

# AN IMPACT OF AN EDUCATIONAL INTERVENTION ON BODY MASS INDEX IN WOMEN, TIRUPATI, CHITTOOR DISTRICT

<sup>1</sup>Shobha Rani . A, <sup>2</sup>Dr. D. Sarada

<sup>1</sup>Research Scholar, <sup>2</sup>Professor

Human Development and Family Studies, Department of Home Science,  
Sri Padmavati Mahila Visyavidhyalayam, Tirupati, Andhra Pradesh, India.

**Abstract :** Obesity is a health problem not only in developed countries but also in developing countries such as India which is more prevalent in females as compared to males. **Purpose:** To assess the impact of an educational intervention on Body Mass Index in selected overweight and obese women in an urban community of Tirupati. **Material and methods:** A selected community was screened to identify overweight and obese women in the age group 20 to 40 years. Out of 250 eligible women with no morbidity were screened in the community, 144 had BMI  $\geq 25$ . Thirty women for the experimental group and thirty women for the control group were selected randomly. An intervention programme was given to the experimental group as a session for 45-60 min to reduce their weight by modifying their diet and enhancing their physical activity. **Results:** After three months, the study showed that in the experimental group the average reduction in weight was  $3.2 \pm 2.8$  Kg and it was statistically significant if compared to their baseline weight. **Conclusion:** This study showed that educational intervention followed by motivation emphasized the women to adhere to the modified diet which is significantly effective in decreasing the BMI among women

**Index Terms - Educational Intervention, Body Mass Index (BMI)**

## I. INTRODUCTION

Women in India as gendered beings are at risk of multiple and interrelated health needs. India is currently experiencing a rapid rise in the proportion of overweight and obese population especially among adult women.<sup>1</sup> Overweight and obesity problem among married Indian women (15-49 years) has started expanding from urban and well-off women to the poor and rural people in India, while the rural-urban and rich-poor difference has disappeared.<sup>2</sup>

The rising prevalence of overweight and obesity in women has an increasing prevalence of obesity-related co-morbidities like hypertension, the metabolic syndrome, dyslipidemia, type 2 diabetes mellitus, and cardiovascular disease. Overweight and obese women could reduce their weight if they are explained the risks of obesity in the causation of various chronic diseases and if they are educated and motivated properly.<sup>3</sup>

Prevention of obesity should begin in early childhood. Obesity is harder to treat in adults than it is in children. The control of obesity centers on the weight reduction, Information Education and Communication (IEC), Behavior change communication (BCC) is used to encourage individuals of the society to adopt healthy behaviors like dietary modifications, increased physical activity and a combination of both <sup>4</sup>. A sudden and drastic reduction in body weight with severe restrictions in types and amounts of food may not be effective, can be dangerous and may adversely affect the health. So an educational program that promise a gradual healthy weight loss emphasizes the women in taking balanced diet, and increased physical activity is necessary for women in reducing and maintain their body weight.

## II. RESEARCH METHODOLOGY

The methodology section is the specific procedures or techniques used to identify, select, process, and analyze information about a topic. This includes population, sample of the study, data and sources of data, study's variables and analytical framework. The details are as follows;

### 2.1 Population and Sample

The present study was conducted in a selected community on 250 young women of age 20-40 years from June 2017 to November 2017. A pre-test, post-test control group design was adopted for the study. Women were screened to identify overweight and obesity and 144 women had Body Mass Index (BMI)  $\geq 25$  out of which 30 women for the control group and 30 women for the experimental group were randomly selected.

### 2.2 Data and Sources of Data

For this study data has been collected from 250 young women of age 20-40 years

### 2.3 Theoretical framework

Variables of the study contains dependent and independent variable. The study used pre-specified method for the selection of variables. The study used the Body Mass Index as dependent variable and educational intervention as independent variable.

## 2.4. Data collection

After obtaining informed written consent, apart from socio demographic data of the women, anthropometric measurements like height, weight were measured and recorded. Weight was measured using validated standard weighing machine. Height was measured by wall-mounted stadiometer to the nearest centimeter. Women were asked to stand upright without footwear, with their back against the wall, heels together, toes apart and looking straight. Body Mass Index (BMI) was calculated as a ratio of weight in kilogram to square of height in meters.

Women in the experimental group were given educational intervention which consists of teaching session of 45 to 60 minutes and a sample menu plan limited to a small group of 4-5 women or individually. Educational intervention includes a session on information on causes of obesity, its potential complications and various methods for its control and prevention. At the end of the session a self-assessment dairy was given to the experimental group so as to monitor themselves and get self-motivated. On weekly basis women in experimental group were regularly followed up, reinforced and motivated to make them adhere to the modified diet and life style. Women in the control group were given a pamphlet which consists of information related to control of obesity. The posttest was conducted to both the experimental and control group after 90 days.

## 2.5. Statistical tools and econometric models

This section elaborates the proper statistical models which are being used to forward the study from data towards inferences. The detail of Statistical tools is given as follows.

### 2.5.1 Descriptive Statistics

Descriptive Statistics has been used to find the maximum, minimum, standard deviation, mean and normally distribution of the data of all the variables of the study.

Data were analyzed using both descriptive and inferential statistical tests. The demographic and clinical data were tabulated and percentages were calculated.

### 2.5.2 Inferential Statistics

For analyzing the effect of educational intervention on BMI,

Z test was used to determine the difference in Body Mass Index with in the control group and within the experimental group before and after intervention. This test was used to determine whether two population means are different when the variances are known and the sample size is large.

Mann-Whitney U test was used to analyze the difference in Pretest and post test scores of Body Mass Index between Experimental and Control group after intervention. Mann-Whitney U test is the non-parametric alternative test to the independent sample t-test. It is a non-parametric test that is used to compare two sample means that come from the same population, and used to test whether two sample means are equal or not.

## III. RESULTS AND DISCUSSION

### 3.1 Results of Descriptive Statistics of Study Variables

Out of the 250 women studied, mean age of the women was  $32 \pm 3.2$  years. With respect to religion, 91.2% of women were Hindus, 6.5% were Christians and 2.3% were Muslims. 95.6% women were married. Regarding the level of education, 46.1 percent had college education followed by 30 percent of women had high school education. A 15.3 percent of women studied up to primary school and an 8.6 percent of respondents were illiterates. This shows that the majority of women understudy were educated. 25.9 percent of women were government/private employed, 12.5 percent were self-employed, 12.9 were daily wage earners and 48.9 percent were engaged in housekeeping, house owners/ land lady, other activities such as political party workers, voluntary service. 79.2 % of women belonged to nuclear family, 56.1% of women were residing in urban areas. Majority of women in the experimental group (96.8%) and control group (97.73%) were on mixed diet.

**Table 1: Difference in Body Mass Index with in the control group and within the experimental group before and after intervention**

Variable	Control Group (n=30)		Experimental Group(n=30)	
	Z value	P value	Z value	P value
Body Mass Index	1.000	0.317	2.33*	0.020

\*significant at 5% level

\*\*significant at 1% level

The table shows that the control group women did not differ in their BMI before and after the intervention. With regard to the experimental group, significant difference in Body Mass Index was found at 5% level of significance ( $p=0.020$ ) before and after the intervention which indicates that the educational intervention had an impact on the women in experimental group.

**Table 2 : Pretest and post test scores of Body Mass Index between Experimental and Control group after intervention**

Variable	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Z	p-value
Body Mass Index	Control	30	34.50	1,038.0	330*	1.908	0.046
	Experiment	30	26.50	795.0			

The table shows that there was a significant difference between control and experiment group with respect to Body Mass Index at 5% level of significance( $p=0.046$ ). The mean values for the experimental group after the intervention shows that there was slight decrease in mean values of BMI which shows that the women under the experimental group were able to change their dietary behavior and lifestyle after receiving the educational intervention.

#### DISCUSSION:

The aim of the present study was to assess the effect of educational intervention on BMI in women. The study has shown a reduction in BMI after an education followed by motivation. The findings of the present study were similar to the observation in other studies where educational intervention is used as an intervention.

An educational intervention was given to the diabetic patients and the effect of intervention was evaluated after 3 months. The study showed that in the experimental group there was a reduction in the mean BMI from base line to 3 months follow up.<sup>5</sup>

#### CONCLUSION AND RECOMMENDATIONS:

Health education may increase sense of mastery over the consequences of obesity and they might have changed their dietary pattern and exercise behavior in the women. The study findings conclude that educational intervention significantly decreased the BMI in women and suggest that along with the education there is a need for self motivation in the self-management. The study recommends training of high risk women so that they can actively modify their lifestyle

#### ACKNOWLEDGEMENT:

Authors are thankful to the study participants for their co - operation.

#### SOURCES OF FUNDING

Nil.

#### REFERENCES

1. Sangeeta Girdhar, Sarit Sharma, Anurag Chaudhary, Priya Bansal, and Mahesh Satija (2016) An Epidemiological Study of Overweight and Obesity Among Women in an Urban Area of North India. *Indian J Community Med.* 2016 Apr-Jun; 41(2): 154–157. doi: [10.4103/0970-0218.173492]
2. AnganSengupta, FedericaAngeli, Thelakkat S.Syamala, Pieter C.Dagnelie, C.P. vanSchayck (2015) Overweight and obesity prevalence among Indian women by place of residence and socio-economic status: Contrasting patterns from ‘underweight states’ and ‘overweight states’ of India *Social Science & Medicine* Volume 138, August 2015, Pages 161-169
3. Vartika Singh , Amit Kaushik , CP Mishra , Sunita Mishra , SP Singh (2010) An Intervention Study for Weight Reduction among selected Overweight / Obese Women in an Urban Community Of Varanasi *Indian J. Prev. Soc. Med.* Vol. 41 No.1& 2, 2010
4. Vamsi Krishna Undavalli, Satyanarayana Chowdary Ponnaganti, Hanumanth Narni (2018) Prevalence of generalized and abdominal obesity: India’s big problem *International Journal of Community Medicine and Public Health* Undavalli VK et al. *Int J Community Med Public Health.* 2018 Apr;5(4):1311-1316 <http://www.ijcmph.com>
5. Sindhu L, Jaya Kumar B (2018) Effectiveness of Educational Intervention on Body Mass Index (BMI) of Patients with Type 2 Diabetes Mellitus in South Indian Population. *Asian Journal of Nursing Education and Research.* Volume 8, Issue No. : 3