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Assessment of obesity and diabetes between working and non-working females in Punjab

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Abstract

The purpose of the study was to find out the significant difference and relationship on obesity and diabetes between working and non-working females in Punjab. The statistical analyses of the data were collected on 1200 subjects. The group of working females were further divided in three groups according to their nature of job (working females) Class A, Class B, Class C. Group 1=600 (working females Class A =200, Class B = 200, Class C =200) and Non-working females Group 2 = 600 were further divided into 2 groups (Active females= 300, Sedentary females=300). The ages of subjects were between 40 to 60 years. To find out the difference between working and non-working females student unpaired-t Test was applied, when we compared the Class A, Class B, Class C, Active Females and Sedentary females of Working & Non working groups we applied ANOVA and Scheffe Post Hoc Test and to find out the relationship between obesity and diabetes Karl Pearson product moment coefficient correlation statistical technique test was used with the help of SPSS software.

Keywords: obesity, diabetes working and non-working females.

1. Introduction

There are various types of diseases and health problem which are suffered by humans. But most of them are suffering from obesity and diabetes in these days. In recent years, the escalating worldwide prevalence of obesity is considered as one of the most serious issues. This is because obesity is significantly associated with diabetes, heart disease, cancer, high blood pressure, and high cholesterol. Female obesity is defined as an excessive amount of body fat, keeping in mind the body mass index ratio of the women concerned. Women with body weight measuring up to 30 per cent more than that of the ideal are known as obese. The body mass index (BMI), is the most popular and effective way of calculating female obesity. Body mass index (BMI) is a statistical measurement that compares a person's weight and height. Though it does not actually measure the percentage of body fat, but it is a useful tool to estimate a healthy body weight based on a person's height. Due to ease of measurement and calculation, it is a widely used diagnostic tool to identify obesity problems within a population. However, it is not considered appropriate to use as a final indication for diagnosing individuals. The link between diabetes and obesity is particularly pronounced in women, and during the past 10 years there has been 32 % increase in women with diabetes. Women suffering from obese conditions are also prone to social and psychological issues that also lead to depression. It is believed that female obesity has increased by 15 % in the past decade and as a result, women have become prone to diseases like diabetes, high BP etc. women who have a hereditary problem of obesity need to be very careful about their food and exercise quotient. Often women find it difficult to shed post pregnancy weight, which in turn leads to lifelong obesity for them. Obesity can be classified as one of the dangerous illness in the world as the number of the obese person keep on increasing in recent years, the escalating worldwide prevalence of obesity is considered as one of the most serious issues. This is because obesity is significantly associated with diabetes, heart disease, cancer, high blood pressure, and high cholesterol.

1.2 Review of literature

Asiimwe *et al.* (2020) ^[1] Type 2 diabetes is a worldwide disaster including in Uganda,

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Specifically in Kanungu District which had a rise in diabetic patients in 2018/2019 as compared to the 2017/2018 financial year. This research was determined to access the prevalence and risk factors associated with type 2 diabetes on elderly patients aged 45-80 years attending Kanungu Health Centre IV, Kanungu District. **Methods.** A cross-sectional study was conducted among patients aged 45-80 years attending Kanungu Health Centre IV from June to August 2019. The prevalence of type 2 diabetes was determined by the blood sugar of patients. Questionnaires were used to collect data for factors associated with type 2 diabetes. Data were statistically analyzed using the statistical package for social sciences (SPSS) version 25 (SPSS Inc., USA) at. **Results.** The overall prevalence of type 2 diabetes was 18.7% among the tested patients. 22.8% of diabetic patients were females as 7.8% were males. The age group most affected by diabetes was 61-65 years. Alcoholism, smoking, body mass index (BMI), and family history were found to be significantly associated with type 2 diabetes at value < 0.05 . **Conclusion.** There was a high prevalence of type 2 diabetes observed in this study compared to studies done in previous years which raise a public health concern. This study also found that females and patients aged 61-65 years were most affected by diabetes. Lastly, the presence of family history for diabetes, overweight, and being obese increases the chances of acquiring type 2 diabetes. Kaur and Singh (2018) [8] compare the blood sugar of active and inactive type II male and female diabetic patients. The present investigation has been conducted on 80 subjects. Out of them forty were active diabetic patients (20 male and 20 female = 40) and forty were inactive diabetic patients (20 male and 20 female= 40) from Patiala district only. The blood sample was taken for checking the fasting blood glucose. Blood Glucose (Fasting Blood Sugar) of the diabetic patient was assessed by using GODPOD (Glucose Oxidase- Peroxide method). To analysis the computed scores of all groups of Blood Glucose 't' test was applied. Results of the study explicated statistically that there was significant difference in Blood Glucose (fasting Blood Sugar) of active male and inactive male type II diabetic patients and significance difference between active female and inactive female. However, insignificant difference was found in blood glucose (Fasting Blood Sugar) of active male and active female type II diabetic patients.

1.3 Purpose of the Study

The result of the study may convey the quality of being important and the influence of the study on the mass of the society such as sports scientists, physical education teachers, players and coaches in the following way:

1. The result of the study may be helpful to compare the level of diabetes and obesity between working and non-working females.
2. The result may be helpful to find out the relationship between obesity and diabetes of working and non-working females.

This study makes society aware about obesity and diabetes. The result may be helpful to compare & relationship of three of working and two groups of nonworking females

2. Research objectives

1. To evaluate the significance difference on diabetes (sugar level) among Class A, Class B, Class C, Active females, sedentary females of working and non-working groups.

To find out the relationship between obesity and diabetes with regard to working females.

2. To find out the relationship between obesity and diabetes with regard to working females.
3. To find out the relationship between obesity and diabetes with regard to non-working females.

3. Methods and materials

The study was descriptive. The criterion measures adopted for this study was to find out the significant difference and relationship on obesity and diabetes between working and non-working females in Punjab. The statistical analyses of the data were collected on 1200 subjects. The group of working females was further divided in three groups according to their nature of job (working females) Class A, Class B, Class C. Group 1=600 (working females Class A =200, Class B = 200, Class C =200) and Non-working females Group 2 = 600 was further divided into 2 groups (Active females= 300, Sedentary females=300).The age of subjects was between 40 to 60years.

4. Results

The purpose of the study was to compare the significant difference and relationship on obesity and diabetes between working and non-working females in Punjab. The group of working females was further divided in three groups according to their nature of job (working females) Class A, Class B, Class C. Group 1=600 (working females Class A =200, Class B = 200, Class C =200) and Non-working females Group 2 = 600 was further divided into 2 groups (Active females= 300, Sedentary females=300).

Table 4.1: Comparison between Working and nonworking females with Regard to Diabetics (sugar level)

Groups	Mean	Std. deviation	Difference between mean	Standard error of difference	't' Ratio	P value
Working females	141.20	10.305	-23.00	0.989	23.27	.000 <0.05
Nonworking females	164.206	21.921				

* Significant at.05 level t= 1.645

The results of working and non working females, Mean, Std. deviation and t values on diabetics were given in table - 4.1. This table found that the working females mean of diabetics level 141.20 and non working females mean 164.206. Further the table statistically reveals that the calculated t value 23.27 for diabetics level in females was greater than table value that is 1.645 also the p value of working and nonworking females was.000<0.05. Therefore the values of table – 4.1 confirmed that, there was significant difference between working and nonworking females. The result of table - 4.5 was also illustrated in figure - 4.1.

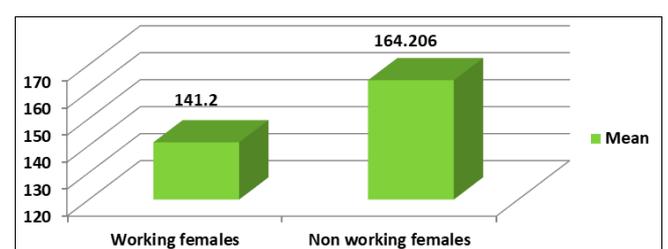


Fig 4.1: Comparison of Mean values for working and on working females of Diabetics

Table 4.2: Correlation coefficients and significant of working females among Diabetics and obesity

Variables	Group	N	Correlation value	P value
Obesity and Diabetic	Class A working females	200	.075	.293>0.05
	Class B working females	200	.080	.263>0.05
	Class C working females	200	.023	.746>0.05
	Working females	600	.282*	.000<0.05

* Significant at.05 level
 $r_{0.05(198)} = 0.178$, $r_{0.05(598)} = .0619$

Table-4.2 showed that the Correlation value of Diabetics and obesity between working females of class A, class B, class C was .075, .080 and .023. Whereas the p Value of class A, class B and class C was more than >0.05 , so it shows that no significant relationship exist between the Diabetics level and obesity of class A, class B, class C working females groups. When we observe the Correlation value of Diabetics and obesity of working females group .282* it is less than the $p < 0.05$. So it shows that significant relationship exist between the diabetic level and obesity of working females. Also the table – 4.2 findings was presented in figure – 4.2.

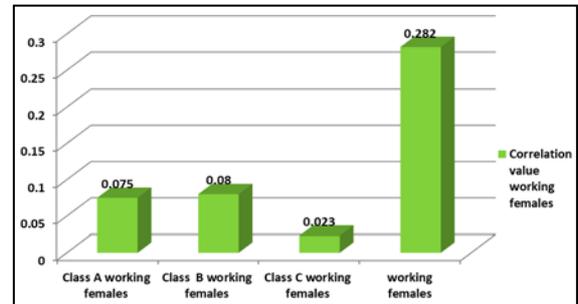


Fig 4.2: Correlation coefficients values for working females of Diabetics and obesity

Table 4.3: Correlation coefficients of nonworking females between Diabetics and obesity

Variables	Group	N	Correlation value	P value
Obesity and Diabetics	Active female	300	.048	.048>0.05
	Sedentary females	300	.255*	.000<0.05
	Nonworking females	600	.238*	.000<0.05

*Significant at.05 level
 $r_{0.05(298)} = 0.113$, $r_{0.05(598)} = .0619$

The table no. 4.3 statistically depict that the correlation value of Active and Sedentary non working females groups among Diabetics and obesity was .048 and .255. When the p Value of Active female .048, its more then >0.05 shows insignificant relationship and the p Value of Sedentary females .000<0.05 showed significant relationship exist between the Diabetics level with obesity. The correlation value of non working females on Diabetics and obesity was .238 and its p value less then the .000<0.05 showed significant relationship exist between the Diabetics level with obesity. Also the table – 4.3 findings was presented in figure – 4.3.

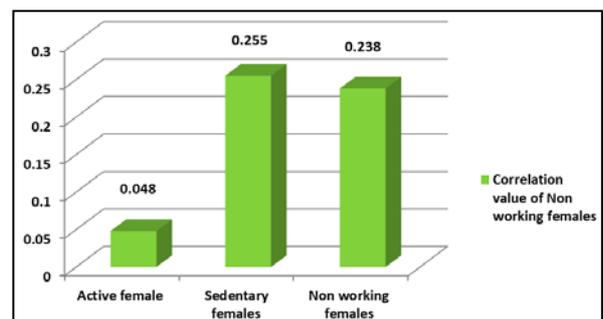


Fig 4.3: Correlation coefficients values for nonworking females of Diabetics and obesity

Table 4.4(a): Description of mean and standard deviation results with regard to Diabetes (sugar level) among Class A, Class B, Class C, Active Females and Sedentary females of Working & Nonworking groups

Groups	N	Mean	Std. Deviation	Std. Error
Class A working females	200	136.6900	6.99849	136.6900
Class B working females	200	140.5100	10.54399	140.5100
Class C working females	200	146.4000	10.55448	146.4000
Active Females	300	151.3533	11.68662	151.3533
Sedentary females	300	177.0600	22.23942	177.0600
Total	1200	152.7033	20.62910	152.7033

Table-4.4 (a) shows the Mean and SD values of sugar level among i.e. working females Class A, working females Class B, working females Class C, Active Females and Sedentary

females were 136.6900 ± 6.99849 , 140.5100 ± 10.54399 , 146.4000 ± 10.55448 , 151.3533 ± 11.68662 and 177.0600 ± 22.23942 respectively.

Table: 4.4 (b): Analysis of Variance (ANOVA) results with regard to Diabetes (sugar level) among Class A, Class B, Class C, Active Females and Sedentary females of Working & Nonworking groups

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	267488.160	4	66872.040	329.184	.000
Within Groups	242758.227	1195	203.145		
Total	510246.387	1199			

*Significant at F0.05 (2.37)

Table 4.4(b) shows that the outcome of Analysis of Variance (ANOVA) among five groups of Class A, Class B, Class C, Active Females and Sedentary females of Working & Non working females with regard to the sugar level were found to

be statistically partially significant ($P < 0.05$). Since the obtained “F” ratio 329.184 (.000) was found statistically partially significant. The results of post-hoc test have been presented in Table 4.4(c) below.

Table 4.4(c): Analysis of Scheffe Post Hoc Tests with regard to Diabetes (sugar level) among Class A, Class B, Class C, Active Females and Sedentary females of Working & Nonworking groups

Group (I)	Group (J)	Mean Difference (I-J)	Std. Error	Sig.
Class A working females	Class B working females	-3.82000	1.42529	.127
	Class C working females	-9.71000*	1.42529	.000
	Active Females	-14.66333*	1.30111	.000
	Sedentary females	-40.37000*	1.30111	.000
Class B working females	Class C working females	-5.89000*	1.42529	.002
	Active Females	-10.84333*	1.30111	.000
	Sedentary females	-36.55000*	1.30111	.000
Class C working females	Active Females	-4.95333*	1.30111	.006
	Sedentary females	-30.66000*	1.30111	.000
Active Females	Sedentary females	-25.70667*	1.16374	.000

*Significant at 0.05

Table – 4.4(c) revealed that the only Class A working females and Class B working females mean values were found insignificant after compared with each other with p value of.127. The mean difference -3.82000 was between Class A working females and Class B working females. However, the differences for the remained all groups means were found significant with p value of.000 in favour of Class A working females. The table – 4.4(c) findings are also offered in figure.

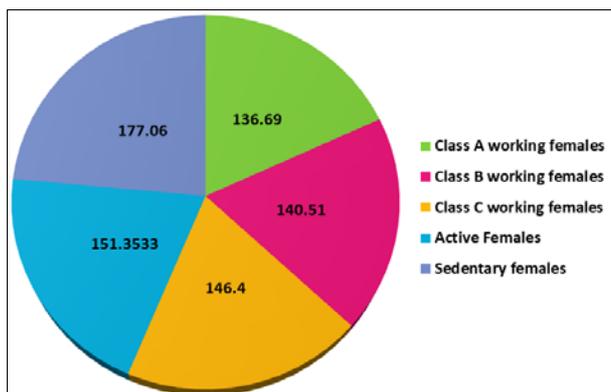


Fig 4.4: Comparison of Mean with regard to Diabetes (sugar level) among Class A, Class B, Class C, Active Females and Sedentary females of Working & Nonworking groups

5. Conclusion

Based on the statistical analysis of data following findings were drawn by the researcher:

1. The result of the study revealed that there was significant difference found between working and nonworking females in diabetic level. These results of the study confirmed with the findings of Kaur and Singh (2018) [8] who reported significant differences between active female and inactive female.
2. The result of the study showed that there was no significant relationship exists between the diabetic level and obesity of class A and class C of working females. In case of class B showed significant relationship between the diabetic level and obesity of working females.
3. The result of present study proved that the diabetic level and obesity among nonworking females showed significant relationship after functional product moment correlation method. These results of the study confirmed the findings of Alhazmi *et al.* (2017) supported the present study.

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