

Food Insecurity At The Household Level Among Residents of A Slum In Kolkata: A Perspective From Urban West Bengal.

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Abstract: A community based cross-sectional descriptive study with two stage simple random sampling study was conducted over 197 permanent residents ≥ 18 years and ≤ 60 years of a slum of Kolkata Municipal Corporation, West Bengal to determine on the prevalence of the household food security and its relationship with different socio-demographic factors. Some background data was collected and the validated Bengali version of six-item HHFS-short form was used to determine the household food security. The study revealed that majority of the participants belonged to 20-29 years of age group with comparable male & female population. Prevalence of tobacco addiction was high compared to alcohol abuse. Household level food insecurity was observed among 73.1% of the participating households. Monthly family income, family type (joint/ nuclear), gender, marital status were related to household level food security in a statistically significant manner. The high prevalence of household level food security invokes the need of community based intervention like rationing system, food supplementation etc. specifically targeting the issue at hand.

Keywords: Household level food security, food insecurity, slum, urban

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I. Introduction

Food insecurity is a major health problem that has devastating effects on various aspects of human life. In particular, there are compelling theoretical and empirical reasons to expect that the relationship between food insecurity may be directly related to mental health morbidities and physical morbidities, and may be quantifiable in developing country settings.¹ There is evidence of the association between insecurity of income flow and common mental disorders. The knowledge of the relationship that food insufficiency and mental health have, may help reduce the burden of common mental disorders now being increasingly recognized as important issue in the perspective of optimum health², as this may be relatively amenable to intervention unlike a number of other major risk factors for mental illness. There have been studies on the association of House Hold Food Security and various factors like underweight children, growth in children, maternal anxiety etc.³ This study was conducted to find out the prevalence of House Hold Food Security and its relationship with different socio-demographic factors. The uniqueness of the current study lies in its community-based approach to explore the status of food insecurity.

II. Materials And Methods

It was a community based descriptive study with cross-sectional design. The study was conducted among permanent residents, aged ≥ 18 years and ≤ 60 years of Sunderlal Pyne Street Slum of Kolkata, West Bengal under the field practice area of Medical College & Hospital, Kolkata. The duration of study was 6 months. Two stage simple random sampling method was followed. First households were selected at random then in the selected household, one participant maintaining the inclusion and exclusion criteria was selected at random. Those who were seriously ill person and refused to participate were excluded from the study. In order to calculate optimal sample size for the current study, prevalence of food security was presumed at 50%. Now at a confidence level of 95%, 20% allowable error of prevalence with design-effect for two-stage sampling to be 2 the sample size was calculated to be 192. Now accounting for 5% non-response rate, sample size was calculated to be 202. Finally a total of 197 completed responses were considered for analysis excluding the partial responses. To measure HHFS, six-item Household Food Security Scale (HFSS)-Short Form was used. It was developed by the US Department of Agriculture and had been extensively studied in United States⁴⁻⁵ as well as few other countries⁶, and found very effective in measuring food insecurity. Its validated Bengali version was used successfully in a study in Bankura, West Bengal.⁷ Authorizations for using the same had been obtained from the Author. A predesigned, pretested semi structured questionnaire was used for collecting background information from the respondents. A pilot study was conducted in a similar community setting to assess the feasibility, acceptability and reliability of the tool. There were 264 households in the selected slum which were

line-listed, and then participants were recruited. Written informed consent was obtained from each participant before collecting information. Some background data (Age, sex, working status, occupation, educational status, marital status, type of family, number of family members, monthly family income, tobacco chewing, alcohol consumption etc.) was collected. A six-item HHFS-short form was used to assess the household food security. Responses of “often” or “sometimes” on questions HH3 and HH4, and “yes” on AD1, AD2 and AD3 were coded as affirmative (yes). Responses of “almost every month” and “some months but not every month” on AD1a were coded as affirmative (yes). The sum of affirmative responses to the six questions in the module was taken as the household’s raw score on scale. Food security status was assigned as follows:

- Raw score 0-1: High or marginal food security
- Raw score 2-4: Low food security
- Raw score 5-6: Very low food security.

Then the food security of households with raw score 0-1 was described as food secure and the two categories “low food security” and “very low food security” in combination was referred to as food insecure. Prevalence of Household Food Security was determined by the above mentioned criteria and was depicted in percentage and table.

III. Results

In this community based, cross-sectional descriptive study about 32.9% of the study population belonged to age group 20-29 years followed by 40-60 years. The total male -female ratio was almost same with maximum males belonging to the age group 20-29 years and maximum females in the age group 40-60 years. The mean age of the population was 29.6 years. 46.7 % of the study population was wage earner followed by housewife who constituted 26.5%. Students and unemployed formed 15.2% and 11.6% of the study population respectively. 59.9% of study population was literate with at least 1-4 years of formal education. Rest of the study population was illiterate. Maximum portion (58.4%) of study population was married and 29.4% were unmarried. Widow/divorcee formed 12.2% of the study population. (Table 1) Regarding addiction among the participants 46.7% of the population were addicted to tobacco. While 17.7% were addicted to alcohol, a total of 33 participants were addicted to both tobacco and alcohol. (Table 2) As per food security 26.9% of the study population belonged to food secure household while about 73.1% belonged to food insecure household. (Table 3) Relationship between household level food security and different socio-demographic factors were explored with the help of chi-squared test. The results are depicted in Table 4. Significant relationship was observed with gender of the participants (p value 0.008). Marital status and total monthly family income of the participants were related to household level food security in a statistically significant way (p-value 0.004 & 0.002 respectively). Educational status of the participants and type of family were also related statistically significantly however was comparatively at lower statistical level compared to other significant factors mentioned before. Age and occupation of the participants were not at all statistically significantly related to household level food security observed among the participants.

IV. Figures And Tables

Table 1: Distribution of the study participants according to different socio-demographic variables. (n=197)

Socio-demographic variables			Frequency	Percentage
Age	in	years		
18	–	19	35	17.8
20	–	29	65	32.9
30	–	39	37	18.8
40 – 60			60	30.5
Gender		Male		
		Female	101	51.2
			98	48.8
Educational		status		
		Illiterate	79	40.1
		Literate	118	59.9
Marital		status		
		Married	115	58.4
		Unmarried	58	29.4
		Divorce/widow	24	12.2
Occupation		earner		
		Wage	92	46.7
		Unemployed/housewife	75	38.1
		Student	30	15.2
Type	of	family		
		Nuclear	68	34.5

Joint	129	65.5
Monthly family income (Rs)		
< 5000	100	50.8
5000 – 10000	81	41.1
> 10000	16	08.1

Table 2: Distribution of study population according to history of addiction (n=197)

History of addiction	Number	Percentage
Tobaccoconsumption		
Yes	92	46.7
No	105	53.3
Alcoholconsumption		
Yes	35	17.7
No	162	82.3

Table 3: Distribution of study population according to status of household food security (n=197)

Status of HHFS	Number	Percentage
Food secure households	53	26.9
Food insecure household	144	73.1
Total	197	100.0

Table 4: Association between household level food security and socio-demographic variables (n=197)

Socio-demographic variables	Household level food security		χ^2 statistic value p value
	Food secure	Food insecure	
Age in years			
18 – 19	7	28	6.4096
20 – 29	13	52	0.093
30 – 39	10	27	
40 – 60	23	37	
Gender			
Male	19	82	6.901
Female	34	62	0.008
Educational status			
Illiterate	28	51	4.891
Literate	25	93	0.027
Marital status			
Married	29	86	11.096
Unmarried	11	47	0.004
Divorce/widow	13	11	
Occupation			
Wage earner	21	71	3.8032
Unemployed/housewife	26	49	0.149
Student	6	24	
Type of family			
Nuclear	12	56	4.524
Joint	41	88	0.033
Monthly family income (Rs)			
< 5000	31	69	12.713
5000 – 10000	13	68	0.002
> 10000	09	07	

V. Discussion

The socio-physical environment of slums is diverse and can compromise health in a variety of ways. The prevalence of household food insecurity was determined as it is of dynamic concern in urban India. In the current study majority of the households were documented to be food insecure. According to a Mid-Term status report on progress of Millennium Development Goals of West Bengal⁸, 6-11 household out of 1000 did not have enough food everyday during the months of July 2004 and June 2005. Comparing with that result, we can easily deduce that the number of food insecure household will rise with study area being in the slum with diverse socio-demographic factors having an interplay in between. In the current study the relationship of monthly family income and household food security was in consonance with the conceptual framework. While it was presumed that occupation of the respondents will have a statistically significant relationship, but it was not reflected in the results. This may be due to the fact, that the responses are in fact not measured by the investigator rather are reported by the participant thus incorporating amount of bias due to perception factors nested among the participants. The similar explanation can be given behind a statistically significant relationship of gender to household food security. Although we can understand that the responses to the questions may in some instances differ in perception and thus its responses among male and female participants, since

involvement in household activities are more with females. Here the results actually indicate a differential perceived response of the tool, which can raise a question over the validity of the translated tool. However relationship among family type and food security can be found on a firm scientific ground. It can be perceived that a household of joint family is more prone to be food insecure compared to a nuclear household of comparable economic status.

VI. Conclusion And Recommendation

House hold food insecurity was very high in the study population and it bore significant association with monthly family income, type of family. However the study had some limitations. It was a cross-sectional design of study, so values obtained could not be generalized. A longitudinal study would help in better assessment of the situation. Awareness should be generated towards the necessity of addressing household food insecurity in order to alleviate not only its physical consequences but also mental morbidities. Governmental & nongovernmental agencies should undertake measures to increase the HHFS like increase in rations, food supplements, better distribution system etc to ensure household food security and thereby solve the problem of mental morbidity to a certain extent.

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