261
STD.DEV.	8.9623	15.4287	13.201	14.6039

Level of significance 0.05

RESULT DETAILS

SOURCE	SS	DF	MS	
BETWEEN GROUPS	1751.2667	2	875.6333	F= 5.33236
WITHIN GROUPS	4433.7	27	164.2111	
TOTAL	6184.9667	29		

RESULT:

BMI- there was significant difference in BMI variable between females of department of physical education, dance and computer.

BLOOD GLUCOSE- There was a non-significant difference in BLOOD GLUCOSE variable between females of department of physical education, dance and computer.

DISSCUSSION AND FINDING

BODY MASS INDEX

The result of the study established that there was statistically non-significant difference in Body Mass index variable between females of department of physical education, dance and computer student of

Punjabi university Patiala. On the basis of analysis of the data, investigator found that the earlier study of "**Richmond 2016**" supported the present study.

BLOOD GLUCOSE

The result of the study established that there was statistically significant difference in Blood glucose variable between females of department of physical education, dance and computer student of Punjabi university Patiala. On the basis of analysis of the data, investigator found that the earlier study of **Sun et al. (2017**) supported the present study.

CONCLUSION:

There was a non-significant difference between in BMI variable between females of department of physical education, dance and computer. But there was difference between in blood glucose variable between females of department of physical education, dance, computer

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