P-ISSN: 2790-6795	Annals of Human and Social Sciences	Jan-March 2025,Vol. 6, No. 1
O-ISSN:2790-6809	http://doi.org/10.35484/ahss.2025(6-I)39	[453-461]

Annals of Human and Social Sciences
www.ahss.org.pk

RESEARCH PAPER

Socio-Economic Determinants of Food Insecurity in Punjab, Pakistan

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ABSTRACT

This study is an attempt to examine these socioeconomic determinants that affect food security in Punjab, Pakistan. Food insecurity persists as a significant issue in Pakistan, shaped by complex socioeconomic factors affecting the nation's food accessibility, availability, and utilization. In order to achieve study objective, a cross sectional field survey was conducted, and a sample of 299 household heads was selected from Punjab, Pakistan using cluster/geographic sampling technique. The data was acquired through interview schedule. The collected data thus was analyzed via descriptive statistics and Pearson correlation. The study findings revealed that low income, low education, unemployment, inflation, and large family size are the key socioeconomic determinants of food insecurity in Punjab, Pakistan. The study suggested that impact of these socioeconomic determinants on food security can be alleviated through multi-sectoral strategies i.e., fair wages, better access to education, increased job opportuinities, controlled inflation, and family planning awareness, primarily targeting at-risk populations.

Keywords: Food Insecurity, Socio-Economic Determinants, Rapid Population Growth, Low Income, Low Education, Unemployment, Inflation, Large Family Size

Introduction

Food insecurity persists as a major challenge in Pakistan. Pakistan is ranked 99th out of 129 countries in the 2022 Global Hunger Index. The Pakistan Integrated Food Security Phase Classification research from April 2023 reveals that around 10.5 million individuals are facing acute food insecurity, categorized as crisis and emergency levels, with forecasts suggesting an escalation to 11.8 million in upcoming months. Furthermore, the latest IPC acute malnutrition assessment in Pakistan revealed that 2.14 million children are afflicted by acute malnutrition, with 23 districts identified as the most critical, hindering advancement towards the SDGs and national development objectives (WFP, 2023).

The National Nutrition Survey (2019) indicates that 20% of Pakistanis are undernourished, while 36.2% experience food insecurity. In Pakistan, an alarming 90.7 million individuals do not meet the daily caloric requirement of 21,000 calories. The World Food Programme reports that 45% of children are stunted, however UNICEF claims that 38% of children under five experience stunting in Pakistan (Afzal *et al.,* 2024).

In Pakistan, food insecurity is not merely an agricultural or environmental concern; it is deeply rooted in socioeconomic factors. Currently Pakistan is the fifth most populated country globally, has a population of 252 million, expanding at a rapid rate of 2.1%. The population is projected to reach a maximum of 404.68 million (World Population Review, 2024). The per capita income for 2024 is $1,680, which is below both regional and global averages (Pakistan Economic Survey, 2023-24). The literacy rate

stands at 62.3% and education expenditure has decreased to 1.7% of GDP in 2023-24, resulting in an educational crisis (Fadil, 2024). Unemployment is impacting 4.5 million individuals (6.3%) and Inflation persists at elevated levels, with a Consumer Price Index (CPI) rate of 26% and food prices increasing by 25.5% (Pakistan Economic Survey, 2023-24). The average household size is 6.3, far greater than that in developed nations. This correlates with a fertility rate of 3.6, which has stayed constant since 2005 (Naz, 2024; GOP, 2024).

These socioeconomic factors consistently hinder a significant portion of Pakistan's population from acquiring adequate or safe food, leading to persistent risks of food insecurity nationwide and making sustainable development an elusive goal (Malik, 2024). The increased food insecurity in a country leads to civil unrest and a rise in criminal activities, as individuals struggle to meet their basic needs, such as access to food, housing, and healthcare. This situation aggravates social instability by amplifying socioeconomic inequalities and exacerbating poverty, hence complicating governments' ability to maintain public order and security. This ultimately undermines the social fabric of the country (Anam & Amin, 2024).

The purpose of this study is to address these socioeconomic determinants of food insecurity. Understanding them is crucial for mitigating negative effects and fostering sustainable national development, as food insecurity results not just from food scarcity but also from individuals' inability to meet their fundamental needs due to persistent structural socioeconomic barriers. Ensuring consistent access to food necessitates enhancing individuals' larger capabilities, which involves empowering them by providing the freedoms and opportunities vital for human well-being (Sen, 1981). Development includes both economic advancement and human well-being (Muzaffar& Choudhary, 2017; Haq, 1991). Therefore, attaining food insecurity is not only an essential goal in itself but also an important step toward attaining broader developmental goals (Chen *et al.,* 2023).

Literature Review

Food insecurity is a multifaceted and widespread issue affecting millions of individuals and households in Pakistan. It has serious implications for health, nutrition, and socio-economic stability. Food insecurity is significantly linked with socioeconomic factors, as evidenced by multiple global and national studies. Asghar (2011) conducted a study in Pakistan to address the hunger situation. This study utilized the data derived from HIES year 2007-08. The findings showed that approximately 25% of population is highly food insecure, and 40% of them experiencing medium level of food insecurity. Households with educated heads tend to have low level of food insecurity. Households with large family sizes tend to experience high levels of food insecurity. Among the provinces, Sindh and Punjab have the highest percentage of food-insecure people. Similarly, Aziz *et al.* (2016) in Pakistan carried a study aimed to assess the household food insecurity at the provincial level. The results indicated that Household characteristics such as low education levels among household heads, large family size, high dependency ratio, and relying on single source of income are linked with food insecurity in all provinces. Furthermore, a research study by Asghar and Muhammad (2013) showed that large family size, low education, and low income are the key determinants of food insecurity in Pakistan. The study further added that households with large family size experiences food insecurity due to the need to feed more people which causes reduction in calorie intake per member while households with low income are struggling to have nutritious diet because of large expenses.

Habib and Didar (2023) in Pakistan conducted a study to examine the combined impact of corruption and socioeconomic factors on food security. The analysis utilized data from the World Development Indicators (WDI) and the Consumer Price Index (CPI) spanning the years 1995 to 2021. The findings revealed a positive correlation between

unemployment and food insecurity, indicating that the absence of employment or a stable income undermines individuals' ability to obtain or afford a sufficient and nutritious diet, resulting in compromised food quality, restricted options, and reduced access to essential nutrients. This phenomenon is particularly prevalent among the unemployed and their families. Extended unemployment results in chronic food insecurity, exacerbating conditions for at-risk groups. The study findings indicated that alleviating food insecurity is essential for Pakistan's long-term economic development.

Another study by Crush *et al.* (2012) in Africa was conducted to examine high food insecurity in urban areas. This research was based on the data drawn from a survey which was conducted in approximately 11 cities across nine Southern African nations from 2008-2009. The findings revealed that urban food insecurity predominantly arises from factors i.e., poverty, high unemployment rates, and limited income-generating opportunities. Similarly, Schonfeldt *et al.* (2010) conducted a study in South Africa revealing that around 35% of the population is food insecure and falls with the impoverished category due to continuous rise in food prices. Sophal (2011) highlighted the pervasive impact of increased food prices, affecting individuals across diverse socio-economic backgrounds. In his research conducted in Cambodia, he discovered that the most economically disadvantaged 40% of the population, who spent 70% of their money on food, had the most severe effects. The poor, particularly those who buy their food and live primarily in rural areas, have been badly impacted by increased prices, notably in the Tonle Sap and plains regions, where the majority of food-insecure households are concentrated. Both urban and rural individuals grappling with extreme poverty face daily struggles to attain sufficient food. Approximately 50% of surveyed households reported reducing food consumption, causing many to accumulate debt. A study by Gurar (2021) was carried out to identify the factors i.e., socio-economic, demographic, and nutritional characteristics affecting food security among 391 urban households in Nigde province of Turkey. The findings revealed factors such as unemployment, low income, less education, family size and limited food spending per person are more likely to cause food insecurity. Lemus *et al.* (2016) used a national survey to identify the socio-demographic factors affecting food insecurity in Mexico. The results imply that factors i.e., younger or less educated household head, low income, and having more children are closely linked to higher levels of food insecurity.

An extensive study was undertaken by Haini *et al.* (2022) to assess the potential impact of unemployment on the relationship between income inequality and food security. This study included 143 advanced and developing countries from year 2000-2019. The researchers consecutively find that income inequality has a significant negative relationship with food security but it does vary between advance and developing economies. Furthermore, they did identify that unemployment rates have a negative association with the food security in the sample derived from developing countries where high unemployment rates intensity the adverse repercussions of income inequality on food security. Conversely, such an association was deemed statistically insignificant in the context of developed economies.

Hypothesis

Low income, low education, high unemployment, inflation, and large family size are linked with higher food insecurity in Punjab, Pakistan.

Material and Methods

Nature

This study has employed quantitative research method and used cross sectional field survey as a research design to address the research objectives.

Population

The data was collected from Punjab, Pakistan due to its distinct socioeconomic characteristics as it is one of the largest and most populated province of the Pakistan.

Sample

The data was collected from a chosen sample of (n=299) adult household heads.

Sampling technique

The cluster/geographical sampling technique was employed to reach the targeted audience.

Tool for data collection

The data collection tool for this study was interview schedule. It was strictly adhered to research objectives and free from offensive or discriminatory language.

Pilot testing

Twenty interview schedules were filled for pre-testing. The statements that were identified as repetitive and ambiguous were excluded from the schedule.

Validity reliability

To ensure the validity and reliability of the tool, confirmatory factor analysis was performed using PLS-SEM.

Data analysis technique

Descriptive statistics was employed to describe the key characteristics of the sample. Additionally, Pearson correlation was applied to identify the relationships between the important variables so that the significant associations can be determined.

Ethical consideration

The study ensured the privacy and anonymity of participants. The respondents were provided with comprehensive information regarding the study objective in order to make an informed, voluntary decision. They also had the right to withdraw at any moment without any repercussions.

Results and Discussion

Table 1
Socio-demographic characteristics of sample (Household heads)

Demographic characteristics	*n*	*%*
Age		
18-24	48	16.0
25-34	34	11.4
35-44	58	19.4
45-54	92	30.8
55-64	50	16.7
65 and above	17	5.7
Gender		
Male	236	78.9
Female	63	21.1
Residence		
Urban	160	53.5

Rural	139	46.5
Marital Status		
Single	66	22.1
Married	219	73.2
Divorced	6	2.0
Widowed	8	2.7
Family System		
Nuclear	169	56.5
Joint	130	43.5
Family Size		
1	15	5.0
2-3	40	13.4
4-5	86	28.8
6 or more	158	52.8
Education		
Primary	25	8.4
Elementary	27	9.0
Matric	66	22.1
Intermediate	82	27.4
Higher Education	99	33.1
Employment		
Employed	143	47.8
Unemployed	156	52.2
Employment type		
Permanent	148	49.5
Temporary	151	50.5
Employment time		
Full time	148	49.5
Part time	151	50.5
Sector		
Government	97	32.5
Semi-government	13	4.4
Private	79	26.4
Agriculture	43	14.3
Business	67	22.4
Income Level		
Below 20,000	49	16.4
20,001-40,000	72	24.1
40,001-60,000	62	20.7
60,001-80,000	47	15.7
80,001-100,000	24	8.0
Above 100,000	45	15.1

The data provides a complete **demographic profile** on the structure of the sample population in terms of individual characteristics: age, gender, residence, marital status, family system, family size, education, employment, type of employment, and level of income. In age, the 45-54 age group is the largest at 30.8% while the lowest age category is 65 and above at 5.7%. By gender, the male majority is very strong at 78.9%, while the female rate is 21.1%. The residential breakdown represents a slight majority of urban over rural at 53.5% to 46.5%. Marital status is split into 73.2% married and 22.1% single. The family system is majorly nuclear, 56.5%, while 52.8% of the respondents have large families, with six or more members. Low education has taken the largest proportion of the population's education composition, with 8.4% matric, 9% intermediate, 22.1% matric, 27.4% matric, while those who completed higher education constitute the lowest proportion, with 33.1%. On the question of employment, the sample is virtually split between the employed, 47.8%, and the unemployed, 52.2%. The type of employment is almost evenly split between permanent, 49.5%, and temporary, 50.5%, and likewise with the time of employment, full-time, 49.5% and part-time, 50.5% splits. Employment is split

across sectors, with a formidable governmental workforce of 32.5%, smaller representations from the private sector, 26.4%, agriculture, 14.3%, and finally business, 22.4%. The distribution of income is such that the highest number of respondents falls in the category of 20,001-40,000 with 24.1%, followed by 40,0001-60,000 with 20.7%, below 20,000 with 16.4%, above 100,000 with 15.1%, and 80,000-100000 with 8%.

Table 2
Descriptive Statistics

	Minimum	Maximum	Mean	Std. Error	Std. Deviation	Variance
Food Insecurity	1.00	5.00	3.3824	.05902	1.02058	1.042
Low Income	1.00	5.00	3.0861	.03675	.63549	.404
Low Education	1.00	5.00	3.6734	.04964	.85832	.737
Unemployment	1.00	5.00	3.4158	.05484	.94827	.899
Inflation	1.00	5.00	3.4326	.05977	1.03346	1.068
Large Family Size	1.00	5.00	3.4649	.05240	.90609	.821

Note. N=299.

Descriptive Statistics describe the characteristics of the distribution of variables by means, variability, and relative position to the others. The average 'Food Insecurity' score was 3.38 is considered to be close to the average indicating that respondents experienced a moderate level of food insecurity. This is nice, but the standard deviation of 1.02 is usually expected in normal distribution is a reasonable level of variability, which means that even though samples' average experience is moderate, there are a significant variety of low to high levels of food insecurity experienced in the sample. The table also gives comparable descriptive statistics of other variables such as 'Low income' , 'Low education', 'Unemployment', 'Inflation' and 'Large family size' that gives an initial view of their distribution and correlation to food insecurity. The mean of these variables are slightly above 3-3.5 as can be observed, on average respondents has rated most of the potential predictors as moderate. The standard deviations varied from 0.64 to 1.03, are relatively distributed in these variables showing heterogeneity of the sample in regard to the socio-economic status, education, experiences of unemployment and inflation rates, and family size.

Hypothesis Testing (Bivariate Analysis)

Table 3
Pearson Correlation

		Food Insecurity	Low Income	Low Education	Unemployment	Inflation	Large Family Size
Food Insecurity	Pearson Correlation	1					
Low Income		.598**	1				
Low Education		.566**	.104	1			
Unemployment		.595**	-.026	.561**	1		
Inflation		.537**	.001	.600**	.543**	1	
Large Family Size		.550**	.013	.510**	.553**	.629**	1

Note. N=299

****p< .001. *p<.05. **p<.01*

Pearson Correlation analysis results showed that there is a high and statistically significant relationship between 'Low Income' and 'Food Insecurity' with a correlation coefficient of 0.598 ($p < 0.01$). This positive direction implies that with the current low income earners the risk of food insecurity is extremely high. A high and statistically significant coefficient denotes that restricted monetary reserves significantly affect the

capacity of the households to afford sufficient and nutritious foods. This problem has been aggravated by increasing income disparity together with increasing costs of living which makes it more difficult especially for low income earners to purchase foodstuffs to meet the nutritional needs of their families. This finding is very important because of the necessary significance of income when defining the prospects of households to provide for their food necessities, however, due to low earnings, these chances are significantly limited. Furthermore, there is a moderate and positive relationship between 'Low Education' and 'Food Insecurity' as shown by the correlation result of ($r = 0.566$, $p < 0.01$). This moderate correlation also suggests that lower education levels increase the probability of food insecurity amongst this population. Education has been described as inability to attain good paying jobs and hence increases food insecurity risks. It is in line with the beliefs that education translates to better job markets and higher earnings, which will in turn give one an ability to secure better accesses to food. Likewise, there are positive correlations between 'Food Insecurity' and 'Unemployment' ($r = 0.595$), 'Inflation' ($r = 0.537$) as well as 'Large Family Size' ($r = 0.550$), meaning that high levels of unemployment, inflation and large family size are associated with high levels of food insecurity. These relationships are intuitive: less income is earned when one is unemployed, purchasing power decreases when there is inflation and that there are more people to feed in a large family, all of which leads to food insecurity. These findings endorse the idea that food security is a complex problem, in many ways connected with socioeconomic characteristics, influencing, in turn, the food security.

Conclusion

The study identified that food insecurity is increasing in Punjab, Pakistan due to several socioeconomic factors. The study findings indicated that a significant proportion of households in the province are unable to access a sufficient quantity of nutritious food due to low, inconsistent, and stagnant income. Moreover, the majority of household heads in Punjab either lack or have limited access to quality higher education. Also, high unemployment and inflation rates, along with substantial family sizes, are adversely affecting the financial stability of households in Punjab. These socio-economic issues compel households to compromise on both the quality and quantity of food. This tradeoff is not only exacerbating food insecurity and health issues but also perpetuating cycles of poverty in Punjab.

Recommendations

Food security is crucial not only for human health but also serve as a foundation for country's overall economic development. Food insecurity will consistently harm human capital and escalate government fiscal expenses. This will also lead to extended economic stagnation in the long term. Consequently, food security is essential for both immediate and long-term economic growth and must be integral to a comprehensive cross-sectoral strategy at all levels.

It is essential to recognize that food insecurity is a complex issue necessitating coordinated actions across all sectors. Eliminating food insecurity necessitates multi-sectoral solutions focused on reducing inequities and targeting at-risk populations. Improving food security requires better access to education, increased employment opportunities, and fair wages, specifically for low-income households. Controlling inflation and stabilizing food prices is crucial for improved food accessibility. Moreover, family planning awareness can alleviate the impact of large family size on household food security.

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