



Prevalence of chronic energy deficiency and socio demographic profile of women in slums of Amritsar city, Punjab, India

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Abstract:

Introduction: Slum population, ranked among the neediest and ironically, the most underserved group in terms of health care has the worst dietary and nutritional profile. Women of reproductive age residing in slums are especially vulnerable to malnutrition because of social and biological reasons. Hence, the present study was conducted to assess the prevalence of chronic energy deficiency and its socio-demographic correlates among women in various slum areas of Amritsar city.

Material and Methods: A total of 30 clusters of 7 units each were taken to make a sample of 210 units. The women who had delivered within one year before the interview were taken as study units. They were interviewed with the help of a pretested proforma Body Mass Index was used to assess the nutritional status of women. Regression analysis was applied to evaluate the effect of various socio-demographic factors on chronic energy deficiency. **Results:** On bivariate analysis nativity, socio-economic status, literacy, and contact with health worker were the statistically significant factors affecting chronic energy deficiency among women. But, multivariate regression analysis identified only literacy of the women (OR=0.31, CI= 0.11 to 0.83, p= 0.03) as significant factor affecting the nutritional status of women. **Conclusion:** Literacy of women is the only statistically significant factor determining the prevalence of chronic energy deficiency. Therefore, the overall educational status of women should be improved to have better nutritional health.

Key words: Chronic energy deficiency; Literacy; Socio-demographic factors; Slums; Urban

Introduction

All over the world, more people lose their lives to hunger than AIDS, malaria and tuberculosis combined. Globally, 842 million people or around one in eighth all over the world are chronically

undernourished. Asia has the largest number of hungry people though total number of undernourished has fallen by 17% since 1990-92 [1]. This is compounded by the explosive increase in urban population without the requisite economic and

social infrastructure resulting in the formation of big and small slums. As a consequence, urban poverty and hunger are increasing in some developing countries [2]. In India, slum population constitutes 15% of the total urban population of the country and 22.6% of the urban population of the areas reports slums [3]. Ranked among the neediest and ironically, the most underserved group in terms of health care, slum population has the worst dietary and nutritional profiles. National Family Health Survey 3 has also shown that in every city, poor women and men are much more likely to be abnormally thin than non-poor women and men. At least one out of four poor women and men are undernourished. For social and biological reasons, women of reproductive age are amongst the most vulnerable to malnutrition. Increased perinatal and neonatal mortality, a higher risk of low birth weight babies, still births and miscarriage are some of the consequences of malnutrition in women [4]. Nutritional evaluation of reproductive age group women thus reflects not only their own nutritional status, but is also an indirect reflection of the health and well-being of children [5]. Optimal nutrition is of paramount importance for the development of a healthy adult having optimum working capacity and normal reproductive performance. Whenever long term inadequate food consumption which is unable to meet the daily energy requirements occurs, it results in thinness in adults leading to chronic energy deficiency. Pregnant and lactating women are worst affected [6]. The present study was conducted to study the prevalence of chronic energy deficiency and sociodemographic profile of women residing in slums of Amritsar.

Material and Methods

A cross-sectional epidemiological study was carried out in slum areas of Amritsar city. According to records available from Civil Surgeon Office Amritsar, there are 108 pockets of slum areas. By adopting cluster sampling technique, 30 clusters of 7 units each were taken making a total sample of 210 study units. The women who had delivered within one year at the time of interview were taken as study units. They were interviewed with the help of a pre-designed, pre-tested proforma. Modified Udai Pareek Scale [7] was used to study socio-economic status. The height and weight of study subjects were measured by using standard procedures. The height was recorded with the women standing erect and bare feet on the floor against the wall, with feet parallel and buttocks, shoulders and back of head touching the wall. Then a scale was put on the top of

their heads across the wall and height was measured in centimetres (cms) up to nearest of 0.1cm. For measuring weight, a standard stand on digital scale was used. It was regularly standardized by putting a known weight over it. The women were made to stand on machine without shoes and minimum clothes at the centre of the platform without touching anything and weight was recorded. Body Mass Index (BMI) was calculated by dividing weight in kilograms by square of height in meters and subjects were classified as per WHO criteria [5]:

Classification	BMI
Overweight	≥ 25.00
Normal weight	18.50 – 24.9
Chronic Energy Deficiency (CED)	< 18.50
CED Grade I	17.0- 18.4
CED Grade II	16.0- 16.9
CED Grade III	<16.0

The data was compiled and analysed by using SPSS 17.0 version for windows. Various socio-demographic factors were studied for chronic energy deficiency by applying bivariate regression. The factor found to be significant were evaluated further by applying multivariate logistic regression analysis and Odds Ratios (ORs) with 95% confidence interval were generated.

Exclusion criteria:

1. Women not willing to participate.
2. Pregnant women
3. Women suffering from any chronic illness

Results

Table 1: Distribution of women according to their socio-demographic characteristics

Parameters	No.	Percentage	
Nativity	Native	94	44.8
	Migrant	116	55.2
Caste	Lower Caste	144	68.6
	Upper caste	66	31.4
Type of family	Nuclear	107	50.9
	Joint	103	49.1
Socio-economic status*	Upper	12	05.7
	Upper middle	42	20.0
	Lower middle	85	40.5
	Lower	71	33.8
Age	<25	147	70.0
	≥ 25	63	30.0
Parity	≤2	131	62.4
	>2	79	37.6
Literacy	Literate	78	37.5
	Illiterate	132	62.5
Contact with health worker	Yes	134	63.8
	No	76	36.2

The above table shows socio-demographic characteristics of study subjects.

Table -2: Distribution of women according to their nutritional status

Nutritional status (BMI)	Number	Percentage	
Overweight (≥ 25)	23	11.1	
Normal (18.5 – 24.9)	142	67.6	
CED (< 18.5)	Grade I	29	13.8
	Grade II	10	04.7
	Grade III	06	02.8

Table 2 shows that 21.3% of women were suffering from chronic energy deficiency, 67.6% were normal and 11.1% were overweight.

Table 3: Bivariate regression analysis of chronic energy deficiency in relation to various socio-demo-graphic characteristics

Parameter		CED		OR (CI) †	p-value
		Yes n=45	No n=165		
Nativity	Native (94)	14	80	0.5 (0.2-0.9)	0.04
	Migrant (116)	31	85		
Caste	Lower Caste (144)	30	114	1.1(0.55-2.25)	0.75
	Upper Caste (66)	15	51		
Type of family	Joint (107)	21	86	0.8(0.4-1.6)	0.51
	Nuclear (103)	24	79		
SES*	Upper (54)	03	51	0.1(0.04-0.53)	0.003
	Lower (156)	42	114		
Literacy	Literate (79)	06	73	0.2 (0.08-0.5)	0.000
	Illiterate (131)	39	92		
Occupation	Housewife (148)	30	118	0.8 (0.4-1.6)	0.52
	Working (62)	14	47		
Age	<25 (147)	31	116	0.94 (0.46-1.9)	0.85
	≥ 25 (63)	14	49		
Parity	≤2 (131)	28	103	0.99 (0.5-1.9)	0.98
	>2 (79)	17	62		
Contact with health worker	Yes (134)	21	113	0.4 (0.2-0.8)	0.008
	No (76)	24	52		

*Socio-economic status groups were clubbed together for statistical analysis. Upper Middle Class was clubbed with Upper Class and Lower Middle Class was clubbed with Lower Class.

†OR (CI) – Odds Ratio (Confidence Interval)

Bivariate regression analysis showed that nativity, socio-economic status, literacy, and contact with health worker were the statistically significant factors affecting chronic energy deficiency among women.

Table-4: Multivariate logistic regression analysis of chronic energy deficiency in relation to various socio-demographic characteristics

Parameter		CED		OR (CI)	p-value
		Yes n=45	No n=165		
Nativity	Native (94)	14	80	0.74(0.35-1.6)	0.44
	Migrant (116)	31	85		
SES	Upper (54)	03	51	0.33(0.09-1.3)	0.11
	Lower (156)	42	114		
Literacy	Literate (79)	06	73	0.31(0.11-0.83)	0.03
	Illiterate (131)	39	92		
Contact with health worker	Yes (134)	21	113	0.54(0.26-1.09)	0.08
	No (76)	24	52		

Multivariate adjusted logistic regression analysis showed that literacy was the only statistically significant factor affecting chronic energy deficiency among women.

Discussion

Socio-demographic characteristics (Table 1) of study subjects showed that more than half (55.2%) of the households were migrant to the city. Among all, 68.6% belonged to lower castes and 50.9% were

living in nuclear families. As expected, socio-economic status of women was very poor. Nearly three quarter (74.3%) of study subjects were living in lower and lower middle class. Majority of women (70%) were less than 25 years of age. Parity of

37.6% of women was more than two. Only 37.5% of them were literate and 63.8% were in contact with health care workers.

Nutritional status of women was assessed by using Body Mass Index (Table 2) and it was observed that 21.3% of women were suffering from chronic energy deficiency. Out of these 13.8 had grade I chronic energy deficiency and 4.7% and 2.8% were suffering from Grade II and Grade III chronic energy deficiency respectively. The findings are comparable with the study of nutritional status of women residing in the slum areas in eight metro cities which reported that 23% women were undernourished [8].

Bivariate regression analysis (Table 3) was applied to study the influence of various socio-demographic factors associated with chronic energy deficiency. It was observed that nativity, socio-economic status, literacy and contact with health worker were statistically significant factors affecting chronic energy deficiency among women. Caste, type of family, age, occupation of women and parity emerged as non-significant factors. Native women were 50% less likely to suffer from chronic energy deficiency (OR=0.5, CI=0.2 to 0.9, p= 0.04). Odds of women with chronic energy deficiency were 90% less among higher socioeconomic status in comparison to women in lower socioeconomic status (OR=0.1, CI=0.04 to 0.53, p= 0.003) and the difference was highly significant. Kamra D reported similar findings in her study in Ludhiana [9]. This might be due to the fact that economic status of a household is an indicator of an access to adequate food supply, use of health services, availability of improved water sources and sanitation facilities which are prime determinants of maternal nutritional status [10].

Literacy also showed a strong negative association. Literate women were 80% less likely to suffer from chronic energy deficiency as compared to illiterate women (OR=0.2, CI=0.08 to 0.5, p= 0.000). The findings are in concordance with a similar study conducted in Rajasthan which showed that literate women were less likely to suffer from chronic energy deficiency [11]. Women who were in contact with health workers, were 60% less likely to suffer from chronic energy deficiency (OR=0.4, CI=0.2 to 0.8, p= 0.008). It may be because of continuous counselling and guidance on nutrition provided by health workers. It indicates that ASHA if properly trained can be helpful in reducing the incidence of chronic energy deficiency.

The factors found to be significant on bivariate analysis were further studied. Multivariate

regression analysis was applied to each significant factor after adjusting other factors. Interestingly, it was found that literacy was the only important predictor of chronic energy deficiency (OR=0.31, CI= 0.11 to 0.83, p= 0.03). It was observed that literate women were 69% less likely to suffer from chronic energy deficiency. Socio-economic status emerged as non-significant factor on multivariate regression analysis which might be because of the fact that socio-economic status is indirectly linked to literacy status of women. Women who receive even a minimal education are generally more aware than those who have no education of how to utilise available resources for the improvement of their own nutritional status and that of their families. Education would enable women to make independent decisions, to be accepted by other household members and to have greater access to household resources that are important to nutritional status [12]. Therefore, universal primary education especially of girls can go a long way to improve the nutritional status of women. Hence, overall educational status of women needs to be improved for better nutritional health of mothers and hence babies.

Conclusion

Though on bivariate regression analysis, nativity, socio-economic status, literacy and contact with health worker were the statistically significant factors affecting chronic energy deficiency among women, on multivariate adjusted regression analysis literacy only emerged as the significant factor. Hence, overall literacy status of girls should be improved to have better nutritional status in adult age and decrease the prevalence of chronic energy deficiency.

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References

1. Food and Agriculture Organization. The state of food security in the world. The multiple dimensions of food security. Food and Agriculture Organization of United Nations: 2013.
2. Shanti G, Dheeraj S. Nutritional problems in urban slum children. *Indian Pediatrics*. 2004; 41:682-96
3. Census of India. Metadata and brief highlights on Slum population. Government of India: 2001.
4. Girma, Woldemariam, Genebo T. Determinants of nutritional status of mothers and children in Ethiopia. Calverton, Maryland, USA: ORC Macro; 2002

5. World Health Organization (1995). Physical Status: the Use and Interpretation of Anthropometry. Technical Report Series no. 854. Geneva: World Health Organization.
6. Singh SP. Anthropometric Perspective on Nutritional Status. *Anthropologist*. 2002; 4(2): 73-82.
7. Pareek U, Trivedi G. Manual of socio-economic scale (rural). Manasayan Publishers, New Delhi; 1979.
8. Kumar K, Sinha RK. Understanding women's nutritional status in urban India: A comparative study of slum versus non- slum dwellers. International Institute of Population Sciences Mumbai; 2009 [cited 2010 Oct 18]. Available from: <http://iussp2009.princeton.edu/download.aspx?submissionID=91275>
9. Kamra D. A study of epidemiological correlates of health status and quality of life of elderly population in a rural area of Punjab. [Thesis]. Ludhiana: Baba Farid University of Health Sciences, Faridkot; 2009.
10. United Nations Children's Fund (UNICEF). Strategies of improving nutrition of children and women in developing countries. New York: UNICEF; 1990.
11. Nair C. Study of chronic energy deficiency among women labourers in Rajasthan (India). *The internet journal of epidemiology*. 2009 [internet]; 8(1). [Cited 2014 Feb 28] Available from: <http://www.ispub.com/IJE/8/1/13374>
12. United Nations Administration Committee on Co-ordination-Sub-Committee on Nutrition (ACC/SCN). Women and nutrition. Symposium report. Nutrition Policy discussion paper No. 6; 1990. [Cited 2014 Feb 18]. Available from: http://www.unscn.org/layout/modules/resources/files/Policy_paper_No_6.pdf