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RESEARCH ARTICLE

PREVALENCE OF OBESITY AND NUTRITIONAL HABITS AMONG POSTMENOPAUSAL WOMEN.

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Abstract

The current study aimed to determine the prevalence of obesity and nutritional habits among postmenopausal women. 450 postmenopausal women (50-60years) participated in the study from Bangalore urban areas. Data collection comprised an anthropometric analysis including stature, body weight and the body mass index (BMI). For classification of the weight status the Indian BMI cutoffs defined by the WHO for Asian Indians were used. Data concerning dietary patterns and lifestyle parameters were collected by structured interviews using a standardized questionnaire. Obesity grade I among (49%) and grade II (35%) were highly prevalent among study population. Analyzing lifestyle, low level of physical activity was observed and dietary patterns it turned out that energy dense meals were preferred, significantly high intake of fat and sugar was observed where as Intake of vitamin C, iron, calcium, and fiber were significantly lower than recommended allowances. Therefore, urgent steps need to be initiated to promote physical activity and dietary awareness among postmenopausal women to combat obesity.

Introduction:-

Menopause, as a period of a woman's life, is marked by changes in endocrine secretion, which marks the end of her menstrual cycle and fertile years. Menopause represents the end of the reproductive period, the mean age of onset of menopause is about 50 years (Mc Nagny, 1999). This means that an average woman will spend one-third of her life in menopause. Also, menopause can have an impact on the overall quality of life of women as one of the main causes of osteoporosis and cardiovascular diseases (Ossewaarde ME, 2005). Besides these diseases, obesity and high BMI contributes to morbidity and mortality, leading to some forms of cancer and chronic diseases, such as osteoarthritis, liver and kidney diseases, sleep apnea, and depression (Pi-Sunyer, 2009). Women entering menopause unprepared to cope with changes of this period of life and with insufficient knowledge of dietary habits which lead to oversupply or lack of nutrients. A healthy diet should be balanced, safe and protective. There are many sources of stress for women in menopause: changes in physical appearance, fear of aging, weight gain and many others (Salčić, 2010). This can lead to depressive conditions and loss of life energy. This study seeks to determine the dietary habits, food consumption and nutrient intake of postmenopausal women .

Method:-

Four hundred and fifty postmenopausal women between the age 45-60 years were participated in this cross sectional study. Informed consent was taken from the study population. In the evaluation the investigator used a pre coded questionnaire including a full clinical history, socio-economic and personal information, habitual or current drug use, careful recording of principle gynecological events, physical activity, a complete history of weight variations during the subject life. Anthropometric measurements such as Height (in cm.) and weight (in kg.) were recorded and body mass index was calculated.

The food and nutrient intake was assessed by the 24 hour recall method of diet survey. The respondents were asked about the type of foods they had for breakfast, lunch, tea and dinner and the raw ingredients used for each of the preparation. Nutrient intake was computed using the food composition tables-Nutritive value of Indian foods. Results were expressed as mean +SD or as percentage, as suitable. The significance of comparisons was tested using chi-square test as appropriate.

Results and Discussions:-

Personal and socio economic characteristics of respondents:- Mean age of study population was found to be 53.60 years whereas mean age at menopause was 50.67 years, and mean duration since menopause was (MDSM = 2.93 years). Majority of the respondents were in the age group of 53-55 years (68%), between the age group of 50 - 52 years they attained menopause (75%). Higher percentage of study population were graduates and employed as teachers (39%) and (31%) were working in bank, their income was found to be between 40 to 59 thousand rupees per month. Almost equal percentage of the respondents were Hindus, Muslims(38%) and Christians(24%). Majority of the respondents (62%) belong to small family (2-4 family members) and nuclear family trend was observed in seventy percent of study population .

Dietary habits and physical activity of the respondents:- Majority of the respondents were non-vegetarians (64%) and thirty six percent were vegetarians. Higher percentage of respondents were consuming three meals per day, skipping meal was observed among all the respondents, it is noticed breakfast and snack were skipped by majority of respondents. Eating out side food trend was noticed among the respondents and frequency of eating out side food was also found to be very high. Walking and thread mill was the exercise adopted by majority of the respondents (73%) with very less duration < 30 minutes. Forty six percent of the study population indulge in exercise only once in a week.

Table 1:BMI status of the Respondents.

Anthropometric Indices	Category	Respondents	
		Number	Percent
Body mass index (BMI)	Normal (18.5-24.9)	23	5.1
	Over weight (25.0-29.9)	48	10.7
	Obese-I (30.0-34.9)	219	48.7
	Obese-II (35.0-39.9)	160	35.6
Total		450	100.0

Source: WHO (2004) and WHO (2008).

It is clear from the above table that majority of the respondents belong to obese I grade (48%) followed by grade II (35%). These finding are on par with study conducted by Pesquisa de Orçamento Familiar (2010) which revealed that fifty eight percent and sixty three percent of women aged 45–54 and 55–64 years of age, respectively, were overweight, and, of these, twenty two percent and twenty six percent, respectively, were obese .

Table2: Association between BMI and Socio economic status, dietary habits and physical activity of the respondents.

Characteristics	Category	BMI of the Respondents					χ^2 Value
		18.5-23	23.1-24.9	25-29.9	30-40	Total	
Age group (years)	51-52.9	9	17	62	27	115	33.96*
	53-53.9	2	17	96	59	174	
	54-54.9	7	13	51	58	129	
	55-56.9	5	1	10	16	32	
Employment	Not employed	3	14	41	24	82	5.42NS
	Employed	20	34	178	136	368	
Family income per month	20000-39000	1	7	22	22	52	3.47NS
	40000-59000	21	38	188	130	377	
	60000-79000	1	3	9	8	21	
Dietary habits	Vegetarian	3	13	87	59	162	9.91NS
	Non vegetarian	20	35	132	101	288	
Meals consume per day	two	0	0	1	0	1	37.90*
	three	7	20	148	125	300	
	four	16	28	70	35	149	
Do you exercise	No	2	6	11	6	25	5.95NS
	Yes	21	42	208	154	425	
Type of exercise	No exercise	2	6	10	6	24	25.87*
	walking	8	20	95	53	176	
	thread mill	3	6	69	62	140	
	yoga	10	16	45	39	110	
Frequency of your exercise	No exercise	2	6	11	6	25	27.40*
	daily	13	20	80	40	153	
	weekly twice	1	7	37	43	88	
	weekly once	2	5	28	30	65	
	occasionally	5	10	63	41	119	
	Total					450	

* Significant at 5% Level, NS : Non-significant

Table 2 Reveals significant association of BMI with Age of the respondent, A reduction in ovarian hormones at the menopause leads to diverse functional and endocrinological disturbances, among them an increase in body weight and a decrease in basal metabolism, which leads to greater weight gain NAMS (2012) andVasconcellos LS et, al., (2004) . A longitudinal study that investigated the effect of the change in reproductive hormones during the menopause on incident obesity (BMI ≥30 kg/m^2) and severe obesity (BMI ≥35 kg/m^2) demonstrated that a decrease in sex hormone-binding globulin over time was strongly associated with both incident obesity and severe obesity Sutton-Tyrrell K et al., (2010). There is no significant association observed between income, employment and food habits, where as strong relationship was noticed in number of meal intake, type of exercise, and duration of exercise. Studies have suggested that eating patterns, which describes eating frequency, the temporal distribution of eating events across the day, breakfast skipping, and the frequency of eating meals away from home, may be related to obesity (Matthews et. al 2000). The present study also reports that a higher percentage of respondents have the habit of skipping breakfast and consuming outside meals which is in par with the study conducted by (Yunsheng et.al.,2003) who reported that skipping breakfast and having outside meals was associated with increased prevalence of obesity in their study. Majority of the respondent's duration of exercise is less than thirty minutes. The results of the current study were on par with the study conducted by Anjana R M et. al., (2014) which reported that large percentage of people in India are inactive with fewer than ten percent engaging in recreational physical activity.

Table 5: Nutrient Intake of the Respondents.

Nutrients	No of respondents	RDA	Mean and SD	't' Test
Total energy intake K.cals	450	1905	2209.082±44.2650	145.72*
Carbohydrates gms	450	200	287.05±5.263	350.87*
Proteins gms	450	55	55.24±1.15	4.41NS
Total fat intake gms	450	20	57.81±6.356	126.17*
Vitamin C mgs	450	40	35.81±5.561	15.96*
Iron mgs	450	21	15.31±0.477	253.29*
Calcium mgs	450	600	533.18±38.608	36.71*
Fibregms	450	40	37.06±1.477	42.22*

* Significant at 5% Level, NS : Non-significant

Nutrient adequacy in the diet is of paramount importance to physical and mental health. To get an overall picture of nutritional adequacy, the data was analyzed. The summarized data is presented in the above table, which shows nutrient intake of respondents, was significantly higher compare to recommended dietary allowances at 5% level for Macro nutrients such as total energy, carbohydrates and fat, whereas vitamin C, iron, calcium and fiber are lower than recommended dietary allowances. Urbanization, income growth and globalization have lead to dramatic change in Indian diet during the past 40 years. Rajitha (2012) reported a transition from traditional , home- made food to processed food among Indian urban population, these changes are leading to obesity and other health problems.

Table 6:a Frequency of Consumption of Food stuffs of the Respondents.

Sl no	**food stuffs**			**D**	**W2**	**W1**	**Fn**	**M**	**O**	**N**	**T%**
1	**Cereals**	a	Rice/ Wheat	100							100
		b	Ragi / Bajra	36.2	30.2	22.7	6.7	1.6	1.8	0.9	100
		c	Breakfast cereals/ Oats	29.3	19.1	10.7	6.0	1.1	2.0	31.8	100
2	**Pulses and dals**	a	Whole /spilt dals	99.2	0.4	0.4					100
		b	Fermented /sprouted pulses	0.4	20.0	45.3	23.8	9.1	1.3		100
3	**Vege-tables**	a	Green leafy vegetables	1.8	45.3	45.3	6.0	1.3	0.2		100
		b	Other vegetables	9.6	74.0	16.0	0.2	0.2			100
		c	Roots and tubers	3.3	70.0	24.9	0.7	0.7	0.4		100
		d	Salads	10.7	58.0	29.8	0.9	0.7			100
4	**Fruits**	a	Citrus fruits	16.0	51.6	30.2	2.0	0.2			100
		b	Other fruits	5.1	46.2	42.7	5.1	0.2	0.7		100
		c	Dry fruits - walnuts	0.4	1.1	3.6	16.2	30.9	46.4	1.3	100
5	**Milk and its pro ducts**	a	Milk and curds	99.2	0.8						100
		b	Ice cream / milk products			12.6	28.4	18.2	33.6	7.1	100
6	**Meat and fish**	a	Meat		22.4	22.9	10.7	0.9	0.2	42.9	100
		b	Fish		1.8	17.3	19.8	12	6.2	42.9	100
7	**Poultry**	a	Egg	0.7	17.6	32	6.2	0.4	0.2	42.9	100
		b	Chicken	0.2	17.1	32.2	6.7	0.4	0.2	42.9	100
8	**Sugar and jaggery**	a	Sugar /jaggery	87.1						12.9	100
		b	Sweets and chocolates		1.3	15.6	27.6	19.3	23.4	12.9	100

Table -6 b Frequency of Consumption of Food stuffs of the Respondents

SL NO	Food stuffs			D	W2	W1	FN	M	O	N	T%
9	**Fast foods**	a	Pizza and burgers			2	15.1	29.1	44.9	8.9	100
		b	Chats			7.3	34.7	28.2	25.6	4.2	100
10	**Fried Foods**	a	Swallow fried foods			15.5	42.4	22.9	16.2	2.9	100
		b	Deep fried foods		2.2	30.2	36.2	14.7	14	2.7	100
11	**Baked foods**	a	Bread	5.1	38.4	35.8	8.7	3.1	8.2	0.7	100
		b	Biscuits	5.3	53.8	30	2.7	1.3	6.4	0.4	100
		c	cakes			7.8	19.8	22	46.9	3.6	100
12	**Beverages**	a	Fruit juices		6.7	18	28.2	15.1	22.2	9.6	100
		b	Carbonated drinks		2.6	12	17.6	16	34.2	16.6	100
13	**Fats and oils**	a	Vegetable oil	100							100
		b	Butter	24.9	27.8	20.7	5.6	4.2	12.4	4.4	100
		c	Ghee	3.8	19.8	25.1	11.1	11.8	24	4.4	100
		d	Vanaspathi/dalda			4.8	6.7	6.9	44.7	36.9	100
		e	Mayonnaise		3.1	14.4	5.8	5.8	16.4	54.4	100
		f	Peanut butter		4.9	19.1	6.9	2.2	10.9	56	100
		g	Coconut	44.7	46.7	4.2	0.4		4		100
		h	Fish oil						8.2	91.8	100
		i	Olive oil			12.2	10.7		3.6	73.6	100
14	**Health drinks**	a	Commercial drinks	0.2						99.8	100
		b	Soya products		12	55.8	8.7	1.1	0.4	22	100
		c	Other drinks -ragi malt		8	24.9	33.3		8.9	24.9	100

D= Daily, W2=weekly twice, W1 = weekly once, FN= fortnightly, M= monthly, O = occasionally, N = never. T= total .

Table 6 a and b depicts frequency of consumption of different food stuffs by the respondents indicating rice and wheat are taken on daily basis by all the respondents followed by ragi and oats. Daily consumption of split dals is observed in 99% of the respondents, sprouted / fermented dals are consumed on weekly once basis. Use of green leafy vegetables, salads, other vegetables fruits on daily basis is seen in very less percentage of respondents. Use of milk is seen on daily basis, consumption of meat, fish, poultry and egg is seen in weekly basis. According to National Sample Survey Organization (NSSO), meat consumption has increased in India, although it is still relatively low when compared to other developing countries, due to religious concern. (Rajitha, 2012). Occasional consumption of pizza is seen in (45%) of respondents, whereas consumption of chats, deep fried and shallow fried food items is observed in weekly basis. Bakery products are consumed on daily and weekly twice basis, use of butter is seen on daily basis in (25%) of respondents. Coconut is consumed by forty four percent of respondents on daily basis. Use of soya products is observed on weekly basis.

Summery and conclusion:-

This study indicated that, in an urban population of Bangalore Postmenopausal women, overweight and abdominal obesity were associated with Age, a lack of Physical activity and inadequate dietary intake. To our knowledge, this is one of the few population-based studies with the objective of investigating the factors related to obesity in postmenopausal women. These results may have important implications for women's health, since overweight and abdominal obesity can lead to the development of chronic diseases, including cardiovascular diseases, and significantly increase the costs of hospitalization. However, factors that operated prior to the onset of menopause should be studied and evaluated, including nutritional state, eating habits, and depression. Further analyses are needed to evaluate these points, ideally through longitudinal prospective studies.

References:-

1. Anjana, R M and Pradeepa, R and Das, A K and Deepa, M and Bhansali, A and Joshi, S R and Joshi, PP and Dhandhania (2014), Physical activity and inactivity patterns of India. International journal of Behavioral Nutrition and physical Activity, 11(1).p.26.ISSN 1479-5868.
2. BRASIL. Ministerio do Planejamento, Orcamento e Gestao. Pesquisa de OrcamentosFamiliares 2008–2009. Antropometria e estadonutricional de criancas, adolescentes e adultos no Brasil. Ministério da saúde. 2010, Rio de Janeiro: Ministerio do planejamento, orcamento e gestao, Available from http://www.ibge.com.br/home/ estatistica/populacao/condicaodevida/pof/2008_2009_encaa/default.shtm
3. McNagny SE. (1999). Prescribing hormone replacement therapy for menopausal. Review of Public Health Vol. 26:115-40
4. Matthews, C. E., Patty, S. Freedson., James, R. Hebert,. (2000) Comparison of physical activity assessment methods in the seasonal variation of blood cholesterol levels study. American journal of Epidemiology. 158(1):85-92
5. NIN. Nutritive value of Indian foods. National Institute of Nutrition.1989.Vol I
6. Ossewaarde ME, Bots ML, Verbeek AL, Peeters PH, van der GraafY,Grobbe DE, et al. (2005). Age at menopause, cause-specific mortality and total life expectancy Ann Intern Med. 19;131 (8):605-16
7. Pi-Sunyer X (2009) The Medical Risks of Obe-sity. Postgrad Med. Nov 121(6): 21–33
8. Rajitha, N. (2012). Diet changes in India over the past 40 years; Implications for the food system, student Organized event Article, MSC Environmental Governance, Freiburg.
9. Salčić S. (2010). Kvalitetaživota u menopauzi. Apotekar 38: 33-35
10. Sutton-Tyrrell K, Zhao X, Santoro N, Lasley B, Sowers M, Johnston J, Mackey R, Matthews K: Reproductive hormones and obesity: 9 years of observation from the study of women's health across the nation. Am J Epidemiol. 2010, 171 (11): 1203-1213. 10.1093/aje/kwq049.
11. Vasconcellos LS, Leite JM, Sabino KR, Petroianu A: Influencia da ooforectomianavariacaoponderalemratasjovens e adultas. Arq Bras EndocrinolMetab. 2004, 48 (2): 299-304
12. WHO Expert consultation (2008). waist circumference and waist-hip ration. Geneva.
13. WHO Expert consultation (2004) Appropriate BMI for Asian population and its implications for policy and intervention strategies. The lancet, 157-163.
14. Yunsheng, Ma., Elizabeth, R. Bertone., Edward, J. Stanek., George, W.Reed., James, R. Hebert., Nancy, L. Cohen., Philip, A Merriam., and Ira, S Ockene, (2003). Association between Eating patterns and Obesity in a Free-living US Adult population. American journal of Epidemiology. 158(1):85-92