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Overweight and Obesity among Women in Karnataka State, India: An association between socio-economic factors and nutritional and health status.

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Abstract

Background: In recent decades overweight or obesity has emerged as a serious health issue among women in developed and developing countries. The aim of this study is to investigate the prevalence of overweight and obese in Karnataka, and to check relationship between Socio-economic background and overweight and obesity among women in the state. BMI status of 248 women aged between 18-45 years of age was analyzed by using anthropometric method. **Results of the study**: The prevalence of overweight and obesity is more in urban areas than in rural area. The risk of overweight and obesity is higher in urbanized districts. Results of the study indicate positive association between socio-economic factors like place of residence (p=0.059), economic status of family (p=0.021), education (p=0.017), and nutritional status of Women.**Conclusion**: India is typically known for high prevalence of under-nutrition, but now a days, overweight or obesity among women is also common. An immediate action is indeed important to fight against this serious health issue among women.

Introduction

Obesity is now a major worldwide health problem and it is a serious problem in people of all ages. Globally, it is estimated that 1.4 billion adults and about 200 million children and adolescents are overweight or obese. Overweight or Obesity is a health condition characterized by an accumulation of excess body fat. The Body Mass Index (BMI), a straightforward tool for monitoring childhood/adults

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obesity is influenced by both the genetic and non-genetic factors[1]. It is associated with serious illnesses such as cardiovascular and respiratory diseases, Type 2 diabetes, and certain kinds of cancer, pre-diabetes, and Type 1 and Type 2 diabetes[2]. To date there has been relatively little studies on this issue in this region. Indeed there is need to conduct work which can explore the relationship between obesity and its determinants.

Women having BMI more than 25 kg/m2 have been considered as overweight or obese. Besides under-nutrition, India has landed in another nutritional problem that is obesity. In the past 10 years, the numbers of obese people have doubled in the country. Experts believe that obesity is the major reason for developing different types of diabetes mellitus.

Objectives of the study

1. To study the prevalence of Overweight and Obesity in Karnataka state and in Mysore district
2. To estimate the association between the socio-economic factors and Nutritional status of Women in Mysore district.

Methodology

Data source

The present study was based on both primary and secondary data and which were collected from various sources. The secondary data was collected from the published documents such as National Family Health Surveys, district level household survey. Primary survey was conducted to collet socio-economic factors, to collect BMI status anthropometric details of sample women were collected and calculated according to the WHO standards.

[1]Fareed M, Afzal M (2014) Evidence of inbreeding depression on height, weight, and body mass index: a population-based child cohort study. Am J Hum Biol 26: 784-795.

[2] US Department of Health and Human Services (2011) Control, CFD and Prevention; National diabetes fact sheet: National estimates and general information on diabetes and prediabetes in the United States.

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Scope of the study

The present Study has focused all 30 districts of Karnataka at macro level. To analyze the association between socio-economic background and nutritional status of women, Mysore district is selected for the collection of primary data at micro level. Mysore District is one of the developed districts in the Karnataka State with significant all round development with historical backgrounds. Therefore, the Mysore district was selected as the sample for the study.

Sampling technique and the sample size

Sample respondents were selected on the basis of random sampling method from the Anganwadi and non-Anganwadi pre-school centres of all Taluks of Mysore district equally. Two-stage random sampling technique was adopted for the selection of women in the district. Five Anganwadis were selected from each Taluk for the study, a total of 35 Anganwadi and 7 nursery schools were selected in study area, out of 35 anganwadis 7 from urban and 28 from rural. Since nurseries are not as common as in urban areas the 7 nursery were taken from urban areas only.

Sample size: The sample consisting of 248 Women of preschool children. Out of this total sample size, 172(69.4%) women were from Rural areas, 76(30.6%) from urban area.

Statistical tools used

In order to analyze rural-urban difference in malnutrition, independent t-test was used. Regression analysis was done to estimate the impact of socio-economic factors on overweight and obese. For the analysis of the primary data, the study made use of statistical tools such as chi-square for the analysis of association between socio-economic background and nutritional status of women. Linear regression analysis was applied to check the effectiveness of different socio-economic factors on overweight and obesity in the study region. All statistical results were obtained by using SPSS.

The burden of Overweight and Obesity in India

According to the National Family Health Survey-4, 20.7% of women were overweight or obese in the country. Most of the developed and urbanized states have the highest proportion of overweight or obese women. Andhra Pradesh, Goa, Tamilnadu, have more than 30 % of their women falling under the obese category. Karnataka, Gujarat and Maharashtra have equal percentage of overweight women. More than 20 % of women in Haryana, Sikkim, Telengana, and West Bengal and Uttarakand are obese. Even the backward States are experiencing overweight and obesity (more than 10 %women in Bihar, Madhya

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Pradesh, Meghalaya, and Tripura). It is also evidenced that the prevalence of obesity doubled in Bihar, Madhya Pradesh, and Meghalaya and in Tripura since the last National Family Health Survey of 2005-06.

The prevalence of Overweight or Obesity in Karnataka State (BMI>25.0 kg/m2)

In 1998-99, 10.6% of women were over weighted or obese in Karnataka State. In 2005-06, it has increased to 14.8%, and in 2015-16 it has rapidly increased to 23.3% by 8.5% percentage point in Karnataka. In ten years of time, obesity has increased by 1% annually. Six out of eight districts in Mysore division, five out of nine in Bangalore divisions, and one district in Belagavi division have recorded more than the state average of 23.3% overweight or obese women. One in four women (25%) in Mysuru division and Bangalore division (24%) are over-weighted or obese. One in five women in Belagavi division (20%) and one in six women in Kalaburgi division are over weighted or obese. The NFHS surveys highlight that urban population is more prone to obesity than their rural counterparts. Bangalore Urban, Mysuru and Dharwad districts are considered well developed cities and majority of the people are living in urban areas. Compared to the other parts of the State. Bangalore Urban has the highest (32%) prevalence of obese women followed by Dharwad (29.4%) and Mysuru district (29.3%). Backward districts like Gadag, Koppala, and Yadgir district have the least prevalence of overweight and this is in contrast with prevalence of overweight or obesity incidence in other parts of the world and urban areas.

BMI status of Women in Mysore district

Nutritional status among women is determined on the basis of body weight or Body Mass Index. A BMI of less than 18.5kg/m2 indicates chronic energy deficiency, or under-nutrition (WHO, 1995). More than one in four (26.6%) women are underweighted or their BMI is below the normal. One in six women was overweighed and one in ten women were obese (Table.2). NFHS-4 survey reveals that 29.1% women were overweight or obese; the present study finds overweight and obese women at 23.43%.

Table.1

BMI status of women in Mysore district

BMI Status	Number of Women	%
Normal	119	48.0

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Underweight	66	26.6
Overweight	44	17.7
Obese	19	7.7
Total	248	100

Source: Primary Data.

Results and discussion

To check the association between socio-economic factors and nutritional and Health status of women the present study conducted a primary survey in Mysuru district of Karnataka state. Nutritional status is measured in terms of BMI. The nutritional status of women has been assessed for the different socio-economic variables such as household socio-economic determinants like type of family, place of residence, religion, community, age, birth order, and education, occupational status and Women's knowledge of nutrition. Chi-squire test was used as the main statistical tool to examine the association between different independent variables. The results have been presented under following heads, Type of family and nutritional status of women; place of residence and nutritional status of women; BMI status and religion; community and BMI status of women; occupation of women and nutritional status; economic status of family and nutritional status of women; education of women and nutritional status of women; marriage age and nutritional status of women.

Place of Residence and Nutritional Status

Generally, urban areas have better living conditions than rural areas and hence overweight or obesity in women is assumed to be higher than that of rural women. Housing environment and Food habits are varies in urban areas than rural areas. According to DLHS-4 survey, urban areas in the district have better socio-economic condition than rural areas. Most of the studies done in both national as well as international level shows overweight and obesity is most prevalent in urban areas. Table 2 reveals that nearly 44% of urban women are overweighed or obese as against 19% in rural areas. Overweight or obese is more prevalent in urban areas, Women in rural areas also experiencing overweight and obesity, but it is marginally higher in urban Women. However, it is found that there is marginally significant association with regard to place of residence and BMI status of Women at 5% significance level.

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Table.2

Place of residence and nutritional status

Place of Residence	Underweight	Normal	Overweight	Obese	Total	χ2
Rural	46(26.74%)	88(50.58%)	11(6.39)	8(4.65%)	172	χ2=7.456
Urban	20(26.31%)	32(42%)	33(43.42%)	11(14.47%)	76	df = 3
Total	66(26.61%)	119(47.58%)	44(49.81%)	19(7.66%)	248	p=0.059**

Note: **5significance at 5% level.

BMI Status and Religion and Community

The viewpoint of overweight and obesity reveals no significant association between religion and overweight and obesity. Overweight and obese is higher among Muslim women than Hindu women. Nearly 51% of OBC and other women are characterized by normal status, as compared to 47% SC women, and 43% ST women. Overweight and obese is equally spread among all the communities; Chi square test result reveals that there is no significant association between nutritional status and Religion or community.

Occupation of Women and Nutritional Status

The prevalence of overweight and obesity is highest among housewives, than Women working as agriculture labourers. Women having been employed in Govt and private sectors are better as more than half of them are in normal states; it implies that overweight and obese have

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inverse relationship with education and awareness. Result shows that there is no significant association between occupation of Women and their nutritional status.

Economic Status of Family and Nutritional Status of Women

It is clearly evident from the data shown in Table.3 that majority of underweighted women belong to BPL families, overweight and obese women are APL families. Hence it is concluded that there is a significant association between family economic status and nutritional status of Women and significant at 5% level (p=value of 0.021).

Table.3

Economic Status and Nutritional Status

Living status of family	Underweight	Normal	Overweight	Obesity	Total	
APL Families	9(22.5%)	24(57.5%)	6(15%)	7(17.5%)	40	$\chi 2$=14.861
BPL Families	57(28.64%)	96(48.24%)	38(19%)	12(6%)	199	Df.6
Total	66(26.61%)	119(47.58%)	44(17.74%)	19(7.66%)	248	p=0.021**

Note: **significant at 5% level.

Education of Women and Nutritional Status of Women

Several studies made during the past three decades prove that maternal education is an important determinant of the nutritional status of preschool children. Table 4 indicates that as the education level of Women increases, the prevalence of overweight and obese increases. The Chi square test result reveals that there is a significant (p-value of .017) association between education level and nutritional status of Women and this is significant at 5% level.

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Table 4

Education of Women and Nutritional Status

Education level	Underweight	Normal	Overweight	Obese	χ2 Test
Degree	5(13.51%)	17(43.24%)	14(37.83%)	2(5.40%)	
PUC	7(15.90%)	26(59%)	8(18.18%)	3(6.8%)	
Secondary	26(29.21%)	46(51.68%)	13(14.60%)	4(4.49%)	χ2=24.531
Primary	24(37.5%)	26(40.62%)	5(7.81%)	9(14%)	Df.12
Illiteracy	4(28.57%)	5(35.71%)	4(8.57%)	1(7.14%)	P=0.017**
	66(26.61%)	119(47.58%)	44(17.74%)	19(7.66%)	

Note: **significance at 5% level.

Results of the study indicate positive association between socio-economic factors like place of residence, economic status of family, education and nutritional status of Women.

Socio-Economic background and Nutritional Status: Analysis of Linear Regression

To analyze the effect of socio-economic background on nutritional and health status of women, the socio-economic variables such as place of residence, religion, caste, family size, women's educational level, marriage age of mothers are used.

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Table 5

Results of Regression Analysis of Women's Nutritional Status

Selected variables	Unstandardized Coefficients		T	Sig.	Inferential Statistic
	B	Std. Error			
(Constant)	2.187	.471	4.642	.000	
Place of Residence	.269	.101	2.669	.008***	
Religion of women	-.143	.116	-1.232	0.219	
Caste of women	-.058	.055	-1.052	0.294	
Family Income	.209	.074	2.830	0.003***	F= 2.579
Size of Family	-.041	.067	-.616	0.538	p-value = .004
Married Age of Women	-.082	.063	-1.295	0.196	R^2 = 0.043
Number of Children	.023	.084	.268	0.788	
Occupation of Women	-.026	.056	-.459	0.646	
Education of Women	-.083	.043	-1.920	0.032**	
Type of Family	.128	.091	1.401	0.082*	

Note: ***1%, **5%, *10% significance.

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Summary of the results of Linear Regression (Table 5) shows the impact or influence of socio-economic factors on nutritional status of women in Mysore district. The whole regression model with F value of 2.579 is statistically significant at 1 % level of significance (p=0.00). Of the independent variables considered to have the impact on nutritional status of women, place of residence (1%), family income (1%) and education of Women (5%) and Type of Family (10%) have significant impact on women's nutritional status. Family income and place of residence are statistically significant at 1 % level of significance. On the other hand, education of Women is significant at 5 % level of significance. Family income is significant with coefficient value of 0.209 which means 1 % increase in family income will improve nutrition of women by 0.209 %. Similarly, place of residence has coefficient value of 0.269, which implies that place of residence improves nutrition of women by 26.9 %. Further education of Women as presumed has significant impact on nutritional status of women by coefficient value of 0.083. It is because more educated women will have more knowledge on balanced diet and will have more decision making power in terms of consumption of food, supplementary food and medical care.

Conclusion: India is typically known for high prevalence of under-nutrition, but now a days, overweight or obesity among women is also common. This trend is also seen in Karnataka, overweight and obesity is more prevalent in urbanized and developed districts in the state. Results of the study reveals a significant association between socio-economic factors like place of residence (urban /rural), economic status of family, educational level, and nutritional status of Women.

Reference:

1. Agrawal, P. (2005) Role of lifestyle and diet in emerging obesity among Indian women and its impact upon their health status.In *Paper for the oral presentation in the IUSSP XXV International Population Conference Tours, France* (pp1-33).
2. Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., De Onis, M., ... & Uauy, R. (2013). Maternal and child undernutritin and overweight in low-income and middle-income countries. *The lancet*, *382*(9890), 427-451.
3. Choudhury, K. K., Hanifi, M. A., Rasheed, S.,& Bhuiya, A. (2000) Gender inequality and severe malnutrition among children in a remote rural area of Bangladesh. *Journal of Health, Population and Nutrition*, 123-130.
4. Ene-Obong, H. N., Enugu, G. I., & Uwaegbute, A. C. (2001) Determinants of health and nutritional status of rural Nigerian women. *Journal of Health, Population and Nutrition*, 320-330.
5. Frost, M. B., Forste, R., & Haas, D. W. (2005). Maternal education and child nutritional status in Bolivia: finding the links. *Social science & medicine*, *60*(2), 395-407.
6. Haddad, L. (1999). Women's status: levels, determinants, consequences for malnutrition, interventions, and policy.

Received: 5 April Revised: 13 April Accepted: 22 April
Index in Cosmos
May 2018 Volume 8 Number 5
UGC APPROVED

7. Jayant, D., Purushottam, A., Deepak, B., Vaishali, D., Piyush, K., & MM Aarif, S. (2010). Socio-cultural practices in relation to breastfeeding, weaning and child rearing among Indian mothers and assessment of nutritional status of children under five in rural India. *Australasian Medical Journal*, *3*(9).
8. Fleming, N.M., T., Robinson, M., Thomson, B., Graetz, N., Margono, C.& Abraham, J. P. (2014). Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*, *384*(9945), 766-781.
9. Payghan, B. S., Kadam, S. S., & Reddy, R. M. (2014). A comparative study of nutritional awareness among urban-rural pregnant mothers. *Res Rev J Med Health Sci*, *3*, 95-9.
10. Pradeepa, R., Anjana, R. M., Joshi, S. R., Bhansali, A., Deepa, M., Joshi, P. P.& Subashini, R. (2015). Prevalence of generalized & abdominal obesity in urban & rural India-the ICMR-INDIAB Study (Phase-I)[ICMR-INDIAB-3]. *Indian Journal of Medical Research*, *142*(2), 139.
11. Ramesh, P. (2006). *Malnutrition Among Women in Kerala: An Analysis of Trends, Differentials, and Determinants*. Gokhale Institute of Politics and Economics.
12. Reading, R. (2008). Maternal and child undernutritin 3: what works? Interventions for maternal and child undernutritin and survival. *Child: Care, Health and Development*, *34*(3), 404-405.
13. Subramanian, S. V., & Smith, G. D. (2006). Patterns, distribution, and determinants of under- and over nutrition: a population-based study of women in India. *The American journal of clinical nutrition*, *84*(3), 633-640.
14. Wasnik, V., Rao, B. S., & Rao, D (2012) A study of the health status of early adolescent girls residing in social welfare hostels in Vizianagaram district of Andhra Pradesh State, India. *International Journal of Collaborative Research on Internal Medicine and Public Health*, *4*(1), 71-83.

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