ROLE OF DIET IN WEIGHT LOSS IN GYM GOING OBESE FEMALES

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Abstract : Obesity and obesity related diseases are a major public health issue in India. Despite the presence of so many gyms/ fitness center/health clubs incidents of obesity related diseases are increasing day by day, which indicates that something is really missing in our approach to weight loss. Since the major cause of obesity is our eating habits, among many other lifestyle factors, a study shedding light on the role of diet modifications in losing weight was the need of the hour. The purpose of this study is to identify the relationship between dietary changes on weight loss in gym going overweight females (with BMI between 30 to 34.9) aged between 22 to 40 years in Bhopal , Madhya Pradesh.

A total of 52 subjects were recruited for the study via face to face interviews and their medical history, workout details, personal details and existing dietary habits was taken via questionnaire and personal examination. The subjects were offered diet counseling sessions over a period of 3 months and their progress in terms of anthropometric measurements (weight, body mass index), clinical parameters (like blood pressure, sugar level) were monitored over the course of the study via meetings in their respective gyms. Subject's Pre-counseling and post-counseling data (anthropometric, clinical parameters) were statistically analyzed using paired sample test (Wilcoxon Signed Ranks Test) with significance level at 0.01 which discovered that dietary modification helps in reducing weight and help in improving other medical parameters as well.

IndexTerms – **Gym, obesity, weight loss, diet.**

I. INTRODUCTION

India has the third-highest number of obese and overweight people after US and China. Around 20% of the adult Indian population is overweight or obese and many studies predict that India will be the global diabetes capital by 2050 (Phelamei 2015). Obesity is defined as an abnormal or excessive accumulation of fat that presents a risk to a person's health. A crude population measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in metres). A person with a BMI of 30 or more is classified as obese (World Health Organization 2017). Obesity causes an increase in major risk factors of health linked to cardiovascular diseases, diabetes , hypertension etc. The root cause, of an increase in obesity among the urban populace, is that an increasing number of people have adopted a sedentary lifestyle.

Majority of people who are going to a gym are obese people, trying to lose weight. Despite working out regularly in the gym many people are unable to lose weight because of their faulty diet. In the past few decades many forms of aerobic and anaerobic exercises have been introduced in fitness centers. If these exercises are combined with a diet having right amount of calories and appropriate nutrient composition, then the gym goers will not only able to reduce weight and develop stamina but also improve their biochemical parameters. Khare and Khare 2015 concluded that exercise reduces the body weight and consequently obesity, but both of these are not maintained without exercise .Research done by Zee Media Corporation (2015) has shown that doing physical exercises along with a proper diet can help maintain a healthy weight

I.   RESEARCH METHODOLOGY

The six fitness centers from different wards were selected in sample area, 88 female participant were selected for the final study which belonged to age group 21 to 50 years ,they were further sub divided into age group of 21 to 30 ,31 to 40 and 41 to 50 years

3.1 Population and Sample

In this study out of 88 female 52 obese females (age between 20 to 50 years) were selected according to their BMI (more than 30 kg/m2) from six fitness centers across Bhopal. Subjects with average workout time of 45 minutes per day, five times a week have been selected.

3.2 Data and Sources of Data

In the Pre counseling data collection phase, subject's anthropometric measurements like weight, body mass index and clinical parameters like blood sugar, blood pressure, cholesterol were recorded. Subjects were counseled for 3 months and were provided with

diet charts which were prepared according to the guideline suggested by ICMR (2010) for sedentary females. After 3 months their anthropometric and clinical parameters were noted as post counseling data.

3.3 Theoretical framework

There were two types of variable used in study
Independent Variable: Variables which are measured to see their impact on depended variable and the correlation are evaluated with dependent variables. In study investigator selected many independent variable like gender, education , occupation ,income status, marital status, food habits etc.
Dependent Variable: These variables are based on independent variable. The dependent variable gives final shape of any research study .In present study investigator selected age,nutritional parameter i.e. anthropometric ,clinical assessment comes in dependent variable category .

3.4Statistical tools
These were the following tools which were used for data collection from the selected participant going to the gym.
a. Questionnaire – In the preparation of the questionnaire utmost care was taken to ensure that the objectives of the study could be achieved .The questionnaire was developed with the help of supervisor and experts of related field .It was designed in such a manner that relevant information could be collected through questions in minimum time.
b. Weighing Machine – The machine was square shaped digital machine and it can weigh upto 150 kilogram. Initially it was set on zero kilogram. The participant was asked to stand straight on the machine without shoes and exact weight was measured on its display displayed on screen
 c. Measuring tape – Measuring tape or inch tape used for anthropometric measurement. It is made up of soft plastic and encoded with inches and centimeter. The circumference of forearm, waist, hip and thigh etc. of the participant were measured with its help and noted down in inches.
d. Pamphlet – A pamphlet was designed to create the awareness towards new developments (health care and fitness) for the experimental group. It was developed with the help of supervisor and experts of related field.
 e. Recipe booklet – A recipe booklet was designed to make participant aware about healthy diet recipes .Recipe booklet was developed with the help of supervisor and experts of related field.
f. 24 hour Recall Method – A 24 hour recall method is design to get information about participant's diet taken by them in last 24 hours.
g. Diet chart – A specific diet chart was given to obese participants.

IV. RESULTS AND DISCUSSION

4.1 Results of Descriptive Statics of Study Variables
Table 4.1: Paired Sample (Wilcoxon Signed Ranks Test) analysis for Pre & Post Counseling data to study the difference between the anthropometric measurements of Obese females

Sl. No	Anthropometric Variables	Mean	SD	Negative Ranks	Positive Ranks	Ties	Wilcoxon Sign Value (Z)	P value
1	Pre_Weight in kgs	74.85	9.442					
	Post_Weight in kgs	67.01	2.127	51	1	0	-6.230	<0.01
2	Pre_BMI in cms	27.71	0.848					
	Post_BMI in cms	25.37	0.569	39	4	9	-5.249	<0.01

Table no.4.1 shows the results of paired sample Z test and reveals that there is significant difference in mean weight (M=74.85 & 67.01) BMI (M=27.71 & 25.37) of female subjects pre and post counseling. Ties = 0 in the weight column indicates that no subjects displayed no change in their weight. In fact 51 subjects significantly reduced their weight and only one subject slightly increased her body weight. In body mass index negative changes (rank) i.e. reduced in measurements is seen, although it has 9 ties .The ties are probably because BMI range of obese is greater than 30, so subjects have to reduce a lot of weight for any observational BMI change. The Z value (negative) and p value < 0.01 also indicate that there has been a significant decrease in weight and BMI.

Table 2 : Paired Sample (Wilcoxon Signed Ranks Test) analysis for Pre & Post Counseling data to study the difference between the Clinical values of Obese female

Sl. No	Clinical Variables	Mean	SD	Negative Ranks	Positive Ranks	Ties	Wilcoxon Sign Value (Z)	P value
1	Pre_ Blood Sugar	119.50	29.879	42	6	4	-5.023	<0.01
	Post_ Blood sugar	114.33	28.295					
2	Pre_ Cholesterol	189.25	13.768	43	8	1	-5.198	<0.01
	Post_Cholosterol	183.06	11.720					
3	Pre_BP_systolic	122.88	28.464	22	14	16	0.865	>0.05
	Post_BP_Systolic	121.54	27.236					
4	Pre_BP_Dystolic	83.65	2.734	21	18	13	0.591	>0.05
	Post_BP_Dystolic	82.69	1.595					
5	Pre_Thyorid	4.63	8.257	16	9	27	-1.765	>0.05
	Post_Thyroid	4.26	7.440					

Table 2 shows that the results of paired sample Z test and reveals that there is significant difference in mean blood sugar (M= 119.50 & 114.33), Cholesterol (M=189.25 & 183.06), Systolic blood pressure (M=122.88 & 121.54), Diastolic blood pressure (83.65 & 82.69) and Thyroid level (M= 4.63 & 4.26) . Negative rank indicates reduction in parameters seen in individual for example 42 negative rank in blood sugar shows that out of 52 obese 42 subjects blood sugar level decreased i.e. comes in normal range
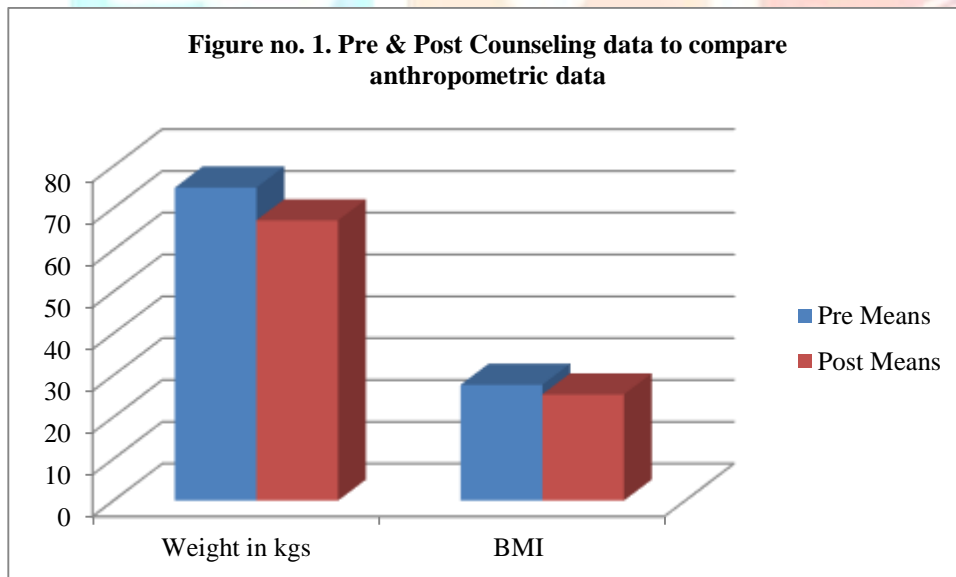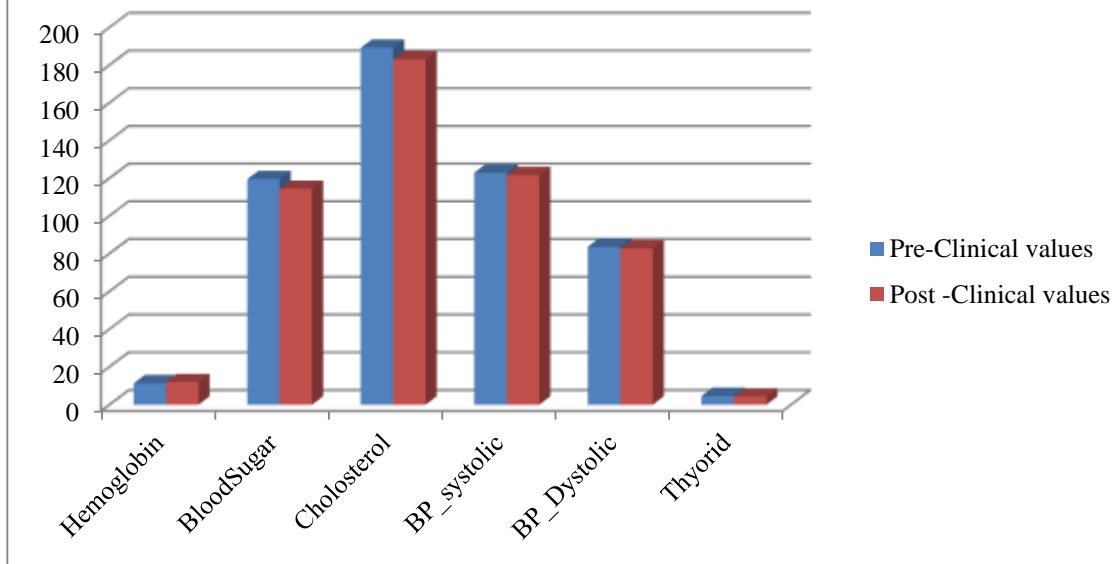
FiguresandTables

Figure no. 1. Pre & Post Counseling data to compare anthropometric data

Figure no. 2. Pre & Post Experiment data difference between the Clinical Parameters of Obese female participants

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