Prevalence Of Food Insecurity Among Pregnant Women In Field Practice Area of a Medical College, Andhra Pradesh

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Abstract:

Background: Food- insecurity is a major issue in low resource settings which may lead to malnourishment in pregnancy impacting the growth of foetus. This Study was aimed at estimating prevalence of food-insecurity at the household level and factors that determine its existence.

Materials And Methods: A cross-sectional study undertaken in the field practice area of the medical college. After taking informed consent, Study participants were interviewed using pretested, semi-structured questionnaire which includes socioeconomic details and information regarding dietary practices. To estimate the household level food insecurity status, the Household level Food Insecurity Assessment Scale (HFIAS) was used.

Results: In this study, 123 pregnant women in second trimester participated and mean age of was 22.43 ± 3.01. The majority were Housewife (87.8%). 44.7% had completed High school. The annual household income in rupees is approximately 2.46 ± 1.32 lakhs. Majority were in upper-middle class (66.7%) according to modified Kuppuswamy classification. Food insecurity prevalence was 22%. Annual income and Socioeconomic status were significantly associated with food-insecurity as the p-value calculated to be statistically significant (<0.05).

Conclusion: Promoting awareness and implementing appropriate interventions during the preconception period to promote maternal health and, in turn, infant health is critical.

Keywords: Food Security, HFIAS, Pregnant women.

Introduction

Food security exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life.[1]

Food security can be examined at various levels, i.e. global, national, regional, household, and individual. Food security at national or regional level does not necessarily indicate food security amongst communities, households, and individuals.[2–4]

Food shortage and poor diet are violations under food security principles that cause a significant proportion of disease burden worldwide, limiting productivity and promoting premature disability and reduced longevity.[5]

Food-insecurity determinants include Income, education, race/ethnicity, functional limitations, and

working-age adults with disabilities, adults with chronic physical or mental health conditions, or children in household.[6]

In food-insecure households, mothers show less positive behaviours when feeding their children when adequacy and accessibility of food are hampered. Unhealthful eating habits and/or unhealthy eating patterns experienced by mothers in food-insecure houses negatively affect infant feeding patterns in these families. Therefore, food-insecure children are at risk of being overweight and micronutrient deficient..[7]

Food-insecurity is a stressful event, and it may influence weight gain through several mechanisms. Women in food-insecure houses may become dependent on low cost processed, high-calorie foods over time which might lead to weight gain.[8]

Food insecurity in pregnant women may have negative consequences on the child. Studies showed that food insecurity was significantly associated with a low-birth-weight. Other studies showed that maternal food insecurity was associated with an increased risk of congenital anomalies.[9,10]

Food insecurity is a problem in developing nations, particularly low-resource countries. During pregnancy, malnourishment can affect the growth and may lead to adverse pregnancy outcomes. Thus, addressing household insecurity during pregnancy helps to improve health outcomes. Hence the study.

Materials and methods:

Study Design: A Community-Based Cross-Sectional Study

Study Area: The study was done in field practice area of a private medical college. The study area has 9 Villages and a population of 35,339, according to 2011 census.

Study period: The study was from May to November 2020

Study participants: Pregnant women who are residents of the study area at the time of study.

Objective of the study:

1. To estimate the prevalence of food insecurity among the households of pregnant women.

Sample size and sampling design:

According to Chakraborty D on food security in India, 44%[11] of households are deficient in calorie intake. Using the above statistic, at relative precision of 20%, the sample size estimated using the formula.

$$n = Z^2 p \frac{(1-P)}{d^2}$$

Z value at 95% CI = 1.96 , Anticipated Population proportion (p) value = 44% , relative precision = 20% , by substituting the values in the above formula the sample size required was 123.

Inclusion criteria:

1. Pregnant women in their second trimester are the study area residents during study period.

Exclusion Criteria:

1. Those who are not interested to participate in the study.

Method Of Data Collection:

Study was done in field practice area of the medical college, where a Sampling frame was prepared. By using a simple Random sampling method, study participants were selected. An informed consent was taken. A predesigned, pretested, semi-structured questionnaire which includes socioeconomic details and information regarding dietary practices was used.

Study Instruments And Tools:

Socioeconomic details include age, education, religion, occupation, family type and size, family's total monthly income, and the approximate monthly expenditure on food.

The Household Food Insecurity Assessment Scale (HFIAS) was used to investigate the household food insecurity status. This scale expresses the feelings on his/her own and the family's food insecurity. Household perceptions about changes in food quality regardless of actual food compositions were addressed in the HFIAS. The HFIAS contained nine questions with a four-point Likert scale of "frequently, sometimes, rarely, and never." The response scores were 3, 2, 1, 0, respectively. The household maximum score is 27.[12,13]

A lower HFIAS score meant greater food insecurity. In this scale, food insecurity was categorized into four groups, based on the number of points on the scale i.e. food secure (0–1 point), mildly food

insecure (2–7 points), moderately food insecure (8–14 points) and severely food insecure (15–27 points). [12,13]

Statistical Analysis:

Data was analyzed using SPSS (version 16). Wherever applicable, proportion and mean (SD) were calculated. The food-insecure group include mild, moderate and severe food insecurity. Non parametric statistical test include Chisquare test to identify the statistical significance between the study variables was applied. P-value of <0.05 was considered to be statistically significant.

Results:

123 pregnant women in their second trimester were included. The mean age of the study participants was 22.43 ± 3.01 years. 66.7% belonged to the rural area and 61.8% belonged to the Hindu religion. The type of family was Joint (62.6%) (Figure 1) and agriculture (53.7%) was the predominant occupation of head of the family.

The majority of the participants were Housewife (87.8%). 44.7% had completed High school. The annual income in rupees of the household was approximately 2.46 ± 1.32 lakhs. Based on Modified Kuppuswamy classification (CPI value of Oct 2019), most participants belonged to the upper-middle class (66.7%).

62.5±13.1 kgs was the mean weight and 96.7% preferred a mixed diet (Both veg and Non-veg). 98.4% were availing services from Anganwadi. The mean monthly expenditure towards food was 4.1±1.81 rupees in thousands. All the participants were having three meals per day, and rice was the staple food.

Using Household Food Insecurity Assessment Scale (HFIAS scale), the prevalence of food insecurity in the present study was found to be 22%.(Figure 2)

Annual family income and Socioeconomic status were significantly associated with the food insecurity as the p-value calculated to be statistically significant (<0.05). (Table 1, Table 2)

Discussion:

In the current study, the mean age was 22.43 ± 3.01. A similar study conducted by Masthiholi et al[14],

where the mean age of the participants was 22.5 ± 3.19 years.

The prevalence of food insecurity in this study was found to be 22% which is comparable to the study findings of maofi et al[13], where Food insecurity was reported to be 43.9% among pregnant women.

Kazemi et al[15] in Iran reported 67.5% of pregnant women had different degrees of food insecurity.

Similar Studies done in Canada, using the HFIAS scale, and found that food insecurity in pregnant women was 36.6%.[16] Similar study in Nigeria reported food insecurity to be 46.4% among pregnant women.[17] 8% reported in North Carolina study[18]

A study by Masthiholi et al[14] reported food insecurity to be 27.4% which is similar to the present study findings. Masthiholi[14] study showed Significant associations between socioeconomic status and food-insecurity (p = 0.0006) which is similar to the present study findings. Above Studies show that food insecurity among pregnant women is globally prevalent. Predictors of food insecurity include Income, education, race/ethnicity, functional limitations, and working-age adults with disabilities, adults with chronic physical or mental health conditions, or children in household.[6]

The components of food security are availability, accessibility, and utilization. Without each of these elements, food security is not possible. Food availability is affected by production, import, distribution, and exchange. Food accessibility depends on factors such as family income and purchasing power, and food utilisation is based on the adequacy, preparation, processing, and cooking of food, and attitude of the family members regarding food selection, and individual health.[19,20] Food security may not be determined because it might be associated with numerous confounding variables, making it difficult to determine.[15,21]

Conclusion:

A pregnant woman's well-being directly impacts the well-being of her newborn. Interventions should be directed to improve nutrition during the preconception period to improve maternal health and, in turn, child health.

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Tables and Graphs
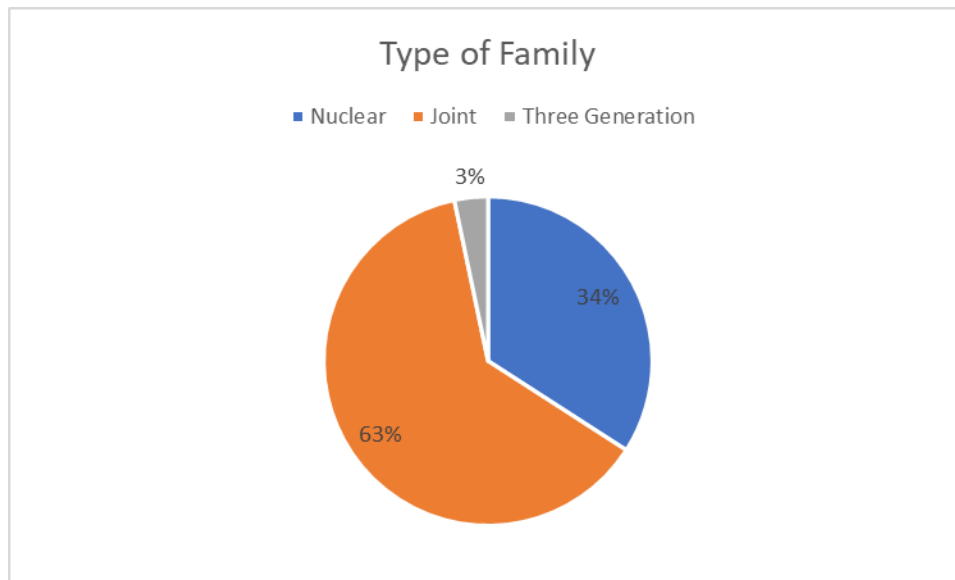
Figure 1: Type Of Family
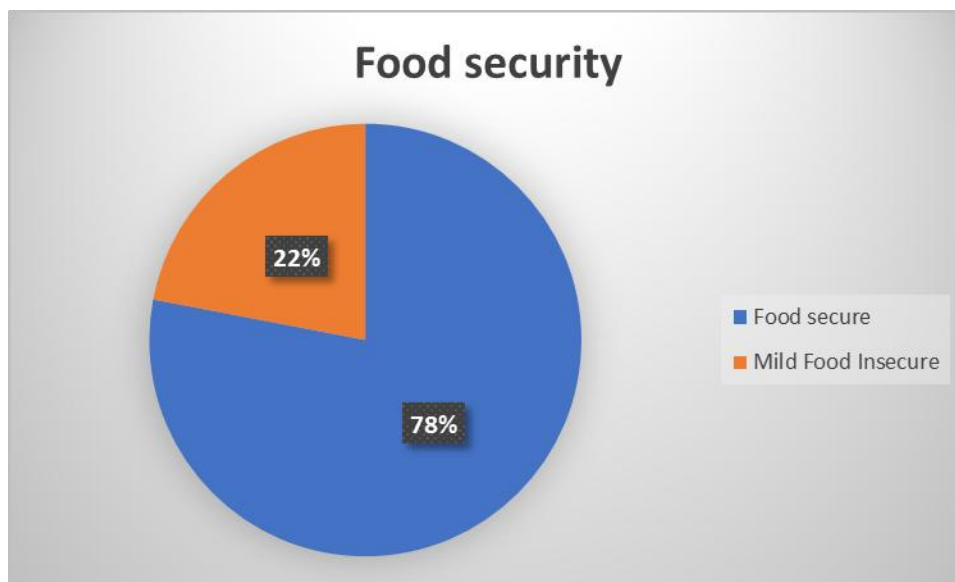

Figure 2: Prevalence Of Food Insecurity

Table 1: Association Between Annual Income And Food Insecurity

Annual income	Food secure	Food Insecure	Total
<2 Lakhs per year	32	27	59
>2 lakhs per year	64	0	64
Total	96	27	123
Chisquare value : 37.52 , DF = 1 , P value <0.0001* (Statistically Significant)			

Table 2: Association Between Socio-Economic Status And Food Insecurity

Classification based on Modified Kuppuswamy Classification

	Food secure	Food insecure	Total
Upper class	14	2	16
Upper middle	73	9	82
Lower middle	8	14	22
Upper lower	1	1	2
Lower	0	1	1
Total	96	27	123
Chisquare value : 33.38 , DF = 4 , P value <0.0001* (Statistically Significant)			