



FOOD CONSUMPTION OUTLINES AND SUSTAINABLE FOOD SECURITY AMONG LOW-INCOME HOUSEHOLDS IN RURAL PAKISTAN

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ABSTRACT

This study was based on food consumption outlines and sustainable food security among low-income households in rural Pakistan. Previous research and literature show that food secure household with higher income have access to better food consumption in rural Pakistan. Through proportional allocation technique a sample size of 102 respondents were randomly selected from the study area. A multinomial regression model was used for data analysis which was based on three categories. The findings of this study were based on age, family type, number of family members, off farm income which has significant effect on household food security. Food outline has also significant effect on household income. Thus, those households who were engaged in the farming experience are also much secure for food but household with less experience and privation of livestock activities are comparatively lower than the experienced one. Consequently, the government should take initiative to improve its extension activities for rural farmers so that to improve their productivity and make provision of food security to local people.

Keywords: food security, food outline, household income, rural Pakistan

INTRODUCTION

Food is one of the basic necessities of life without which one can't survive. Food is necessary for healthy and wealthy life. Agriculture sector provides the backbone for providing food commodities to the economy. It means if agriculture sector of a country is advanced and rely on modern techniques, then it will be able to provide sufficient amount of food to the households. Food security is a state in which all the people at all the times have access to sufficient, safe and nutritious food. Access refers to both the physical and economic access, which means people must be able to approach the food items and must have purchasing power to buy them. Similarly, nutritious food means the one that is having all the necessary nutrients which are the part of balanced diet. In short, food security is referred to achieve triple A's, i.e Availability of food, Accessibility and Affordability of food by the people. In addition to these three dimensions the stability of food is also necessary to achieve food

security. Food security is basically determined by the process involving the pathway that link production, distribution and consumption of food items (Andreson, 2018). Although, food security and food insecurity both are opposite to each other and dynamic that depends on time and interaction between the pressures and severity of food insecurity and the strategies adopted to deal with such kind of pressures and severities (Peng *et al.*, 2019). The degree and severity of food insecurity varies from countries to countries, regions and areas. The handy conditions of food insecurity are influenced by many factors and may vary in magnitude across different areas, states and society (Andresen, 2009).

Thus, it is a problem of the communities all over the world. Countries are adopting different strategies to cope with food insecurity. The harshness of food insecurity is created in developing countries, although developed countries are also facing food insecurity with low severity. Besides the recent Pandemic had alarming effects on the food security status of the whole world. Pakistan is one of the developing counties of the world facing severe food insecurity

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due to climatic change in the area. Before pandemic Pakistan was facing high level of food inflation, which became more severe due to locust attack in year 2020. Similarly, due to lockdown large proportion of perishable food items were wasted which further alerts the situation of food security in the area (GoP, 2020). Although in Pakistan only 30 percent of its potential production had achieved still it is almost self-sufficient in the production of food. But people in the area are still below the standards which are set up for national food security line (Hussain, 2010).

Pakistan had made significant progress in food production over the last several decades. Although, due to high population growth, low purchasing power, rapid urbanization, price fluctuations, inefficient food distribution systems and natural disaster food security is still challenge for the government. About 18 percent of the population in Pakistan is undernourished according to food security assessment (NIPS, 2016). The malnutrition severity is high in rural areas and upper mountainous areas of Pakistan. Food insecurity in the area is also due to limited economic access of the poor people to the food (Akhtar, 2020).

It has been estimated that the number of malnourished people is above one billion in the world (FAO, 2017), which is increasing day by day. The major proportion of these people are found in developing countries. The two continents which are broadly affected by food insecurity are Africa and Asia. The number of malnourished people in sub-Saharan Africa was one third of the population (AFSB, 2011). Food security is having many dimensions that covers climatic conditions, society unrest and social norms along with the production, distribution and consumption of food items. The determinants of food security are not same rather they are different at different levels of application, which means the determinates differs for global, national, regional, household and individual level. A number of studies analyzed the determinants of food security for rural households in Pakistan. The factors affecting the food security of rural households were low purchasing power, large family size, low education level, large number of dependents and low income (Mahmood and Shaikh 1991). Ahmed and Siddiqui (1995) Factors identified were based on high growth rate of population in Pakistan, unequal distribution of income and high percentage of people migrating to urban areas. Similarly increase in the cost for irrigation water, large burden of debts on farmers and the lack of modern technology are also the

key factors to affect the food security status in rural households of Pakistan. Similar cultural and social factors have also negative impact on food security status in rural households of Pakistan (Molnar, 1999).

The amount of nutrients intake is also affecting the food security status in rural Pakistan. The people residing in rural areas of Pakistan was found to have less intake in terms of nutrients intake. The food taken by them was not balanced and didn't contain the required calories to nourish their bodies properly. As a result, the economic activities in the area were badly influenced and also the health status of people was very poor (Schichting and Esfahani 2004). The case of food security is more severe for children and women in rural areas of Pakistan. Those families which were leaded by female households were found more food insecure. Similarly, families where mothers were having low educational level and the higher age difference between mother and child were the reasons to affect the food security level of children in rural areas of Pakistan (Hazarika and Khasnobis 2005). Banking industry also took part to increase the level of agricultural production by providing credit to accelerate the agricultural business in rural areas of Pakistan (Mongid and Tahir 2008). Subsequently by using modern agricultural technologies, modern systems of irrigation, integrated pest management and high production seed varieties are the factors that increases the production of food and hence played role to decrease the severity of food insecurity (CLI 2002). Food security is the main problem in Pakistan households with low level of income are more food insecure in order to understand how to improve the life standard of the people and improve the productivity of the local community this research work will contribute elaborate food security problem in rural Pakistan. The main objectives of this study were based on to know about the household consumption in provision of their food. To understand the foods security main problems faced by different household. To know give recommendations on the bases of their results.

MATERIALS AND METHODS

This section of the paper is based on the research methodology of the study. District Malakand was the universe of the study and the area of research was based on two selected villages. In order to understand about food security in district Malakand this study was conducted. Strategically District Malakand is very important due to its regional location because it is an important

gateway for northern areas. 952 kilometres is the total area of district Malakand. A stratified sampling technique was used and data was collected through a semi structured questionnaire. The sample size of this research assignment was based on Kot and Ghari Usmani Khel which are the two villages from the district Malakand. Ghari Usmani Khel with its total number population was based on 20781 households and Kot was based on 38100 of total number of households. Proportional allocation sampling technique: Yamane formula was selected to rationalize sample size from the total population.

$$n = \frac{N}{1 + (e)^2}$$

$$n = \frac{58881}{1 + (58881)(0.01)}$$

$$n = 102$$

A total 102 sample size were calculated from the total population with 10% confidence interval.

Classification	Total population	Sample size
Ghari Usmani Khel	20781	54
Kot	38100	48

The model of this study was based on multiple regression which can be written as bellow.

Model:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15} + \beta_{16} X_{16} + \beta_{17} X_{17} + \gamma_1 D_1 + \gamma_2 D_2 + \epsilon_i \dots \dots \dots (1)$$

RESULTS AND DISCUSSION

The purpose of this research was to examine the availability and utilization of food along with the perception of heads of household followed by a discussion of limitations of the study, policy implications, future research and conclusion.

Table 1 shows the descriptive of the households and their food security in rural Malakand Area. The mean age of the households in selected villages are 45.70 years with its standard deviation as 10.52 however, the min age of the households is 20 years and maximum age of the household is 80 years. Education of the household with mean value as 4.97 with its standard deviation value as 5.44 however its minimum value as 0 and maximum value as 16. The marital status of the household is 2.06 and the standard value is 0.34 and minimum value as 1 and 2 is maximum value. Income of the

household is 60,485.29 Pakistani Rupees and the standard deviation is 44,894.84 however the minimum value of the income level of the household is 15,000 and 225,000 is the maximum value. Off farm income of the household shows that a total 15769.61 mean and standard deviation as 9464.54 minimum value was based on 0 value and the maximum was based on 56000. The total land cultivated with its mean value was 2.87 acres however the standard deviation was 2.37 with minimum value as 0 and maximum value 14 acres.

Table 1. Description of small farm households

Classifications	No.	Mean	Std. Dev.	Min.	Max.
Age of the HH	102	45.70	10.52	20	80
Education of the HH	102	4.97	5.44	0	16
Marital Status of the HH	102	2.06	0.34	1	3
Family Type of the HH	102	1.18	0.38	1	2
Income of the HH	102	60,485.29	44,894.84	15000	225000
No. of family Members of HH	102	6.52	1.94	2	13
Off farm income of HH	102	15,769.61	9,464.54	0	56000
Land Under Cultivation of HH	102	2.87	2.37	0	14
No. of Small Ruminants	102	1.38	1.91	0	8
No. of Large Ruminants of HH	102	1.81	1.14	0	5
Farming Experience of HH	102	14.71	11.97	0	45
Access to credit of HH	102	1.51	0.50	1	2
Wheat Consumed per week of HH	102	886.10	454.53	165	2500
Mutton Consumed per week of HH	102	630.74	363.33	0	1600
Beef Consumed per Week of HH	102	257.35	518.83	0	2700
Poultry consumed per Week of HH	102	309.02	518.83	0	1350
Rice consumed per Week of HH	102	77.40	134.60	0	540
Milk consumed per week of HH	102	284.31	108.78	0	540
Other of HH	102	532.50	266.26	0	1540

Source: Authors own survey data 2021

The farming experience of the household was based on mean value as 14.71 and the standard deviation was based on 11.97 however, the minimum value was based on 0 and the maximum value was based on 45. Wheat consumed by the household per week was based on mean value as 886.10 Pakistani rupees and the standard deviation was based on 454.53. However, the

minimum value of the households was based on 165 and maximum was based on 2500 Pakistani Rupees. Mutton and beef consumed per week were 630.74 and 257.35 respectively with its mean value. Poultry consumed per week of the household was based on 309.02 with its mean value and rice consumed per were based on 77.40. Milk was consumed by the household were based on 284.31 with its mean value and the standard deviation was based on 108.78.

Table 2. The regression results of the small farm households

Classifications	Coefficient	Std. Err.	P-Value	
Age of the HH	-636.03	370.9426	0.090	**
Education of the HH	397.99	550.4417	0.472	
Marital Status of the HH	1716.18	10649.79	0.872	
Family Type of the HH	32171.75	9252.303	0.001	***
No. of family Members of HH	9886.33	2463.634	0.000	***
Off farm income of HH	1.39	0.425599	0.002	***
Land Under Cultivation of HH	-620.98	1762.379	0.725	
No. of Small Ruminants	-1111.13	1730.795	0.523	
No. of Large Ruminants of HH	-5613.57	3272.966	0.090	**
Farming Experience of HH	505.03	330.5323	0.130	*
Access to credit of HH	7471.32	6034.643	0.219	
Wheat Consumed per week of HH	-29.79	12.70452	0.021	***
Mutton Consumed per week of HH	24.74	8.891074	0.007	***
Beef Consumed per Week of HH	10.35	6.787461	0.131	*
Poultry consumed per Week of HH	15.72	9.739285	0.110	*
Rice consumed per Week of HH	93.99	28.96367	0.002	***
Milk consumed per week of HH	59.29	36.25375	0.106	*
Other of HH	-2.43	2.900214	0.404	
R-squared= 0.6923	F-value = 10.25			

Source; Authors own survey data 2021

Table 2 the age of the household shows that food security has negative and significant effect with its p-value as 0.090. Family type has also significant effect on household income with its p-value as 0.001. Number of family members has also a significant effect with its p-value as 0.000. Off farm income also has a significant effect with the income level of the household and its p-value as 0.002. Notwithstanding the circumstance that hunger and food insecurity are significances of constrained economic and financial resources, the customary income and scarcity dimensions do not make available strong evidence about food security. Indication maintained by analysis of food

security data designates that numerous low-income households give the impression to be food secure, while a small amount of non-poor households seems to be food insecure (Bickel et al. 2000). Number of large ruminants has significant effect with its p-value as 0.090 however, the farming experience of the household has significant value with 10%. Wheat consumed per week of the household with its p-value as 0.021. Mutton has also significant effect on income of the household with its p-value as 0.007. Rice consumed by the household has also a significant effect with the income level of the household. Subsequently by using modern agricultural technologies, modern systems of irrigation, integrated pest management and high production seed varieties are the factors that increases the production of food and hence played role to decrease the severity of food insecurity (CLI, 2002).

CONCLUSION

As this research is based on food consumption outlines and sustainable food security among low-income households in rural Pakistan with its significant result shows that high income households are more secure. Aforesaid literature show that food secure household with higher income have access to better food consumption in rural Pakistan. Experienced farmers who are engaged in the farming practices are more food secure comparatively to less experienced farmers. Thus, the government should take initiative to launch some programmes for agriculture productivity of the farmers who are engaged in these rural areas from the last few years. Agriculture sector should engage their experts with farmers in these rural areas in order to improve their productivity and make them more food secure.

AUTHOR'S CONTRIBUTION

- S. Khan:** Study design
- M. Adil Khan:** Data analysis
- S. M. Amir:** Wrote manuscript
- F. M. Khan:** Data collection
- E. Inamullah:** Reviewed and proof reading

REFERENCES

- Akhtar, N. 2020. COVID-19 in Pakistan: Current scenario and future perspective. Journal of Clinical and Experimental Investigations, 11 (4): 1-7.
- Andresen, M. A. 2009. Asynchronous discussion forums: success factors, outcomes, assessments, and limitations. Journal of

- Educational Technology and Society, 12 (1): 249-257.
- Anderson, J. R. 2018. Concepts of food stability in food security. *In*: Ferranti, P. Berry, E. Anderson, J. R. (Eds.), Encyclopedia of Food Security and Sustainability. Elsevier, Oxford.
- AFSB, 2011. Africa Food Security Brief Quarterly Bulletin, 1. www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Africa%20
- Ahmed, A. and S. Siddiqui. 1995. Food security in Pakistan: Can it be achieved. *The Pakistan Development Review*, 34 (4): 723-731.
- Bickel, G., M. Nord, C. Price, W. Hamilton and J. Cook. 2000. Guide to measuring household food security. Washington, DC: US Department of Agriculture. Food and Nutrition Service.
- CLI, 2002. Water and improved technology are key to sustainable agriculture and food security, press release, Crop Life International (CLI), Brussels.
- FAO, 2017. The future of food and agriculture: Trends and challenges. Retrieved May 2018 from: <http://www.fao.org/3/a-i6583e.pdf>. Accessed May 2018.
- Andersen, P. and A. Herforth. 2009. Food security: Achieving the potential environment, Science and Policy for Sustainable Development, 50 (5): 48-61.
- GoP, 2020. Pakistan Economic Survey (Chapter 12), Retrieved from http://www.finance.gov.pk/survey/chapter12/12_Population_Labour_Force_and_employment.pdf
- Hussain, A. 2010. Achieving Food Security in Pakistan: Assessment of Current Situation and Policy Issues at National and Regional Levels, LAP Academic Publishing, Saarbrücken
- Hazarika, G. and B. Khasnobis. 2005. Women's Status and Children's Food Security in Pakistan, Department of Business Administration, University of Texas, Austin, TX.
- Mongid, A. and I. M. Tahir. 2008. Involvement of banking industry on reducing food insecurity, paper presented at the 33rd Annual Conference of the Federation of Asians Economic Association, Hanoi.
- Molnar, J. 1999. Sound policies for food security: The role of culture and social organization, *Review of Agricultural Economics*, 21 (2): 489-98.
- Mahmood, S. and K. Shaikh .1991. Food poverty and its causes in Pakistan. *The Pakistan Development Review*, 30 (4): 821-34.
- Peng, W. and E. M. Berry. 2019. The Concept of Food Security. *In*: Ferranti, P. Berry, E. M. Anderson, J. R. (Eds.), Encyclopedia of Food Security and Sustainability, 2: 1-7.
- Schichting, D. and F. A. Esfahani. 2004. Household food security in the Northern areas of Pakistan: An empirical analysis, paper presented at the 5th Annual Research Conference 2004 on Sharping Population and Development Research across South and West Asia, held in University of Karachi.

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