

Household Socioeconomic Determinants Of Food In Security In Pakistan: A Cross-Sectional Survey

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Abstract

Background: Pakistan suffers from extreme food insecurity in terms of economic and physical access to food. In this context, the main objective of this research is to empirically examine the major factors that contribute to food insecurity.

Methods: A pre-tested questionnaire was employed for data collection for a cross-sectional survey approach. Participants have been chosen from among. To investigate the relationship between, dietary practices socioeconomic status and food insecurity, multiple linear regression analysis was performed.

Results: The study included 400 households selected randomly from district of Faisalabad. The dietary practices of the participants were found to be associated with household food insecurity. The study found that low household income, large family size, having no land, education level, and sex of household head at ($p < 0.05$).

Conclusion: The study concluded that household food insecurity was strongly associated with low household income, large family size, having no land, education level, and sex of household head. Rural areas might experience a significant reduction in food insecurity when sustainable employment policies, food-based initiatives, and a focus on household production of food are implemented

Keywords Dietary patterns, Household environment, Household food insecurity, Limpopo province, South Africa

Introduction

Pakistan continues to face challenges with household food security as a result of rapid urbanization and population increase. Furthermore, in a nation where agriculture is the main industry, food insecurity persists. In Pakistan, household food insecurity is a major public health issue that has long-lasting social and health repercussions. Every country on the earth has food insecurity risks. The United Nations Food and Agriculture Organization (FAO) states that life can only flourish when everyone has constant access to adequate safe, nutrient-dense food that satisfies their dietary needs and food preferences on an economic, social, and physical level (FAO et al, 2021). According to FAO 2021, Food insecurity is increasing worldwide, with 828 million undernourished people experiencing hunger, and 425 million malnourished people living in Asia. Additionally, 3.1 billion people lack access to a balanced diet (FAO, 2022). Globally, there is a concern with household food security. Worldwide, 12 percent of people faced extreme food insecurity in 2020. (FAO, 2020).

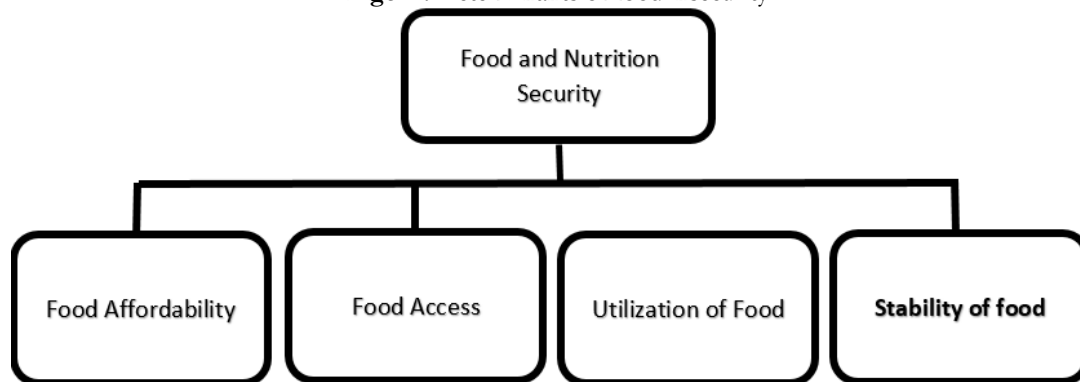
Since the World Food Summit in 1996, food insecurity has been an international issue in every nation. The issues continue to be dismissive of the focus and are getting worse. (Garcia and others, 2020). Pakistan is known as a developing country, having an average per capita income of \$1658 a year. Despite being an agricultural nation, Pakistan contributes significantly to the economy with its workforce, which employs 37 percent of the country's workforce and generates 22.67 percent of its national revenue. (GOP, 2021).

Pakistan Social and Living Standards Measurement conduct a survey in 2019-2020, revealed that out of 100 households, 16.44 reported as moderate to severe food insecurity (Pakistan bureau of statistic, 2020). Pakistan ranked 11th at "severe risk" on the 2022 Food Security Risk Index risk index, which was released by the Sustainable Development Policy Institute (SDPI) in Islamabad. Of the total population, 48.9% experienced food insecurity. The situation in terms of food security was significantly poorer at the household level, with 279 increasing incidences of food insecurity (Sustainable Development Policy Institute, 2022).

This research correlates with the Sustainable Development Goals (SDGs) agenda for post-2015. Food security is given equal importance in these targets for both developed and developing countries. Since achieving food security is one of the main objectives of sustainable development, all of the goals are either directly or indirectly related to it. According to the yearly global reports on food crises, 135 million people in 55 countries faced extreme food insecurity at the end of 2019, 17 billion children across those 55 nations had suffered with waste, while 75 billion children suffered from stunting (World Food Program, 2020).

The dimension of food availability refers to the sufficient quantity and quality of nourishing food that is accessible to every member of a country. Despite the fact that sufficient food is accessible in Pakistan, nevertheless remains an acute issue with food availability across Pakistan where there are wars, barren regions, or protracted disasters. Food distribution is therefore the main issue in these regions (Aslam & Rasool, 2014). A population is food secure, when everyone always has access to enough food to meet their nutritional needs and lead healthy, productive lives. The framework for FANTA's cutting-edge assistance for strengthening the food security programs and policies, there are three key elements: availability (having sufficient quantities of appropriate food available), access (having adequate income or other resources to access food), and utilization/consumption (having adequate dietary intake and the ability to consume and utilize substances) (Coates et al., 2007).

Figur 1: Determinants of food insecurity



Source: Food and Nutrition Technical Assistance Project (FANTA)

According to empirical studies, food insecurity is negatively correlated with the age and gender of family heads, and socioeconomic determinants also have a role in food security (Akukwe, 2020). Furthermore, Punjab is the province having the largest population, with more than 73 million residents. Approximately 63% of people were employed in agriculture and lived in rural villages. Punjab's agriculture industry contributes 57% of the country's GDP. However, 70% of households in the province are without access to land, and most rely on informal resources for subsistence. Thus, these households are a risk of food insecurity (Anwar et al., 2020).

In Pakistan, the household, being the basic economic and financial unit, determines the nutritional status of residing members, so the term of food security, dietary diversity, malnutrition and poverty are interconnected around the whole and woven with educational status, household size, purchasing power, and food supply (Ullah et al., 2023). Food insecurity is affected by people's socioeconomic situations and is linked to poor productivity and scholastic attainment (Regassa & Stoecker, 2012, Bruening et al., 2017), in addition to behavioral, emotional, educational, and physical issues (Brown et al., 2019). Depending on the population's nutritional state as a whole, household food security should be closely observed as a crucial indication of nutritional status.

Furthermore, there is increasing confirmation that demographic and socioeconomic determinants have a significant impact on food security the household level Likewise, it has been discovered that demographic variables including gender, age, and household size play a significant role in determining food security (Coleman, 2018, Amare et al., 2017).

In Pakistan, the majority of research is focused on women who are of reproductive age, adolescents, and children about nutrition. There is an obvious gap at the local level due to the absence of high-quality data at Punjab, which includes the children, adult females, adult males, and household heads. The disparity arises from food insecurity and poverty. This gap provides the subjective foundation for study at the provincial household level. Therefore, the purpose of this study was to determine the extent of food insecurity and the factors that contribute to it in Pakistan. Finding household or community resources might be another solution of food security. This research was a component of a larger investigation that examined household food security with socioeconomic risks among people in the province of Punjab, Pakistan.

Research methodology

Study design

This study is a quantitative research march to September 2020. It is a cross-sectional community based study design.

Study population

The study participant was chosen at random from Pakistan's Punjab province's rural households. This was chosen for several factors.

First and first, Punjab is the most densely colonized province of Pakistan, accounting for 62% of the overall population (16 GOP, 2016). Secondly, agriculture contains 57% of the province's total share of land (17 GOP, 2017). Lastly, compared to other provinces in the country, Punjab has not experienced disasters like floods, terrorism, or earthquakes. All residents

living in the study region for a minimum of six months were included in the study. If the head of a house was very ill or unable to answer throughout the data-collecting period, the household was excluded. The head of the household had to fulfill a few requirements to be eligible for inclusion in the study. These included being at least 15 years old, having lived in the province for at least six months, not having a mental illness, and being willing to participate.

Simple size

For this study, multistage sampling technique was used for data collection. Firstly, Punjab province was selected for study purpose. Second, all four districts were selected with two tehsils from each district randomly. Thirdly, from each tehsil one union council to one village was selected randomly. Finally, from each village 10% of the total households were chosen randomly for this study. The sample size was calculated by using openepi, by considering 60% proportion of households food insecurity in Pakistan (Pakistan GO, 2014), 5% margin of error, 95% confidence level and design effect 1.0. The sample size was 369 households/All eligible households were identified, and door to door and face to face interview were conducted until the desired sample is obtained. Finally, 400 households were included in study and analysis.

Data collection and measurement

Data for this study was collected through semi-structured interview methods. The Household Food Insecurity Access Scale (HFIAS) standardized tool was applied. Food and Nutrition Technical Assistance (FANTA) designed this tool, which is approved for use in several nations to assess the level of food security in households. The nine occurrence items of household food insecurity (access) that occurred during the preceding four weeks make up the HFIAS. Three indicators of household food insecurity are included in the HFIAS score, and the responses to these nine questions were used to determine the overall prevalence of food insecurity. Positive answers are rated from 0 to 3 depending on how frequently they occur (Sometimes, often, and rarely). If the participants gave a "no" response to any question (e.g., an HFIAS score of zero), the household was said to be "food secure. By identifying food insecure areas and colonies, this approach assists local authorities in putting the right interventions into practice (Coates et al., 2007). Additionally, there were only two categories for households: (1) those certified as food secure by HFIAS, and (2) those classed as food insecure by HFIAS as mild, moderately, or severely food insecure (Sheikh et al., 2020)

Data collection procedures

A carefully designed, pre-tested questionnaire was used to collect data, which included the following: dietary patterns with a 24-hour recall period; sociodemographic information (age, education level of household head, food consumption score, household income, and family size); and a household food insecurity scale (HFIAS). For data collection, the researcher adopted a door-to-door recruiting strategy, and the respondents were aware of the study's purpose. The interviews were conducted in the native language.

Data analysis

Version 24 of the Statistical Package for the Social Sciences (SPSS) was used to analyze the data. The study was conducted with descriptive statistics such as mean, standard deviation and percentile. Univariate and multiple regression analysis models were used to examine the relationship between food insecurity and sociodemographic factors. The relationship between the outcome variable (food insecurity) and the independent variables (sociodemographic variables) was examined. The dummy code was applied to the categorical variables included in the multiple regression analysis with the scores in the household food insecurity scale as the dependent variable. A multiple linear regression analysis was conducted to determine the sociodemographic characteristics that contribute to food insecurity. The researchers can determine the strength of correlations between the dependent and independent variables mentioned above by using regression analysis. Regression analysis and statistical measures like R-squared/adjusted R-squared can show how much overall variation in the data can be determined. Whenever a variable's p-value was less than 0.05, it was considered statistically significant.

RESULTS

Table 1. Socioeconomic characteristics of the participant (N = 400)

Table 1. Demographic characteristics of the participant (N = 400)			
Variables	Categories	N	%
Household head age	Up to 20	9	2.3
	21-25	108	27.0
	26-30	117	29.3
	31-35	83	20.8
	36 and above	83	20.8
Gender of household head	Female	64	16.0
	Male	336	84.0
Monthly household income	Up to 20,000	113	28.2
	20,001-40,000	235	58.6
	above 40,000	52	13
Household head education	Illiterate (0)	110	27.5
	Up to primary (1-5)	173	43.3
	Secondary (6-10)	74	18.5
	Higher (11 and above)	43	10.8

Household size	< 6 household members	197	49.1
	≥ 6 and above household	203	50.6
Number of rooms used for sleeping	1	18	4.5
	2	189	47.3
	3	138	34.5
	4 and above	55	13.8
Household food insecurity	Food Secured	108	26.5
	Food unsecured	294	73.5
Agriculture land holding	Having land , Yes	152	38.0
	Landless No	248	62.0
Food consumption score	Poor < 28,	74	18.5
	Borderline 28.5-42	237	59.3
	Acceptable > 42	89	22.3

The study indicated that an overall sample of 400 households made the response rate 97.5%. The majority, 73.5 of households were food insecure. Most of household heads 29.0% belong to the 26-30 age group. The majority 84.0 % of the household was mainly male-headed. More than half 58.0% household monthly income was 20000-40000. Mostly 43.3 % of study participant's education level was only up to the primary. Almost half 50.6 % households size up to six family members. Moreover, 47.3 % of households consist of only two rooms for sleeping and 62.0 % belong to landless families. More than half 59.3 % belongs to the food consumption score at borderline (Table 1).

Table 2: The relationship between Household food insecurity and socioeconomic variables

Multiple linear regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.027	.134		.200	.842
Monthly Income	.089	.010	.352	10.340	.000
Educational level	.248	.027	.275	9.369	.000
Food consumption score	.038	.020	.055	1.916	.056
Having land or Not	.156	.018	.271	9.509	.000
Number of rooms	.015	.016	.027	.970	.333
Sex of household head	-.002	.043	-.001	-.040	.968
Family size	-.098	.009	-.369	-11.567	.000

Dependent Variable: Household food security

Discussion

This study's results indicate that 73.5 % of the study households were food insecure. Poor household income was significantly associated with food insecurity. Household income is a remain major determinant of access nutritional status of the household members. These results are consistent with the old study where it was reported that majority of the study's households made less than or equal to 3000 ZAR per month. According to the World Bank, the participants were poor and lived below the poverty line, which is roughly one US dollar (15 ZAR) per person per day (Tambe et al., 2023). Some other study results indicated that low household income is significantly connected to household food insecurity (Farzana et al., 2017, Arthur et al., 2015). This study's results are similar to another study conducted in Nigeria showing that rural households' food insecurity is very high and indicating that landholding is a significant indicator of household food insecurity (Ehebhamen 2017). According to the study's findings, these results should be that wealthier households continue to have greater access to food than poorer ones. This study results indicated that most of the households have large family sizes of more than 6 members. More people to feed in a household might readily result in food insecurity. According to earlier research conducted in Ethiopia and South Africa, larger households are often more likely to experience food insecurity than smaller households. These findings additionally showed an association between household size and food insecurity. Similarly, another study results show that a higher number of family members in a household is associated with household food insecurity (Grobler et al., 2013). Food insecurity in a household has been statistically associated with the level of education of the household head. in the research area, households led by illiterate people were more likely to experience food insecurity than households headed by higher educated people.

The results are in accordance with other researches conducted in Nigeria (Yohannes et al., 2023) on the food security and coping strategies of rural households, as well as research conducted in Humboldt, Amaro, Damot Gale, Mareko, and East Badewacho (Zeray et al., 2017, Diramo et al., 2018). The fact that trained household heads had greater access to food than untrained household groups is clearly demonstrated by the available data. This can be justified because the educational level of the household heads may increase awareness of the possible potential benefits of upgrading agriculture enhance the likelihood of modernizing agriculture and also improve the chance to diversify their sources of income, both of which would improve their access to food.

Conclusion

In conclusion, more than half of the households experienced food insecurity, and a majority of them were poor. Furthermore, there was a strong correlation found between household food insecurity and sex of household head, family size, educational attainment, and land holding. The study suggested that giving education a high priority and offering chances for income generation might improve rural households' food security. Rural areas might experience a significant reduction in food insecurity when sustainable employment policies, food-based initiatives, and a focus on household production of food are implemented.

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