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REVIEW OF RESEARCH

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DIETARY FIBER AND ITS IMPACT ON HEALTH STATUS OF ADULT WOMEN

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ABSTRACT :

Dietary fiber is the edible parts of plants or analogous carbohydrates that resist digestion and absorption in the human small intestine, with complete or partial fermentation in the human large intestine Dietary fiber includes polysaccharides oligosaccharides lignin and associated plant substances. Lignin and associated plant substances. It promotes beneficial psychologic effects including laxation, and blood cholesterol attenuation or blood glucose attention (American Association cereal chemists).The dietary fiber have unique chemical structure characteristics and physical properties, (Schneeman & Tietyen 1994)

KEYWORDS :*Dietary Fiber , Health Status , analogous carbohydrates .*

INTRODUCTION

Today obesity has become one of the major health problem in adulthood and leading to condition such as cardiovascular type 2 diabetes and certain types of cancer (WHO 2000, Fontain et al 2003, Peer et al 2003, Musso et al 2010)

Globally 300 million people are obese and more than, 1 billion are overweight (Stephenson et al 2010)The underlying reasons contributing to obesity are complex. Obesity is a risk factor for morbidity and mortality from cardiovascular, musculoskeletal, malignant a metabolic diseases (Garrow 1992) as well as considerable social &financial burdens (JAMA 1996) American studies have revealed that population do not take dietary fiber adequately in their daily diet. (Mozaffarian et al 2003, Renick 2006 & Maye et al 2006)

Most of the epidemiological studies suggest that an inverse relation of dietary fiber intake and body weight.(Koh-Banerjee P, Rimm EB,slavin JL2005)and this sub cross sectional with body mass index (Alefieri MA, Pomerleau JVan de Vijver LPL2007)or body fat mass (Nelson LHTucker LA.1996)and large observational weight gain in women (Liu S,& Willett WC,2003) and in men (Koh- Banerjee P2004)Body weight gain was inversely correlated with the amount of whole grain ingested (Koh- Banerjee P2004)in the large –scale study on Coronary Artery Risk Development in Young Adult (CARDIA). (Ludwig DS Pereira MA1999)

It was proved by various studies that usefulness of dietary fiber with designing diet for weight loss by reducing hunger (Rytting et al 1985, Astrup et al 1990, pasman et all 1997, Heini et all 1998) There are several ways In which dietary fiber may affect obesity development (Ali et al 1982) Because body weight and fat mass regulation result from a complex interplay of multiple factors, involving cermervous circuits, peripheral sensation stimuli, mechanical and chemical satiation signals arising in the gastrointestinal tract, afferent vagal input and adiposity signals from fat tissue and liver (woods 2005)

Moreover the stomach satation in response to volume and calories of the ingested meal (Deutsch 1978) Dietary fiber may prolong meal duration and result in increased mastication with possible cephalic and peri influences on satiety(Sakata TA 1995) It is due

to dietary fiber meals have a lower energy density (Pereira,Ma&Ludwig,DS2001) and it may affect palatability possibly reducing energy intake. (Drewnowski A 1998)
Therefore the long term intake of dietary fiber supplementation to reduce or maintain weigh loss (Hylander & Rossner 1983) Moreover the dietary fiber help low (LDL) Cholesterol and regulate blood sugar level. Dietary fiber intake is associated with a lower risk both cardiovascular disease and coronary heart disease. (Diane E Treapleton 2013)

OBJECTIVE:-

1) To know the socioeconomic status of adult women.
2) To study the health problems of adult women.
3) To find out the major risk factors associated with obesity in adult women.
4) To observe the impact of dietary fiber on anthropometrical measurement of the adult women of Beed district.

METHODOLOGY:

The study was carried out under the following heads.
1) Selection of area:. Two hundred adult women between the age of 25-45 years were selected from the urban areas of Beed District.
2) Selection of samples: Two hundred adult women in the age of 25 to 45 years, middle income group were selected randomly. These samples were collected from urban areas of Beed district.
3) Collection of data: For the present study, data was collected under the following heads.
a) Socioeconomic survey
b) Anthropometric measurement
c) Biochemical measurement
d) Dietary profile

1)Socioeconomic survey: With the help of questionnaire cum interview schedule the socioeconomic status i.e age,education,family status of selected sample was carried out.
2)Anthropometrical measurement: For the above study two hundred sampless were divided into two groups. Hundred samples were treated as experimental samples and supplemented oat daliya for three month. But hundred samples were not received any supplementation and treated as control sample. All anthropometric measurement of experimental and control sample were recorded before and after supplementation of oat daliya.
3) Biochemical measurement: With the help of glucose tolerance test and cholesterol test, blood sugar and cholesterol level was estimated.
4) Dietary profile: Daily dietary pattern of the samples were measured with the help of 24 hour recall method. Each and every sample was asked what, which, how many times they had eaten different food stuff daily and note down.

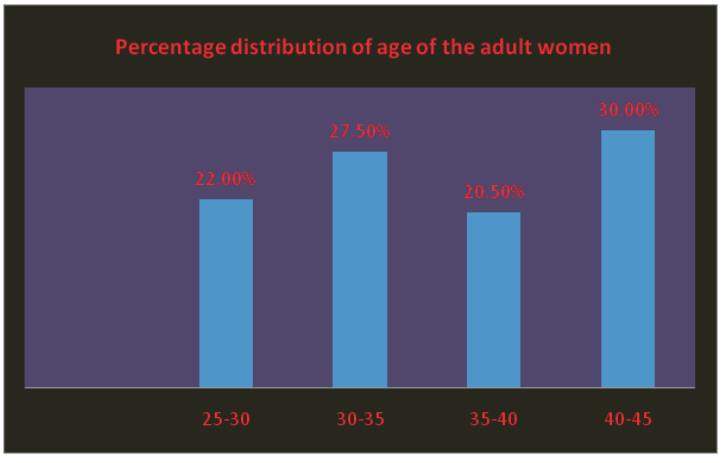
RESULT &DISCUSSION:

Socioeconomic &Dietary Profile:

The study result revealed that about 47% of adult women have health problems. The monthly income of the sample ranged Rs. 5000 to a high Rs. 15000/- . Only 25% samples were having good living standard. About 63% of urban adult women were having habit of consumption of fatty food in their daily diet.

Table No. 1: Percentage distribution age of adult women:

Age	Urban Samples Total No. of sample(n=200)	Percentage
25-30	44	22.00%
30-35	55	27.5%
35-40	41	20.5%
40-45	60	30.00%

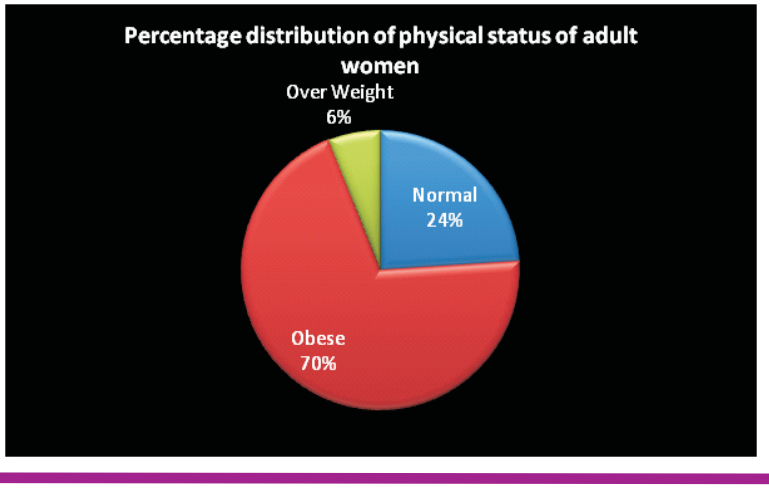


The above table shows that maximum number of adult women 37% were in the age between 45-50 yrs, but 27.5% adult women were in the age between 30-35yrs. Whereas22% adult women were in the age 25-30yrs. Only 20.5% adult women were in the age between 35-40yrs.

Table No. 2 :Percentage distribution of physical status of urban adult women:

Condition of the sample	Total No. of sample(n=200)	Percentage
Normal	48	24%
Obese	140	70%
Over Weight	32	06%

The above data represent that maximum number i.e 70% adult women were having obesity problem. While 6%adult women were overweight.Only 24.% adult women were found normal.



(According to WHO Classification)
Over Weight = High BMI <23 Kg/m2
High BMI = >23 Kg/ m2
Obese = BMI >30gm/ m2

Table No. 3: Percentage distribution Health Problems of adult women:

Health Problem	Urban Samples Total No. of sample (n=200)	Percentage
Obesity	107	53.05
Tiredness	31	15.05
Breathlessness	13	6.05
Swelling	25	12.05
Normal	24	12.00

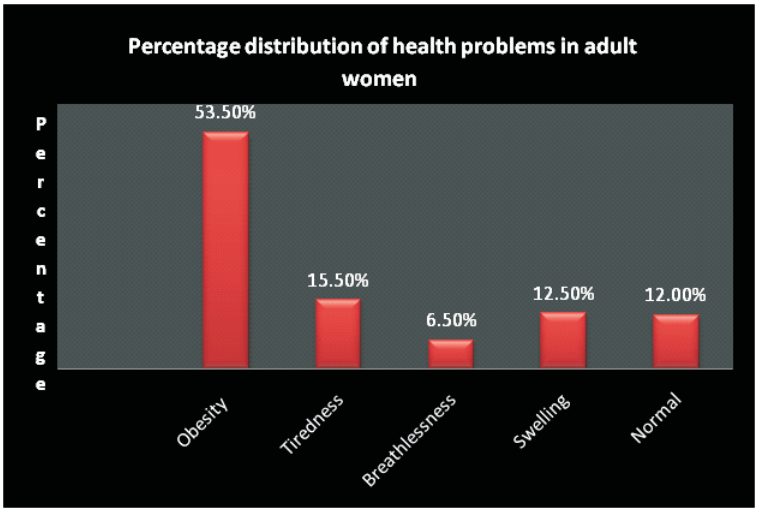


Table No. 4: Percentage Distribution of Risk factor for obesity in adult women.

Risk Factors	Urban Subject (n=200)	Percentage
Low intake of fruits & vegetable	74	37.00%
Low Physical activity	86	43.00%
Consumption of Fatty Food	40	20.00%

The above table represents the risk factors in adult women. Study revealed that in 43% samples were low physical activity may be a major risk factor for obesity. whereas in 37% adult women low intake of fruits &vegetables may be the responsible factor for obesity. While in 20% adult women consumption of fatty acid may be the responsible factor for obesity.

Percentage Distribution of Risk factor for obesity in adult women:

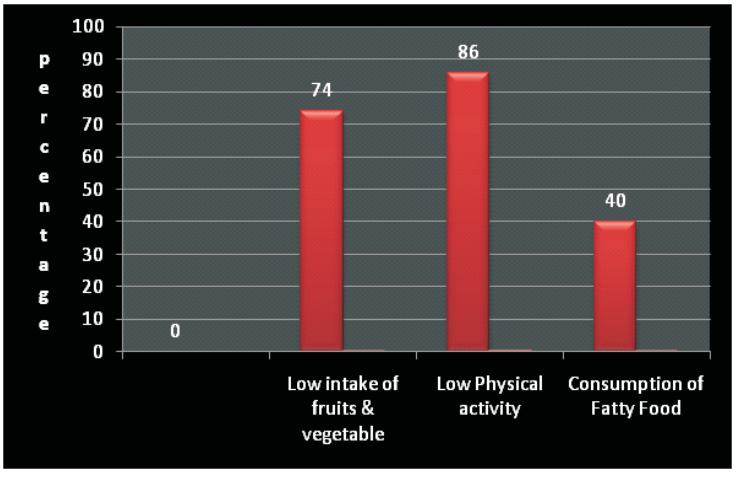


Table No.6: Mean weight of adult women:

Groups	Mean weight of female before supplementation. kg	SD	Mean weight of female after supplementation.kg	SD
Experimental groups	55.21	19.36	54.93	18.42
Control group	58.16	20.45	59.00	20.68

The study table shows that before supplementation of oat the mean weight of the experimental sample was 55.21 kg in adult women. But after supplementation the mean weight was 53.93kg in adult women. While in case of control samples there was no significant changes in their body weight.Similarly all other anthropometric measurement i.e mean mid arm circumferences of adult women before supplementation was 23.65cm,but after supplementationit was 22.5 cm.In case of before supplementation mean waist hip ratio was 84.43cm,but after supplementation it was 84.36cm. The BMI ratio of adult women was 23.83kg/m before supplementation.But after supplementation it was 22.08 kg/m.There was no changes in the anthropometric measurement of control samples of the study.

Table No.7: Mean mid arm circumference of adult women:

Groups	Before supplementation Cm	After supplementation cm
Experimental groups	23.65	23.00
Control group	23.55	24.0

Table No 8: Mean waist hip ratio of adult women:

Groups	Before supplementation in female.cm	After supplementation in female.cm
Experimental groups	85.43	84.36
Control group	84.21	85.32

Table No 9: Mean BMI ratio of adult women:

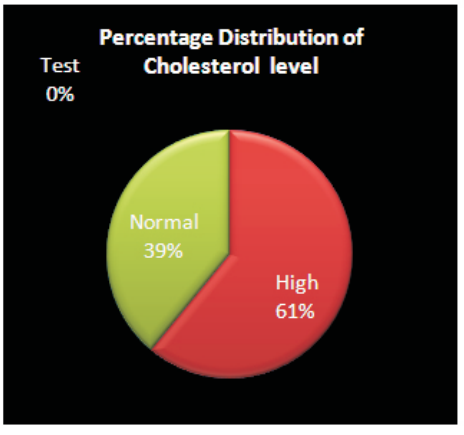
Groups	Before supplementation in female.kg/m^2	After supplementation in female.kg/m^2
Experimental groups	23.83	22.08
Control group	24.08	24.78

Table No. 10: Percentage Distribution of Cholesterol & Sugar level:-

Test	Total No. of Sample (n=200)	
	High	Normal
Blood Cholesterol Level	61% (122)	39% (78)
Blood Sugar	21% (42)	79% (158)

The cholesterol and blood sugar level of the samples were present in the table no. 5 about 61.% of the samples were having blood cholesterol level above 200 mg/dl. Whereas 39% the samples were having blood cholesterol level below 200 mg/dl. The prevalence of diabetics was found 21.%. Whereas 79 % samples were having normal sugar level.

A Significant association was found between high fatty food consumption, history of diabetes and wrong dietary pattern, low physical activity and also low intake of vegetables and fruits < 400 gm/day) showed significant association with history of CVD and hypertension, increased in weight. It was noted that the risk factors of CVD were quite high in obese urban population were being affected in the peak productive years of life.



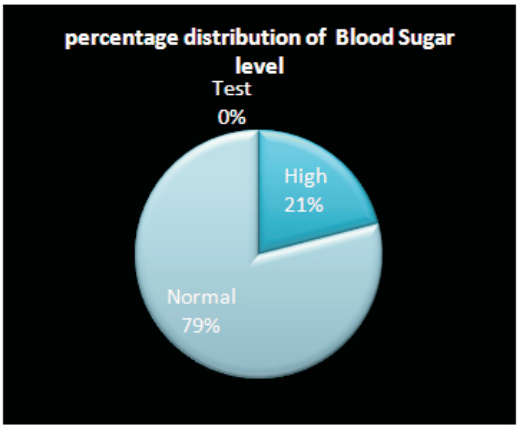
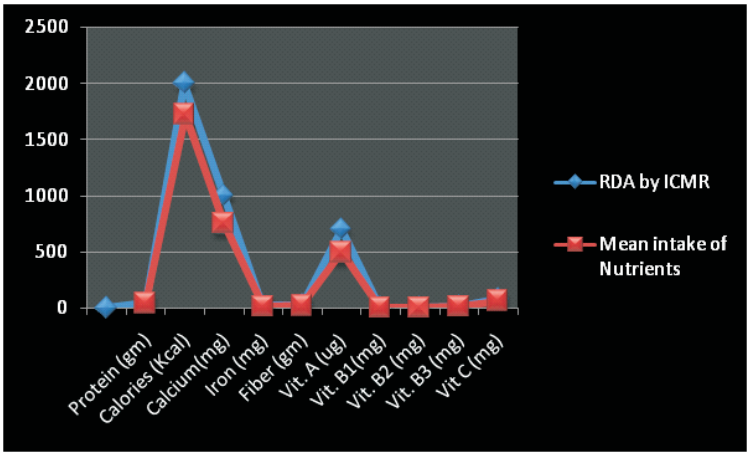


Table No. 11:Mean Nutrient intake of adult women:

Nutrients	RDA by ICMR For Adult women	Mean intake of Nutrients	Mean Difference
Protein (gm)	46	40	6
Calories (Kcal)	2000	1720	280
Calcium(mg)	1000	750	250
Iron (mg)	18	12	6
Fiber (gm)	25	18	7
Vit. A (ug)	700	495	205
Vit. B1(mg)	1.1	0.85	0.25
Vit. B2 (mg)	1.1	0.88	0.22
Vit. B3 (mg)	14	10.1	3.9
Vit C (mg)	75	60	15

The above result shows that the percentage intake of nutrients of urban adult women. Urban adult women were taking all the nutrient nearly equal to ICMR recommended daily allowances. But these samples were taking all nutrients less than as recommended daily allowances by ICMR.It may be due to the lack of knowledge, burden of work,lack of awareness, easy going life makes them difficult to get nutrients from different food stuffs.

Table No.12: Mean Nutrient intake of adult women:



CONCLUSION:

The study concluded that poor awareness about obesity in adult women is the main risk factor for health problems. Therefore it is necessary to take interest & efforts to remove this problem from our society with the help of nutrition education programmes.

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