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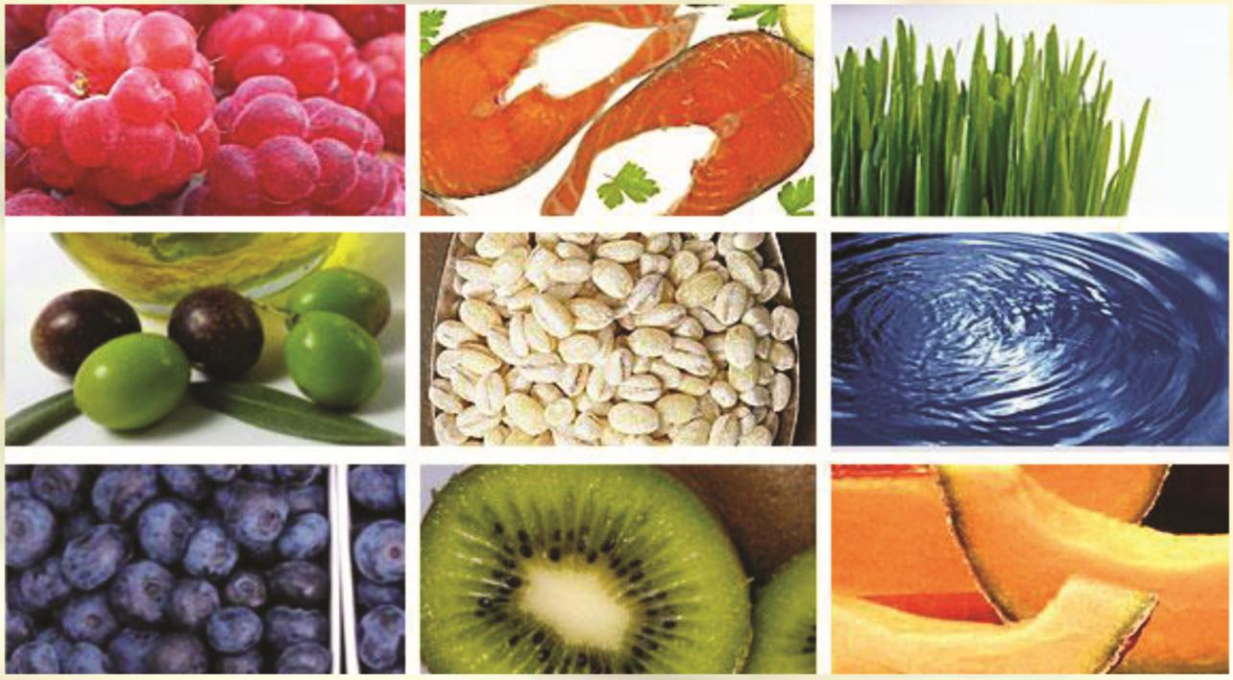

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NUTRITIONAL STATUS OF WOMEN LIVING IN SLUMS OF ALLAHABAD CITY, UTTAR PRADESH, INDIA

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ABSTRACT

Slum women never reach their full growth potential due to nutritional deprivation. Malnutrition is related to poverty, lack of awareness and illiteracy. Objectives: To assess nutritional status of women living in slums of Allahabad Methods: Study designs- Cross-sectional epidemiological study; Settings and participants - Fifteen slums of Allahabad city and women of 15-49 years; Study period-October, 2011 to March, 2012; Sample size - 810 slum women; Sampling technique-Cluster sampling; Study variables-weight, height, Body mass index (BMI) , hemoglobin level and dental caries, Vit-A deficiency, goiter; Statistical analysis- Stata SE -11 used, Results: Mean weight, height, BMI and Hemoglobin were 46.29 kg,147.28cm,21.24 and 10.02gm% respectively ; Out of 810 slum women, 31.7% having Chronic Energy Deficiency of varying degree;71.2% having anemia,43.1% having moderate anemia, prevalence of anemia was high in married women, this is statistically significant (X^2 =9.78,d.f=3,p=0.021); weight and hemoglobin level is correlated (r=0.100),correlation is significant at 0.01 level; height and hemoglobin level is correlated(r=0.147), correlation is significant at 0.01 level; most of them who were anemic found to be vegetarian(67.76%) ; 30.1 percent slum women having dental caries; there were no case of Vitamin –A deficiency and Goitre. Conclusions: Malnutrition and nutritional anemia are major health problems of slum women along with dental caries. Weight and height are correlated to anemia and vegetarian diet is more responsible for anemia.

Key words: Body mass index, thinness, anemia, dental caries, and dietary habits.

INTRODUCTION

Eliminating hunger and malnutrition is one of the most fundamental challenges facing humanity, Raj, 2008 and Lomborg, 2004. The urban population is rapidly expanding because of large scale migration to cities for a possible better life. The cities and towns are also expanding but sheer volume of people compromises the ability of the city to meet their basic needs. A large proportion of this migrating population ends up residing in slums in inhuman conditions. As a result, urban poverty and hunger are increasing in many developing countries, Shanti, 2004. It is projected that more than half of the Indian population will live in urban areas by 2020 and nearly one third of this urban population will be slum dwellers, Shukla, 2010 and Gopalan, 20003. An urban slum poses special health problems due to poverty overcrowding, unhygienic surroundings and lack of an organized health Infrastructure. Urbanization is rapidly spreading throughout the developing world resulting in changing proportion of urban to rural population. In 1988 for the first time the percentage of urban poor surpassed the rural poor. The urban poor are at the interface between under development and industrialization. Urban health in the slums presents serious public health concerns and challenges predominant among them. Another major problem in urban slums is that unlike its rural counterpart there is no envisaged Primary Health Center with its planned network. In urban slum, multiple health authorities administer health services. Unfortunately, these services are not of services effectively organized, resulting in duplication in some areas and non-existence of health services in other areas. The present study was carried out with the objective to know the nutritional status of women living in slums of Allahabad city, Uttar Pradesh.

MATERIAL & METHODS

A Cross-sectional epidemiological study was carried out in fifteen slums of Allahabad city namely Malakraj, Dharkar Basti, Baihrana Hauli wali Gali,Naya Baihrana, Allahpur Naya Gaon, Bank Road Katra, Fakeerganj Katra,Bakshi Khurd Daragunj,Phulvania road Daragunj, Minto road Kydgunj, Purvaldi Kydgunj, Naya Purva Karaili, Ballua Basti Nurullah road, Dhareriya Allengunj and Mumfordgunj Naya Purva .The participants were women of 15-49 years (Non pregnant). The study period was from October, 2011 to March, 2012. A sample size of 810 was calculated, in accordance with the prevalence of anemia found 50% in the previous study, Shukla,2010; so applying $n= t^2 x p (1-p)/m2$, Lwanga, 1991; where n is the required sample, t confidence level at 95% (standard value of 1.96), p estimated prevalence of anemia in previous study, m margin of error at 5% (standard value of 0.05). Considering the design effect to 2 and contingency 5% the sample size comes out to be 810. The cluster sampling technique was used. The Allahabad slums which is registered under by DUDA (District Urban Development Authority) are 185, out of these slums, those which were present in Allahabad city, divided into 15 clusters, one slum was randomly selected from each cluster and 54 women were studied from each selected slum. The door to door survey was carried out and pre-tested close ended questionnaire were filled and examination of individual was done after taking informed consent. Height and weight were measured by using standard procedures suggested by, Jellife, 1966. Weight was measured by digital scales to within 100grams, using light clothing, after light food in bare feet. Height was measured by stadiometer to within 0.1centimeter. Hemoglobin level was measured by Hemokwik haemoglobin colour scale made by Kruise Pathline Private limited, Ahmedabad, Gujrat, India. The kit contain haemoglobin colour scale strip; which is a special absorbent test strip and a booklet containing a set of six shades of red ; by matching the colour of a drop of blood (fresh capillary blood) on a test strip with one of the shades of red the hemoglobin level has been estimated . The data was collected and compiled. The Statistical analysis was done with the help of Stata SE-11. The study was carried out after local ethical committee clearance.

RESULTS

There were 810 women in the study; the mean weight, height; BMI and hemoglobin were found to be 46.29 kg, 147.28cm, 21.24 and 10.02gm% respectively. 31.7% having malnutrition/ thinness/ Chronic Energy Deficiency of varying grades i.e. severe thinness 10% (BMI<16.00) moderate thinness 7.5% (BMI 16.00-16.99) and mild thinness 14.2% (BMI 17.00-18.49), 14.8% were Pre-obese(BMI 25.00-29.99),3.1% obesity stage-I(BMI 30.00-34.99) and 1.6% obesity stage-II(35.00-39.99), "Table-1". The prevalence of anemia was found to be 71.2% and moderate anemia was 43.1%, "Table-1".

Table 1: Distribution of slum women according to their level of malnutrition and anemia in Allahabad

Level of malnutrition		Frequency	Percent	Valid Percent	Cumulative Percent
1.	<16.00 (severe thinness)	81	10.0	10.0	10.0
2.	16.00-16.99 (Moderate thinness)	61	7.5	7.5	17.5
3.	17.00-18.49 (Mild thinness)	115	14.2	14.2	31.7
4.	18.50-24.99 (Normal range)	395	48.8	48.8	80.5
5.	25.00-29.99 (Pre-obese)	120	14.8	14.8	95.3
6.	30.00-34.99 (Obese-I)	25	3.1	3.1	98.4
7.	35.00-39.99 (obese-II)	13	1.6	1.6	100.0
8.	Total	810	100.0	100.0	
Anemia level (Hb gm%)		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
1.	>12 (Normal)	233	28.8	28.8	28.8
2.	10-12 (Mild)	222	27.4	27.4	56.2
3.	7-10 (Moderate)	349	43.1	43.1	99.3
4.	<7 (Severe)	6	.7	.7	100.0
Total		**810**	**100.0**	**100.0**	

Weight and Height were positively correlated to hemoglobin level; weight and hemoglobin level is correlated (r=0.1000), correlation is significant at 0.01 level (2-tailed); height and hemoglobin correlated (r=0.1477), correlation is significant at 0.01 level (2-tailed).Age is the limiting factor in this correlation. Prevalence of thinness is high in unmarried slum women,50.7% as compare to married 26.76%,and this difference is statistically highly significant,(X^2 =18.557, df=1, p=0.00002) "Figure-1" but anemia was highly prevalent among married women, 72.3% as compare to unmarried 66.2%, this difference is statistically significant, (X^2 =9.78,df=3,p=0.021) "Figure-2".

Fig:-1.Distribution of slum women of 15-49 years of age according to thinness (BMI<18.5) and marital status

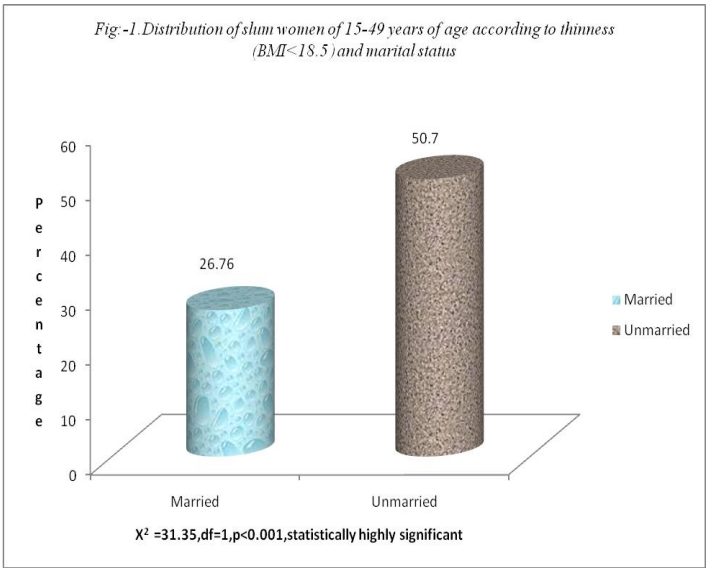
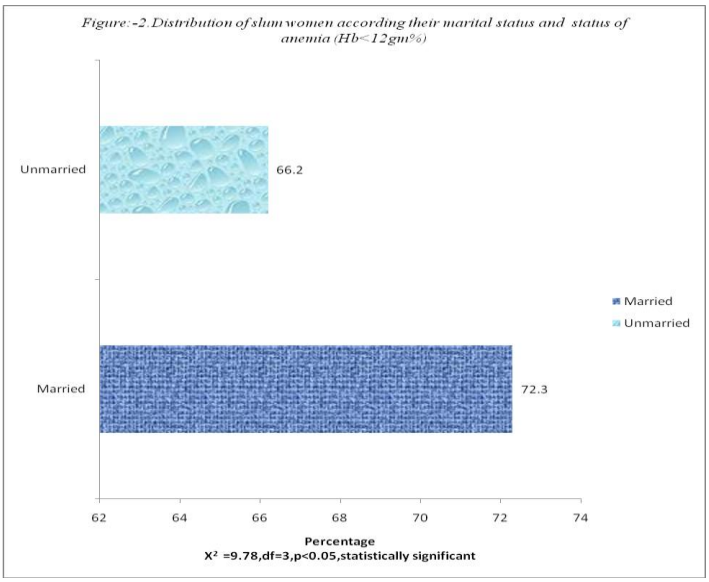


Figure:-2.Distribution of slum women according their marital status and status of anemia (Hb<12gm%)



In this study it has been found that slum women who were anemic ,67.76% were vegetarian and 32.23% non-vegetarian or mixed, this difference is statistically highly significant, (X^2 = 77.577, df=1, p=0.0000), "Figure-3" .

Figure:-3. Distribution of anemic slum women according to their dietary habits

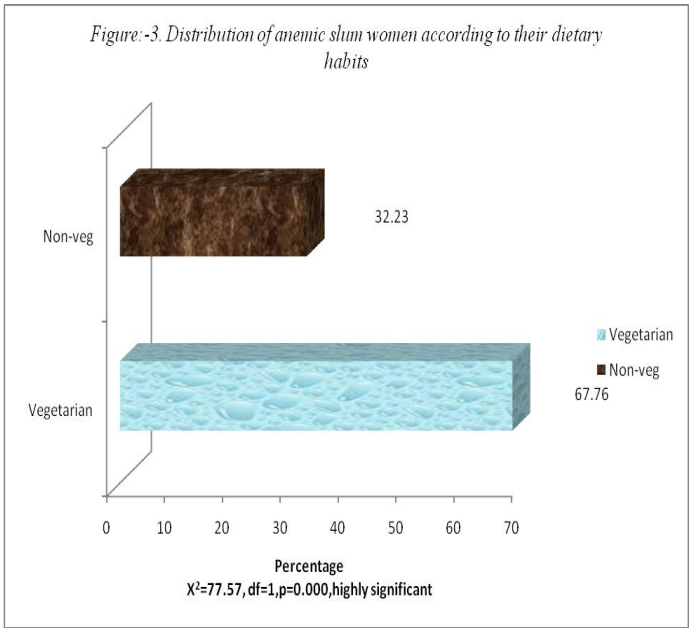
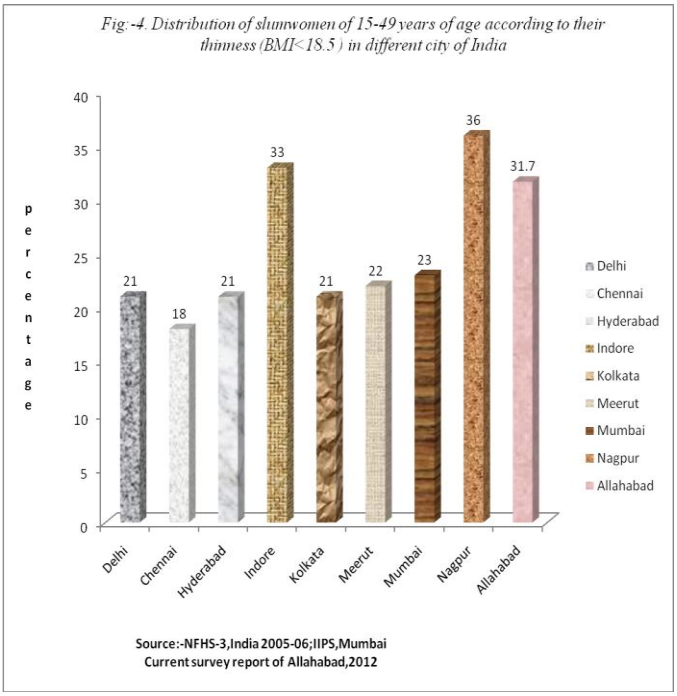
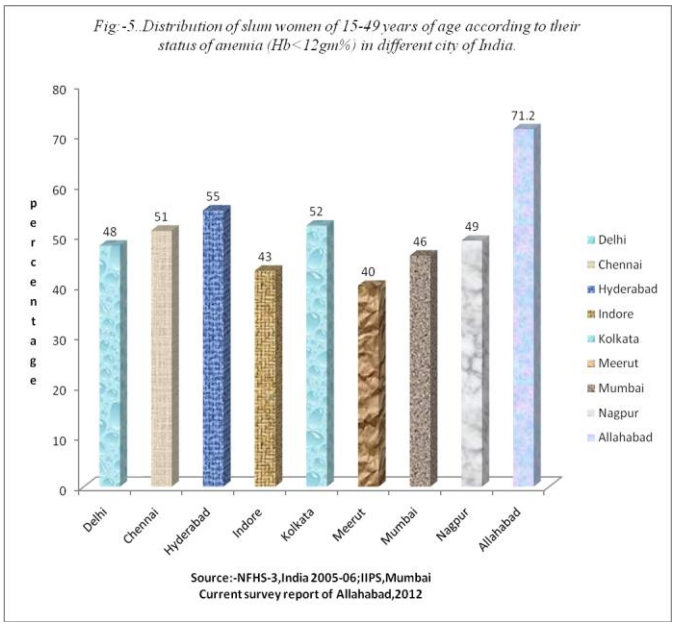


Fig:-4. Distribution of slumwomen of 15-49 years of age according to their thinness (BMI<18.5) in different city of India





There were no case of Vitamin –A deficiency and Goitre. 30.1 percent slum women were having dental caries.

Discussions

The present study found that the Chronic Energy Deficiency (CED) and anemia is important nutritional problem among slum women. The prevalence of Chronic energy deficiency or thinness were found to be 31.7% can be compared many studies , Haider *et al*; 2004, found 27.1%, Nutrition Surveillance Programme,2005,32% and Arnold *et al* ; 2009,33% in Indoor and 36% in Nagpur,

"Fig:-4"; The mean hemoglobin level was 10.02gm%, this is comparable to other studies, Singh *et al* ; 2006 and Mehta,1998; in which they found 10gm%,and 10.6gm% respectively. In this study prevalence of anemia (Hb<12gm%) were 71.2% and moderate(Hb7-10 gm%) 43.1%.The prevalence is high as compare to other city slums area of the country, "Fig:-5". WHO/UNICEF, 1996; has suggested that the problem of anemia is very high magnitude in a community when prevalence rate exceeds 40%. The findings of present study can compared with many studies, Kotecha *et al*;2000,Chaturvedi et al ;1996, Kaur *et.al*; 2006 and Agarwal,1998; in which they found prevalence of anemia 74.7%, 73.7%.60%, 59.8% and 47.6% respectively. In the present study this has been found that who were anemic, 67.76% were vegetarian and 32.23% non-vegetarian or mixed can be compared with other studies,Kaur *et.al*;2006,Verma et al;1998 and Goel,2007; in which they found that who were anemic, 59.5% vegetarian, and 40.5% non-vegetarian, 65.9% vegetarian and 34.1% non-vegetarian,85.3% vegetarian and 14.7% non-vegetarian respectively.

CONCLUSIONS AND RECOMMENDATIONS

Prevalence of thinness (BMI<18.5) is high (31.7 percent) in slum women; prevalence of anemia among slum women is very high (71.2 percent); prevalence of anemia in married women is high but reverse is true for thinness which is more in unmarried women; dietary habit do affect the anemia status, vegetarian are more prone to have anemia and dental caries is more prevalent in slums women. It is observed that malnutrition and nutritional anemia are major health problems and therefore, an appropriate nutrition intervention package to improve the nutrition situation of the slum communities is recommended.

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REFERENCES

- Agarwal, KN; 1998.Assessment of prevalence of anemia and iron stores in response to daily /weekly iron – folate supplementation in adolescent girls from urban slums of North East Delhi, UNICEF contract no.95/0075.
- Arnold, F; Parasuraman, S; Arokiasamy, P; Kothari, M; 2009. Nutritional status of women and men 15-49 years by city and slum / non-slum area. Nutrition in India: 47.
- Chaturvedi ,S; Kapil, U; Gnanasekaran, N; Sachdev, HPS; Pandey, RM; Bhanti, T; 1996. Nutrient intake amongst girls belonging to poor socio-economic group of rural area of Rajasthan. Indian Pediatrics, 33:197-202.
- Goel, S; Gupta, BP; 2007. Low anemia prevalence among adolescents of an urban hilly community. Indian Journal of Community Medicine, 32(1):67-68.
- Gopalan, C; 2003.The Urban Challenge-Health/Nutrition Implications. *In:* NFI-Archives. Available from: URL: http://www.nutrition foundationof India. orgi ARCHIVES/ APR92 A. HTM.
- Haider, J; Muroki, NM; Omwega, AM; Ayan, G; 2004, Malnutrition and iron deficiency in lactating women in urban slum communities from Addis Abba, Ethiopia, Ethiopian Health and Nutrition Research Institute, PO Box 5654,Addis Ababa, Ethiopia
- Jellife, BD; 1996. The assessment of nutritional status of the community ,Geneva, World Health Organization, 63-78
- Kaur, S; Deshmukh, PR; Garg, BS; 2006. Epidemiological correlates of nutritional anemia in adolescent girls of rural Wardha. Indian Journal of Community Medicine 31(4):255-58.

- Kotecha , PV; Patel, RZ; Nirupam, S ; 2000. Prevalence of anemia among adolescent school girls, Vadodara district, Vadodara, Government Medical College, Vadodara.
- Lomborg; 2004.Global crisis, Global solutions Cambridge : Cambridge University Press
- Lwanga, SK; Lemeshow, S; 1991. Sample size determination in health studies. A practical Manual, World Health Organization: 27.
- Mehta, M; 1998. Effectiveness of daily & weekly iron and folic acid supplementation in anemic adolescent girl's .Research project in Bombay urban, UNICEF funded ICDS project final report: 21-25.
- Nutrition Surveillance Programme ; 2005. Helen Keller International /Institute of Public Health and Nutrition
- Raj, K; 2008. Malnutrition in women, Stud. Home Comm, Sci , 2(1):7-10.
- Shanti, G; Dheeraj, S; 2004. Nutritional problems in urban slum children, Indian Pediatrics –Enviromental Health Project Special Articles Series, Indian Pediatrics , 41:682-696.
- Shukla, A; Sardesh, PN; 2010. Malnutrion high in slums, 50% women anemic report Indian Express Mumbai,dated 5th Feb.
- Singh, J; Singh, JV; Srivastava, AK; Suryakant; 2006. Health status of Adolescent girls in slums of Lucknow. Indian Journal of Community Medicine, 31(2):102-3.
- Verma, M; Chhatwal, J; Kaur, G; 1998. Prevalence of anemia among urban school children of Punjab. Indian Pediatrics 35(12):1181-86.
- WHO/UNICEF; 1996. Indicators for assessing iron deficiency and strategies for its prevention, Draft based on a WHO/UNICEF consultation, World Health Organization, Geneva.