



# Household food security and women's dietary diversity in rural and semi urban population of Muzaffargarh, Punjab

Department of Community Medicine

Research Batch 16

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## Abstract

**Objective :**To carry out a thorough study about food security status as well as household dietary diversity for female population of rural areas of Muzaffargarh, Punjab  
**Design:** Cross-sectional survey was carried out. Data were collected using structured questionnaires, that were translated into local language. Household dietary diversity scores measured types of foods households consumed, and the households were classified by food security status using a modified version of the Household Food Insecurity Access Scale  
**Study settings :**Rural and Semi-urban areas of district Muzaffargarh Punjab, Pakistan  
**Population :** The study includes women of rural population, more precisely the women of child bearing age in district Muzaffargarh, Punjab, Pakistan

## Results

Out of five households, **38%** were food secure and **62%** were food insecure (21% mildly, 23% moderately and 18% severely)g Furthermore, food secure group had mean Dietary Diversity Score of 9.12 (with standard deviation of 2.33), that was **2.03 odds greater** than that of food insecure group (whose mean Dietary Diversity Score was 7.09 with standard deviation of 2.43). The average dietary diversity score of the whole population being surveyed came out to be **2.68 odds less** than the dietary diversity score of 33% of households with the highest diversity. From the data obtained from the given population, it was clear that food security status among women increased as the average monthly income of the given household increased and food insecure groups had less average income. Similarly, the average dietary diversity score of a household increased as the average monthly income was increased so that households with more monthly wages had more dietary diversity score. Food Secure group on an average had **1.8 members less** than that of Food Insecure group in a Family. It was found that food security was positively associated with household dietary diversity so that households with reduced dietary diversity score were more food insecure and linear regression curve was obtained when dietary diversity score was plotted against food insecurity status (Results are graphically represented below)

## Introduction

Food security is the adequate availability of nutritious food to all the members which is a prerequisite to an active and healthy lifestyle. According to FAO, it is defined as "a situation that exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy lifestyle". Dietary diversity is the measure of variety of foods available to the residents of a house. In the recent years rising inflation has given rise to a lot of problems leading to malnutrition and decreased dietary diversity According to previous studies, presence of multiple social factors strongly affects the food security. The factors being maternal illiteracy, low socioeconomic status and lack of awareness<sup>1,2</sup>. Almost half of the Pakistani population suffers from food insecurity, incidence being higher in rural and semi-urban areas 42% and 27.3% of women in Pakistan of child-bearing age suffer from iron-deficiency, anemia and vitamin A deficiency, respectively<sup>3,4</sup>. It has been stated previously that 1.7% of women ate a diverse diet that included five or more food groups. Education levels of women, gestation status, financial status, gender of house head, family size, religion, place of residence, and land ownership were all linked to appropriate DD<sup>5</sup>. However, no research has been conducted in rural areas of Punjab regarding food security and dietary diversity. The studies have been lacking in establishing a link between food security and accessibility of diverse food items in rural areas These remote areas have limited access to quality food. These areas are male-dominated regions where patriarchy is more prevalent along with less acknowledgement of women rights. The objective of the study was mainly to carry out a preliminary survey of population in rural areas to rule out any food insecurity among the household and to scrutinize the dietary diversity available to the women residing there.

## Association of Food Security With Dietary Diversity Score



## Methods and Materials

The independent variable, household dietary diversity, was calculated using the guidelines outlined in Swindle and Bilinsky's report for the Food and Nutrition Technical Assistance project<sup>6</sup>. Household heads were asked if in the last 24 h anyone in the household had eaten a list of forty-five different foods from twelve food groups cereals; roots and tubers; vegetables; fruits; meat and poultry; eggs; fish and seafood; pulses, legumes and nuts; dairy and dairy products; oils and fats; sugar and honey; and beverages. Each food group is assigned a score of 1 (if consumed) or 0 (if not consumed)g The household score will range from 0 to 12 and is equal to the total number of food groups consumed by the household. A target was established using the average dietary diversity of the 33% of households with the highest diversity and the average dietary diversity of the whole population was compared with it. A modified version of the Household Food Insecurity Access Scale (HFIAS) measurement tool was used to assess households' food security status in the last 30d in which Household head women were asked nine yes/no questions related to different dimensions of food security<sup>7</sup>.

A standardized procedure for scoring was used, where zero was attributed if the event described by the question never occurred, 1 point if it occurred 1 or 2 times during the previous 30 days (rarely), 2 points if it occurred 3–10 times (sometimes), and 3 points if it occurred 10 times or more (often). For each household, the HFIAS score corresponded to the sum of these points and could range from 0 (food security) to 27 (maximum insecurity) and the households were categorized into four major categories (Food Secure, Mildly Insecure, Moderately Insecure and Severely Insecure). Due to low numbers in the mild, moderate and severely food insecure categories, these three categories were collapsed into one for the ordinal logistic regression model for a dichotomous variable (food insecure vs food secure)

## Discussion

In this typical rural area of Pakistan, the diversity of women was consistently negatively associated with household food insecurity, before and after adjusting for multiple potential confounders. To our knowledge, this is the first study that links repeatedly assessed women's dietary intakes to an independently assessed index of Household Food Insecurity.

Our study showed reduced dietary diversity and a strong gradient in the risk of not consuming many nutritious foods with increased severity of Household Food Insecurity. This pattern of dietary risk was most clearly explained by a derived "wealth index," representing socioeconomic status on a local scale<sup>8</sup>. Other factors, including maternal education, were far less explanatory. Both poverty and poor maternal education, which often coexist in vulnerable households, have been recognized as important determinants that influence quality of diet<sup>9</sup>. Our findings suggest impoverishment to be the major driver of low dietary diversity, an inference that is supported by multiple studies in low-income societies that reported inverse associations between perceived HFI and total food expenditure<sup>10</sup>.

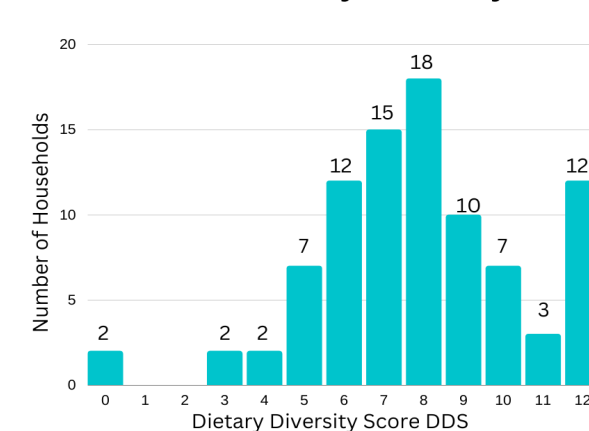
Table 1. Food Security Status.

Status	Number of Households (n)	Percentage %
Food Secure	34	38
Mildly Insecure	19	21
Moderately Insecure	21	23
Severely Insecure	16	18

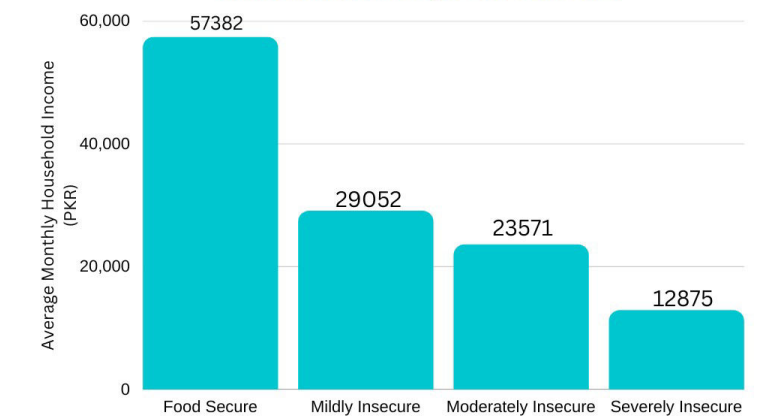
Table 2. Association of Food Security with Number of Family Members

Status	Average Number of Family Members	Standard Deviation
Food Secure	6.8	2.1
Mildly Insecure	7.8	3.1
Moderately Insecure	8.6	3.2
Severely Insecure	7.6	2.1

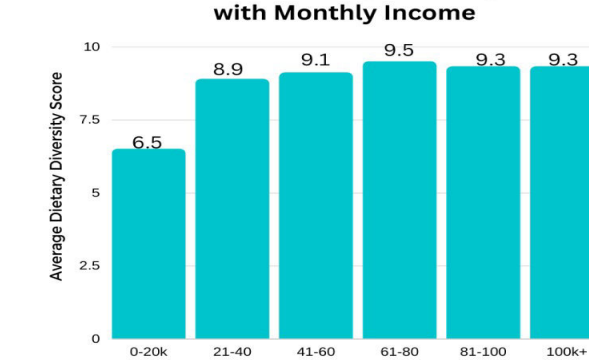
Household Dietary Diversity Score



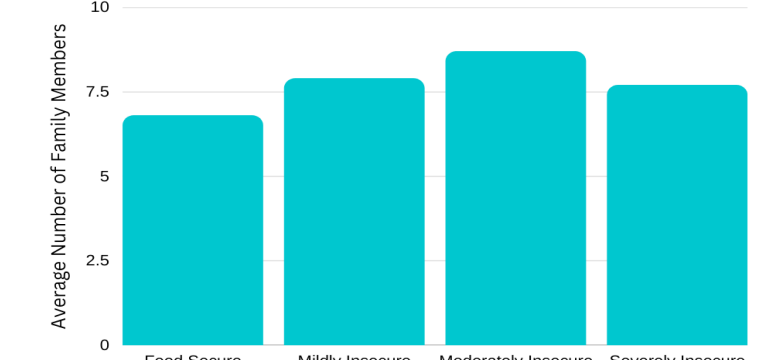
Association of Food Security with Household Income



Association of Dietary Diversity Score with Monthly Income



Association of Food Security with Number of Family Members



## Conclusions

Food security was positively associated with dietary diversity, household income and small sized families. In order to enhance health, interventions that improve dietary diversity and Household incomes should remain important areas of focus for health leaders in the region.

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