Cross Sectional Study On Household Food Insecurity and Associated Factors in adult health status in Afghanistan

By Muhammad Eshaq Safi

RegistrationNo 00000359700

Supervisor
Dr Adeeb Shehzad

Department Of Biomedical Engineering And Sciences
School Of Mechanical And Manufacturing Engineering
National University Of Sciences And Technology
Islamabad, Pakistan

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Dr Adeeb Shehzad

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THESIS ACCEPTANCE CERTIFICATE

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Signature: 

Name (Supervisor): Adeeb Shehzad

Date: 25 - Jul - 2024

Signature (HOD): 

Date: 25 - Jul - 2024

Signature (DEAN): 

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We hereby recommend that the dissertation prepared under our supervision by: Mohammad Eshaq Safi (00000359700)
Titled: Cross Sectional Study On Household Food Insecurity and Associated Factors in adult health status in Afghanistan be accepted in partial fulfillment of the requirements for the award of MS in Biomedical Sciences degree.

Examination Committee Members

1. Name: Muhammad Asim Waris Signature:

2. Name: Aneeqa Noor Signature:

Supervisor: Adeeb Shehzad Signature:

Date: 25 - Jul - 2024

Head of Department 25 - Jul - 2024

Date

COUNTERSINGED

25 - Jul - 2024

Date Dean/Principal

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No part of this thesis has been submitted anywhere else for any other degree. This thesis is submitted to the BMES in partial fulfillment of the requirements for the degree of Master of Science in Field of BMS

Department ofBMES NationalUniversityofSciences and Technology, Islamabad.

Student Name:Mohammad Eshaq Safi Signature: _____

Supervisor Name: Dr Adeeb Shehzad Signature: _____

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Dedicated to my exceptional parents and adored siblings whose tremendous support and cooperation lead me to this wonderful accomplishment

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List of Symbols, abbreviations and acronyms

USDA: united state department ofagriculture. FAO: Food and agriculture organization.

HH: House hold.

HHM: House hold member. BMM: Body mass index.

HFI: House hold food insecurity. HFS: House hold Food Security.

Abstract

Everybody has the right to food security, which ought to be provided everywhere. There are many levels of food insecurity in Afghanistan, which covers the province of Nangarhar. Policy decision-making requires evaluation in order to be supported. The purpose of the current study was to ascertain the prevalence of food insecurity and the contributing factors in the province of Nangarhar. Using the 18-item home food security survey module from the US Department of Agriculture, 284 heads of household were questioned in-person for the current study. cooperation as well as civility.

With the use of SPSS v.23 and the chi-square test, the relationship between the independent and dependent variables was investigated. Fifty-four percent of the families had extremely poor food security, followed by moderate food security (5.6%), low food security (14.9%), and excellent food security (94.4%). In comparison, food insecurity affected 49.6% of households.

The results showed that there was a significant correlation between the type of district (2 = 84.99, P = 0.000), age (2 = 75.88, P = 0.000), marital status (2 = 59.17, P = 0.000), education level (2 = 52.72, P = 0.000), number of families in the household (2 = 90.40, P = 0.000), number of household members (2 = 90.09, P = 0.000), ownership of the house building (2 = 58.18, P = 0.000), monthly income (~^2 = 147.26, P = 0.000), spouse education level (2 = 10.00, P = 0.019), land size for agriculture (~^2 = 38..61, P = 0.000), and number of livestock (2^2 = 23.38, P = 0.246).

Inconclusion, the province ofNangarhar still has a high rate offood insecurity.

Responsible businesses should create and carry out efficient programs that give priority to the most disadvantaged target groups according to their sociodemographic traits in order to address this problem.

Keywords : Food Security, Nangarhar, Households, Insecurity, Socio-Demographic

CHAPTER 1: INTRODUCTION

All people "have physical and economic access to sufficient, safe, and nutritious food at all times" to meet their dietary needs and food preferences for an active and healthy life, according to the Food and Agriculture Organization of the United Nations (FAO).

Furthermore, according to the FAO, ensuring food security is a complex issue that involves the following aspects: Four elements determine food stability with respect to environmental, economic, social, and political aspects: (1) food availability; (2) food access; (3) food consumption; and (4) food stability.

There is a continuum between chronic food insecurity and medium- to long-term food insecurity, or between food insecurity and security (FAO, 2018).

Nevertheless, the lack of food security is what constitutes food insecurity; to put it another way, food insecurity arises when access to wholesome, nutrient-dense meals is restricted or unpredictable, or when obtaining them in ways that are acceptable in society. Schroeder and Smalldone (2016).

The concept of food insecurity has changed throughout time as new data sources and a deeper understanding of the issue have emerged. The prevalent definitions concentrate on the household level and comprise four components: (1) unstable food supply leading to anxiety, concern, or uncertainty; (2) inadequate food intake that may be inappropriate, unsafe, culturally inappropriate, lackluster, or monotonous; (3) insufficient food for one ormore family members, or uneven distribution of sufficient A number of dimensions can be used to evaluate food insecurity, such as the individual, the family, and the national, international, and regional levels (Cafiero et al., 2018; Alaimo et al., 2020). It impacts those who are socioeconomically poor and is linked to issues with behavior, education, mental health, and health, as well as decreased productivity and academic accomplishment. Given the significance of the problem, it is imperative to ascertain the frequency of food insecurity and associated variables in order to formulate suitable policies aimed at mitigating or controlling it (Honarvar et al., 2023).

Pakistan has become a major producer ofrice and wheat in recent years, producing more food than its population consumes. However, despite the general increase in food production, Pakistan's most vulnerable and impoverished citizens cannot afford a sufficient and nourishing Diet.

Developing nations are primarily affected by the worldwide issue of food insecurity. Food insecurity was expected by FAO (2023) to affect 2.4 billion people worldwide by 2022, ranging from mild to severe. That's around 11.3% of the world's population, or 900 million people, who were severely food insecure. The people most impacted by this issue are women and those who reside in rural regions.

Twenty-eight percent of adults in peri-urban and metropolitan areas reported greater rates of food insecurity in 2022 than did those in rural areas (33.3% versus 28.8 percent).

In 2023, 13.1 million people in Afghanistan—a third-world country with a severely inadequate economy—lived in extreme food insecurity (IPC, 2023), accounting for 29 percent of the country's entire population. The majority of research on food security examines households through a deficit-based lens, describing the factors that characterize food insecurity as seemingly unchangeable, including depression, low social networks, illiteracy, and household structures like single-parent households, unemployment, and low wages. Honarvar et al.(2023) found a substantial correlation between food insecurity and the head of the home, the father's employment, the mother's educational achievement, and ethnicity.

Furthermore, Toma et al. (2023) discovered a strong correlation between household food insecurity in southern Ethiopia and lower wealth indices, higher and medium dependence ratios, non-use of agricultural extension services, bigger family sizes, and non- beneficiaries of productive safety net programs.

Numerous studies have been done so far on the prevalence of household food insecurity worldwide and the factors that contribute to it.

The following regions are represented: South Carolina; Cooper (2013); Ekhlaspour et al. (2019); Riley and Caesar (2018); Malaysia; Indonesia; Iran; China; and Mozambique. To the best of our knowledge, not much study has been done on the determinants that contribute to or are associated with household food security in the province of Nangarhar, in the eastern portion of Afghanistan. AHMADZAI and Akbay (2019), for instance, looked into the variables influencing food security in Afghanistan's eastern area. Unfortunately, no research on the state of food security and its causes in eastern Afghanistan, particularly the province of Nangarhar, has been published since the country's political transition.

To enable policy-level decision-making, Afghanistan— which includes the province of Nangarhar—struggles with various levels of food insecurity. Therefore, the current study's goal

was to determine how common food insecurity is in Nangarhar province and what variables contribute to it.

In-person interviews with 284 heads of household were conducted for this study. Food security in households was found to be high in 94.4% of cases, marginal in 5.6%, and highly secure in 50.4% of cases; in contrast, 49.6% of families experienced food insecurity, with 14.9% experiencing low food security and 85.1% experiencing very bad food security.

1.1 Problem Statement

As far as we are aware, no empirical study has been conducted regarding the frequency and contributing variables of household food security in Afghanistan's Nangarhar province. Many studies have been conducted in Afghanistan to examine the frequency andcontributing factors of family food insecurity. This study aims to determine family food security frequency and associated variables in each of the 22 districts that make up the province of Nangarhar.

The province of Nangarhar in Afghanistan is experiencing severe food insecurity due to several factors. The most significant, which has a significant impact on family members' present and future

circumstances, is household food insecurity. Obtaining data on household food insecurity is essential for policy makers, aid

agencies, and other organizations that create food policies for Afghanistan's population, particularly in the province of Nangarhar.

1.2 The study's purpose and goals

The principal aim of the research was to ascertain the prevalence and noteworthy contributing elements of food insecurity among households residing in the province of Nangrahar. To accomplish this goal, the ensuing objectives were developed.

- To find out how frequently households in Nangrahar province experience food insecurity.
- To evaluate the connection between household sociodemographics andfood insecurity in the province of Nangarhar.

Hypotheses:

- There exist discernible variations in the incidence of food insecurity among householdsresiding in the designated districts of Nangrahar province.
  There is a correlation between the sociodemographic characteristics ofNangrahar province households and the incidence of household food insecurity.

Chapter 2: Literature Review

Food security levels and sociodemographic characteristics associated with food security were evaluated by Ekhlaspour et al. (2019) among households in Baft, Iran. 34.3% of households experienced with food insecurity in some way, according to the findings of their investigation. shrinkage of the dwelling (OR=0.84, CI:0.73-0.98, P=02). Higher educational achievement (a diploma against an underdiploma) and higher welfare facilities (OR=1.55,CI:1.32-1.81.p<.001) were characteristics of the mothers and their spouses.

It was shown that food insecurity among Baft households was associated with sociodemographic traits. Specifically, the rate of homeownership (OR=0.41, CI: 0.81,P=01) and the government employment rate (OR=1,65,CI:1.05-2.58,P=02) were significant predictors of food security when compared to the spouse's unemployment rate (OR= 1.85,CI:1,14-2.99.p=01).

These results show that in order to increase the food security of this city's residents, the government must keep trying to [give appropriate funding for population-based initiatives and policies].

Honarvar et al. (2023) examined the prevalence of household food insecurity and related factors in Northeastern Iran. According to their data, 43.21% of households had enough food, while 56.79% did not. The percentage of households experiencing food insecurity that fell into the mild, moderate, or severe categories was 52.39%, 32.82%, and 14.79%, respectively. Moderate to severe food poverty and poorer educational attainment were significantly connected with mothers heading the household. In a 2014 study, Abdallahi et al. assessed the relationship between food security and anthropometric measurements among Afghan refugees residing in Pakdasht, a prominent camp in the Tehran area.

The cross-sectional research covered 414 homes with records of Afghan refugees. Overweight or obese status affected over 58% of the women. A recent malnutrition is indicated by the high rates of underweight and wasting in children (11.0 and 12.7%, respectively). Thus, the empowerment of Afghan refugees must be the primary goal of government institutions and refugee help organizations. Communities in the Senegal Matam region were examined by Akpaki et al. (2020) for the availability of food and the degree of food insecurity.

According to the study's findings, 64% of all households faced acute food insecurity, and approximately 75% of homes had 0 to 3 foods, 7% had 7 to 10, and so on. Food security inside households was

connected with food availability in households and socioeconomic position; however, food availability within communities was negatively correlated. In the event of a shock, the area might require food assistance, but increases in the socioeconomic condition of households could make food more accessible to them.

The impact of food insecurity at home on junior high school pupils' absence from school in Ghana was assessed by Baiden et al. (2019). According to their investigation's findings, 58.1% of the 1,121 kids who were evaluated from households where there was food insecurity, and 39.8% of them had skipped class without permission in the 30 days prior. Even after adjusting for a variety of variables. A higher probability of missing school is linked to several conditions, including being the target of bullying, getting into fights at school, feeling lonely, and having suicidal thoughts in the past. usage of alcohol and illegal drugs. Parental support may have a protective effect on absenteeism, as seen by the 4% decrease in risk of missing school that was linked to a higher parental support score.

In order to investigate the causes of food insecurity and explore potential remedies, Christaldi et al. (2014) looked at food insecurity in Lackawanna County, Pennsylvania. Three primary themes emerged from their research: (1) the relationship between food accessibility and community food aid; (2) the economy's significant influence on food insecurity; and (3) comparable patterns in food consumption. These results will guide the creation of an all-encompassing strategy to eradicate hunger in the community and act asa template for other communities.

Chapter 3. Materials and Methods

3.1 Sample size and study design

The province of Nangarhar served as the site of the current cross-sectional investigation. The province, which has a population of 1,836,000 and an area of 7,727 km2, is situated in the eastern part of Afghanistan. The province of Nangarhar is situated at 33°56′N, 70°28′E and is bordered by the provinces of Laghman, Kunar, Nuristan, Paktia, and Logar. There are 262,285 residences in Nangarhar province. Using the methods in the Morgan and Kreijcie table, the sample size of 284 homes was calculated with a 95% confidence level and a 5% margin of error. The sample size for the research population was established by the use of multiple stage random sampling. First, a random selection of fifteen districts was made; then, a random selection of a target number of villages within each district was made in order to gather data.

Your sample size is X^2 NP (1-P) + d^2 (N-1) + X^2 P (1-P).
The given information includes the sample size (S), population size (N), population percentage (P) (0.50), accuracy level (d) (0.05), and table value (X^2) of the chi-square for one degree of freedom at the designated confidence level (3.84).

3.2 DETERMINING THE IMPACT OF FOOD INSCURABILITY

The 18-item U.S. Household Food Security Survey Module was used to determine the level of food insecurity in households.

This module classified the following responses as affirmative: "Yes," "often," "sometimes," "almost every month," and "some months but not every month."The total of all yes responses to a particular set of questions was used to determine the household's raw score. Based on unprocessed scores, the following represents a split of food insecurity in households:

There are three categories of food securitywhen there is no score: veryhigh, moderate, and low, with a range of 1-2. Food security is extremely low (raw score 8–18). The module came to the conclusion that the first two categories were considered to be foodsecure, whereas the final two were classified as food insecure. Analyzing the Economic and Population Situation

Demographic and socioeconomic variables include things like anthropometrics, chronic sickness, governmental and non-governmental aid recipients, ethnicity, age of the mother,marital status, number of children, household income, and type of family.

Additional attributes comprise home ownership, status as a married person, age and sex of the HH head, As well as the HH head's employment and educational background. The qualities of each variable are listed In a carefullydesigned questionnaire.

3.3 Anthropometric

The calculation of The respondents' height was measured using a wall-mounted stadiometer to the nearest 0.1 cm, and their body weight was recorded using an electronic digital scale while they were wearing light clothing. The individual's height (measured in meters squared) was then divided by their weight (measured in kilograms) to get their body mass index (BMI), as indicated by the following formulas: BMI^2 / (Height / Weight)

3.4 Statistical analysis

Using the chi square test, research factors were examined between the safe and insecure groups. It was deemed statistically significant when the P value for the relationship between the research variables was less than 0.05. There was a proportion and frequency that matched each variable. The statistical analysis was performed using SPSS software (version 23.0), Chicago, Illinois, USA.

3.5 Questionnaire

We have usedthe following questionnaire format for datacollection.

Questionnaire No: Date: Introduction

In order to maintain the integrity of human existence, all people must be granted their legal rights, which include the right to food that is complete, safe, and available whenever they need it on a physical, social, and economic level. In scientific parlance, this right is known as food security. It is crucial and essential to ascertain the level of food security of the populace and to establish projects and programs in response to the findings.

This study was created with the intention of determining the food security of Nangarhar provincial families as well as the efficacy of the contributing elements. You will be questioned about social, economic, and regional aspects in this quiz. Your personal information will only be used for this research and will not be disclosed to third parties or kept private. I appreciate your participation..

3.51 Socio-Economic Situation

Name:_____Age: _____

Tribe: _____

○ Pashtoon ○ Tajik ○ Pasha-e ○ Other:

Education Level:

○ Illiterate ○ 12th pass ○ Bachelor ○ Master ○ PhD

Village:_____District:_____

Employment Status:

○ Unemployed ○ Employed

Marital Status:

○ Married ○ Unmarried ○ Divorced ○ Widow/Widower

Number of Households in House: _____

Number of Members in Household: _____

Are you the owner of the house?

○ Yes ○ No

How much is your family monthly income?_____Do you receive financial support from any organization?

○ Yes ○ No

Is your wife alive?

○ Yes ○ No

Wife Employment Status:

○ Employed ○ Unemployed

Your Wife's Education Level:

○ Illiterate ○ 12th pass ○ Bachelor ○ Master ○ PhD

Tell me about your property:_____acres

How many animals do you have? _____

3.5.2 Anthropometric

Weight of Chief of House:_____Height of Chief of House: _____
BMI of Chief of House: _____

3.5.3 dentification of Food Security Level

1. **Which of the following best sums up the food circumstances in your family overthe past year?**

○ There was much food available.

○ We could eat enough, but it wasn't what we wanted.

○ There wasn't always enough food to go around.

○ There wasn't always enough food.

2. **For the last 12 months, have you been worried that your food will run out beforeyou get**

paid?

○ Often ○ Sometimes ○ Never

3. **The food we received was not enough for a long time and we did not have moneyto get more.**

○ Often ○ Sometimes ○ Never

4. **In the last 12 months, have you not been able to eat a balanced diet?**

○ Often ○ Sometimes ○ Never

5. **Have you ever reduced your food intake or skipped meals because of financialhardship in the last 12 months?**

○ Yes ○ No

If so, how many times have you carried out this action?

○ Almost each month ○ After a few months ○ Just a month or two ○ I'mnot sure

6. **Have you ever undergone financial hardship and eaten less than your hunger inthe previous 12 months?**

○ Yes ○ No ○ I don't know

7. **Have there been times in the last year when you were extremely hungry butrefrained from eating due to a lack of funds?**

○ Yes ○ No

8. **Did you lose weight in the last 12 months as a result of not having enough moneyfor food?**

○ Yes ○ No ○ I don't know

9. **Have you or any other adult members of your household gone without food forthe entire**

day in the previous 12 months due to a lack of funds?

○ Yes ○ No ○ I don’t know

If so, how many times have you carried out this action?

○ Almost each month ○ After a few months ○ Just a month or two ○ I'mnot sure

10. **Have you had to feed your kids only a few cheap foods during the previous 12months due to financial hardships?**

○ Frequently ○ Occasionally ○ I'm not sure

11. **We have not been able to provide nutritious food for our child or children overthe past 12 months due to financial difficulties.**

○ Frequently ○ Occasionally

12. **Because we haven't been able to eat enough, we haven't been able to provide ourkids with a balanced diet during the past 12 months.**

○ Frequently ○ Occasionally ○ I'm not sure

13. **Have you ever reduced your children's food intake in the last 12 months sincethe current month of the previous year because you were short on funds for food?**

○ Yes ○ No ○ I don’t know

14. **Have you ever gone a whole year without feeding your child because you weretoo poor to buy food?**

○ No ○ I don’t know

If so, how many times have you carried out this action?

○ Almost each month ○ In certain months ○ Just one or two months

15. Have your kids gone without food in the past 12 months because you are toopoor to buy it?

○ Yes ○ No ○ I don’t know

16. Because there isn't enough money for food, your youngster hasn't eaten for aday in the past 09 months?

○ Yes ○ No ○ I don’t know

Chapter 4. Results

4.1 Socio-demographic of the Respondents

Table 4.1 displays the sociodemographic characteristics of the participants. Participating in the current survey were 284 family heads, of whom the plurality (24.3%) were from the Behsud area. Also, the findings revealed that the majority of household heads (70.8%) were between the ages of 20 and 30 and married (58.1%). Pashtuns made up the bulk of the study's sample (96.8%), followed by Tajik, Pashaee, and other ethnic groups. The data showed that 67.60% of them had completed higher secondary school (48.9%), followed by illiteracy and bachelor's, master's, and above degrees.

Additionally, the majority of respondents (83.8%) were unemployed according to the statistics relevant to their employment status.

The majority of households (42.6%) and those with more than 10 members (70.1%) have three or more families, according to the statistics. The majority of households (39.1%) hadmonthly incomes of more than $25,000 AFN, and 68.7% of them owned their own home.Conversely, the majority of respondents' spouses were unemployed (93.0%) and uneducated (88.7%). It is also reported that the majority of respondents (53.2%) do not own any property used for agriculture, and 53.2% of them do not own any livestock in their home.

Table 4.1. Socio-demographic patterns of the respondents. (N=284)

Variable	Category	Frequency	Percentage
District	Jalalabad City	34	12
	Behsud	69	24.3
	Surkhroud	13	4.6
	Khogyani	44	15.5
	Sherzad	23	8.1
	Pachir-Agam	9	3.2
	Chaprhar	19	6.7
	Kama	29	10.2
	Goshta	8	2.8
	Rodat	19	6.7
	Dehbala	13	4.6
	Kot	4	1.4
Age (years)	<20	16	5.6
	20-30	201	70.8
	31-40	38	13.4
	41-50	16	5.6
	>50	13	4.6
Marital Status	Single	118	41.5
	Married	165	58.1
	Widowed	1	0.4
	Divorced	0	0.0
Ethnicity	Pashtun	275	96.8
	Tajik	6	2.1
	Pashaee	2	0.7
	Others	1	0.4
Education Level	Illiterate	94	33.1
	Higher Secondary School	139	48.9
	Bachelor	49	17.3
	Master or above	2	0.7
Job Status	Unemployed	238	83.8
	Employed	46	16.2
# of families in HH	1-2	72	25.4
	3-4	121	42.6
	>4	91	32
# of HH members	2-4	5	1.8
	5-7	40	14.1
	8-10	40	14.1
	>10	199	70.1
House Ownership	Yes	195	68.7
	No	89	31.3
Monthly Income (AFG)	>10000	70	24.6

	10000-15000	28	9.9
	15001-20000	51	18
	20001-25000	24	8.5
	>25000	111	39.1
Spouse Education Level	Illiterate	252	88.7
	Higher Secondary School	17	6
	Bachelor	14	4.9
	Master or above	1	0.4
Spouse Job Status	Employed	20	7.0
	Unemployed	264	93.0
Agriculture Land Size	Doesn't have	151	53.2
	1-4 Jerib	119	41.9
	5-8 Jerib	2	0.7
	>8 Jerib	12	4.2
Agriculture Land Size	Doesn't have	151	53.2
	1-4 Jerib	119	41.9
	5-8 Jerib	2	0.7
	>8 Jerib	12	4.2

Prevalence of Household Food Security and its Association with Socio-demographic of

the Respondents

In contrast to 49.6% of households that did not have enough food, 50.4% of households reported having enough food (Figure 1). According to the findings, 94.4% of the families who were categorized as either food secure or food insecure had exceptionally high levels of food security, whilst 5.6% had only marginal levels. However, 85.1% of the families facing food insecurity had extremely low food security, while 14.9% had low food security

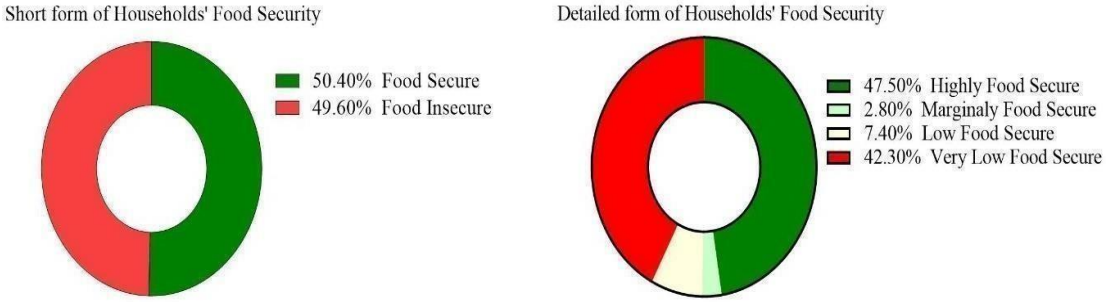

Figure 1 shows the short and detailed form of household food security in Nangarhar province of Afghanistan.

.Table 4.2 displays the findings of the home food security prevalence survey and how it relates to the respondents' sociodemographic profile. Based on the findings, the province of Nangarhar has 50.4% food-secure householdsand 49.6% food-insecure households.

With the exception of ethnicity (2 = 1.66, P = 0.647), work position (2 = 0.35, P = 0.630), and spouse job status (2 = 1.85, P = 0.246), every variable under examination had a significant statistical connection (P<0.05) with thedegree of food security. Based on the data, Pachir-Agam (100%) and Goshta (10%) were the districts with the

greatest rates of food insecurity. Those between the ages of 31 and 40 (97.4%), married (76.3%), illiterate (78.7%), having one to two families (90.3%), having four to six members (100%), not owning a home (83.1%), having a monthly income of less than

$100,000 AFN (97.1%), having spouses with higher education (81.3%), having unemployed spouses (58.8%), not having livestock (42.1%), and having one to two families (83.1%) were the households with the highest rates of food insecurity According to the study's findings, 64% of all households faced acute food insecurity, and approximately 75% ofhomes had 0 to 3 foods, 7% had 7 to 10, and so on. Food security inside households was favorably connected with food availability in households and socioeconomic position; however, food availability within communities was negatively correlated. In the event of a shock, the area might require food assistance, but increases in the socioeconomic condition of households could make food more accessible to them.

The impact of food insecurity at home on junior high school pupils' absence from school in Ghana was assessed

after adjusting for a variety of variables. A higher probability of missing school is linked to several conditions, including being the target of bullying, getting into fights at school, feeling lonely, and having suicidal thoughts in the past.

usage of alcoholand illegal drugs.

Parental support may have a protective effect on absenteeism, as seen by the 4% decrease in risk of missing school that was linked to a higher parental support score

Table 4.2. Association of household food securitywith socio-demographic of respondents.

(N=284)

Variable	Category	Food Security Food secure Frequency	%	Food Insecure Frequency	%	Chi squae value	%
District	Jalalabad City	51	73.9	18	26.1	84.99	0.000
	Behsud	10	29.4	24	70.6		
	Surkhroud	9	69.2	4	30.8		
	Khogyani	35	79.5	9	20.5		
	Sherzad	5	21.7	18	78.3		
	Pachir-Agam	0	0.0	9	100.0		
	Chaprhar	14	73.7	5	26.3		
	Kama	10	34.5	19	65.5		
	Goshta	0	0.0	8	100.0		
	Rodat	2	10.5	17	89.5		
	Dehbala	4	30.8	9	69.2		
	Kot	3	75.0	1	25.0		
Age	<20	13	81.2	3	18.8	75.88	0.000
(years)	20-30	127	63.2	74	36.8		
	31-40	1	2.6	37	97.4		
	41-50	1	6.3	15	93.8		
	>50	1	7.7	12	92.3		
Marital	Single	115	69.7	50	30.3	59.17	0.000
Status	Married	28	23.7	90	76.3		
	Widowed	0	0.0	1	100.0		
	Divorced	0	0.0	0	0.0		
Ethnicity	Pashtun	138	50.2	137	49.8	1.66	0.647
	Tajik	4	66.7	2	33.3		
	Pashaee	1	50.0	1	50.0		
	Others	0	0.00	1	100.0		
Education Level	Illiterate	20	21.3	74	78.7	52.72	0.000
	Higher	95	68.3	44	31.7		
	Secondary						
	School						
	Bachelor	28	57.1	21	42.9		
	Master Or above	2	100.0	0	0.0		
Job Status	Unemployed	118	49.6	120	50.4	0.35	0.630
	Employed	25	54.3	21	45.7		
#of Families in HH	1-2	7	9.7	65	90.3	90.40	0.000
	3-4	59	48.8	62	51.2		
	>4	77	84.6	14	15.4		
#of HH members	2-4	0	0.0	5	100.0	90.09	0.000

	5-7	3	7.5	37	92.5		
	8-10	2	5.0	38	95.0		
	>10	138	69.3	61	30.7		
House Ownership	Yes	128	65.6	67	34.4	58.18	0.000
	No	15	16.9	74	83.1		
MonthyIncome (AFG)	>10000	2	2.9	68	97.1	147.26	0.000
	10000-15000	5	17.9	23	82.1		
	15001-20000	20	39.2	31	60.8		
	20001-25000	18	75.0	6	25.0		
	>25000	98	88.3	13	11.7		
BMI	Underweight	0	0.0	4	100.0	75.31	0.000
	Normal	12	16.4	61	83.6		
	Overweight	47	46.1	55	53.9		
	Obese	84	80.0	21	20.0		
Spouse Education Level	Illiterate	130	51.4	123	48.6	10.00	0.019
	Higher Secondary School	3	18.8	13	81.3		
	Bachelor	10	71.4	4	28.6		
	Master or above	1	100.0	0	0.0		
Spouse Job Status	Employed	13	65.0	7	35.0	1.85	0.246
	Unemployed	130	49.2	134	58.8		
Agriculture Land Size	Doesn't have	58	38.4	93	61.6	38.61	0.000
	1-4 Jerib	84	70.6	35	29.4		
	5-8 Jerib	2	100.0	0	0.0		
	>8 Jerib	11	91.7	1	8.3		
#of Livestock	Doesn't have	132	57.1	99	42.1	23.38	0.000
	1-3	32	78.0	9	22.0		
	4-6	8	88.9	1	11.1		
	>6	2	66.7	1	33.3		

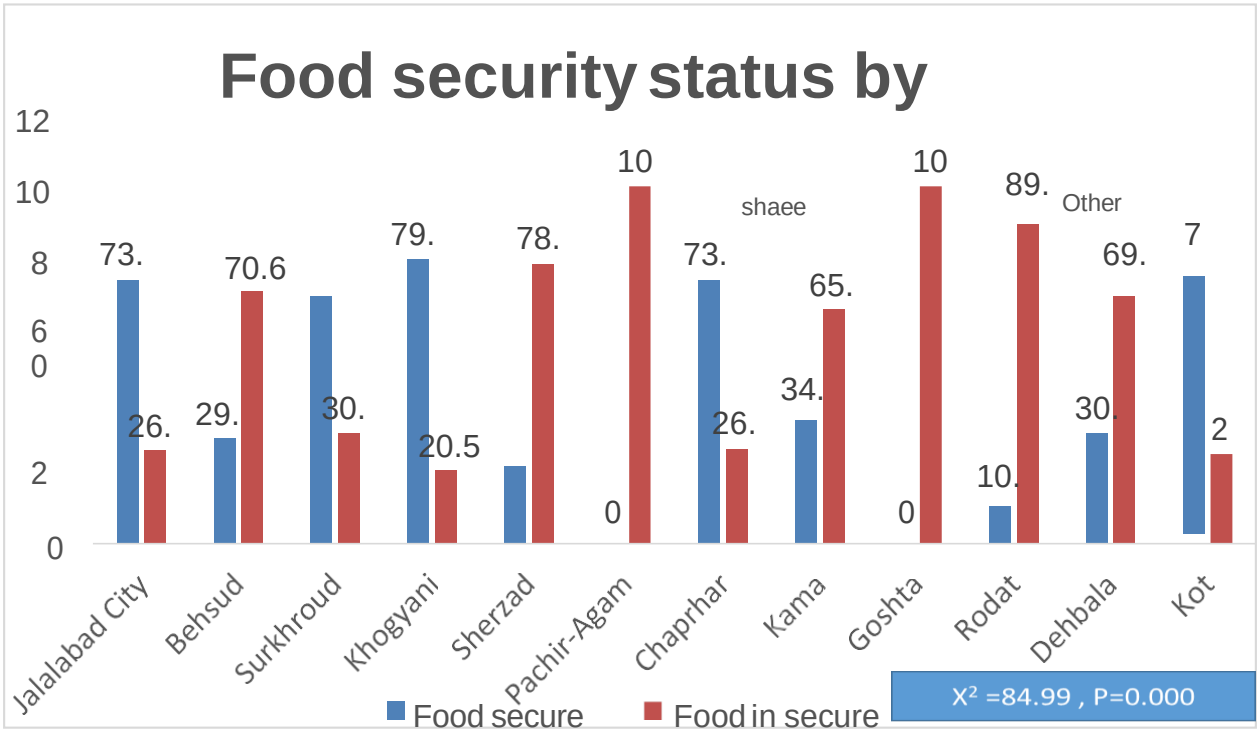

Figure2: the food security levelwas significantly associated with type ofdistrict

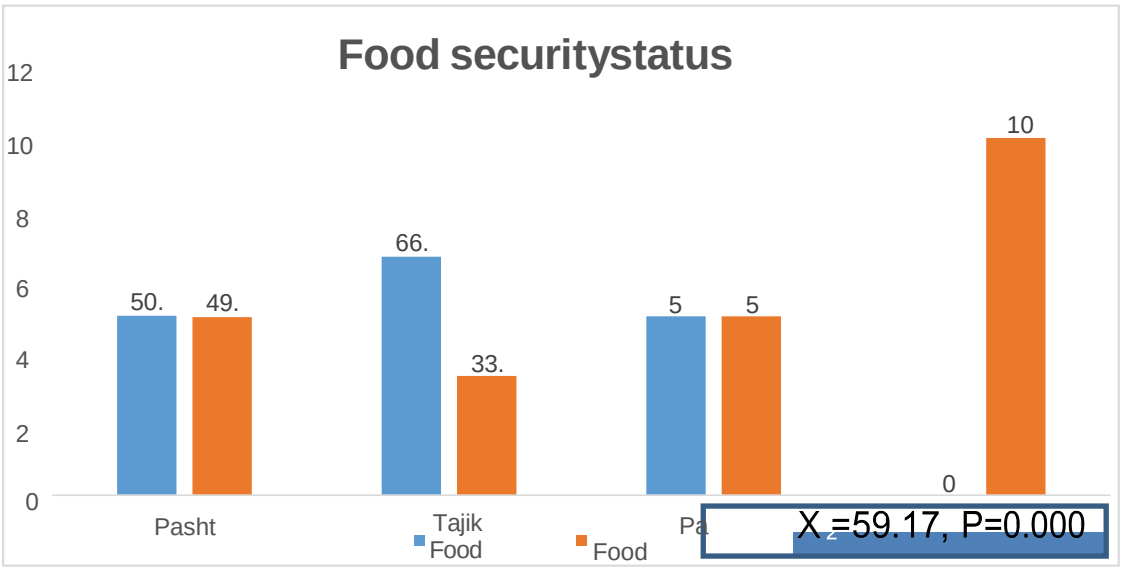

Figure 3. the food security levelwas significantly associated with type ofEthnicity

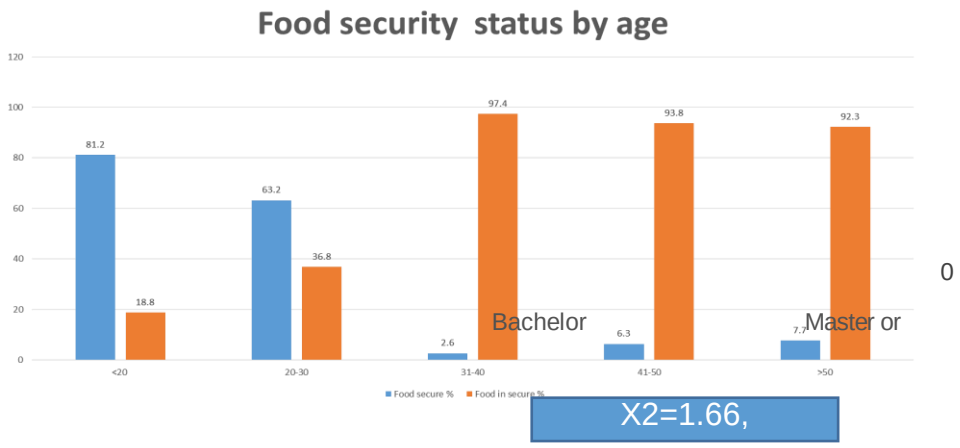

Figure 4. the food security level was significantly associated withtype of age

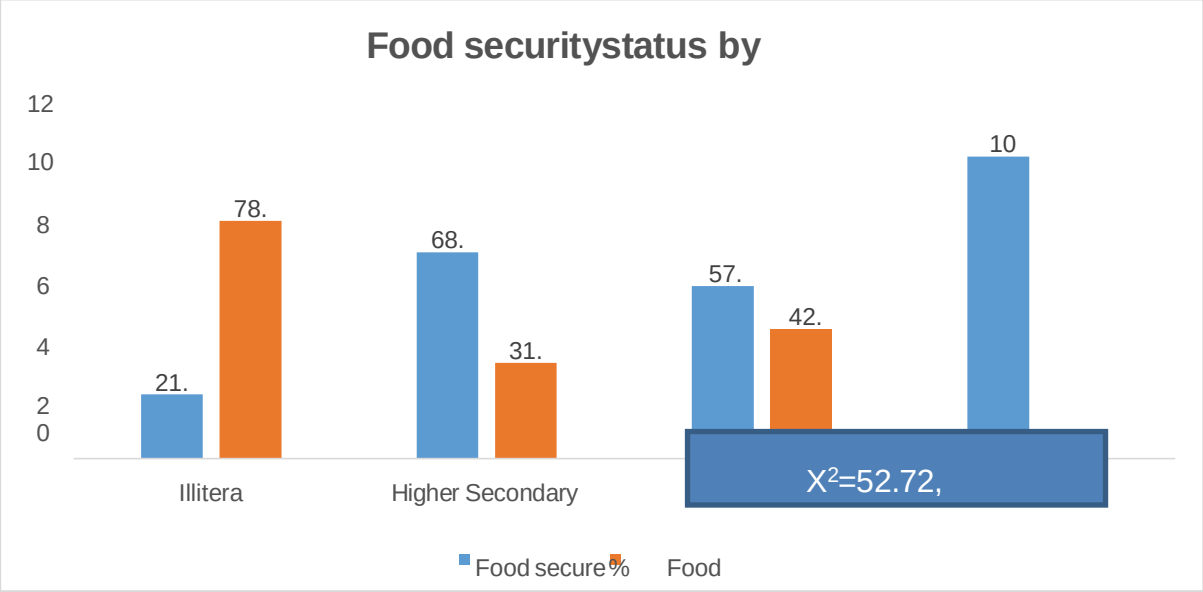

Figure 5. the food security levelwas significantly associated with type ofeducation level

Figure 6. the food security levelwas significantly associated with type of job

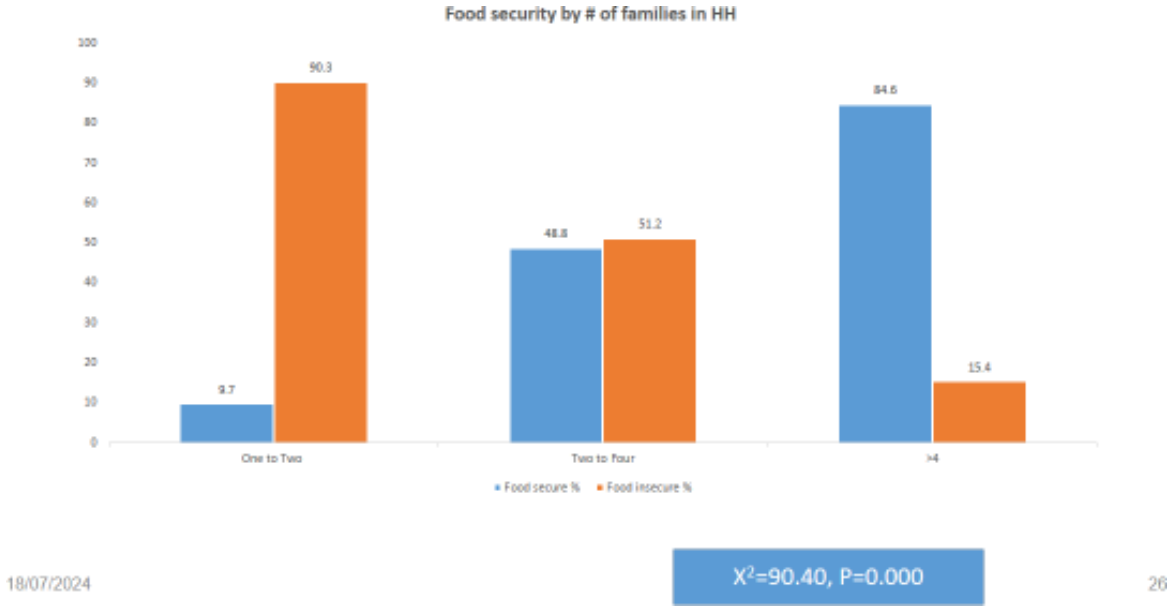

Figure 7. the food security levelwas significantly associated with type ofhouse hold

Figure 8. the food security levelwas significantly associated with type ofHH members

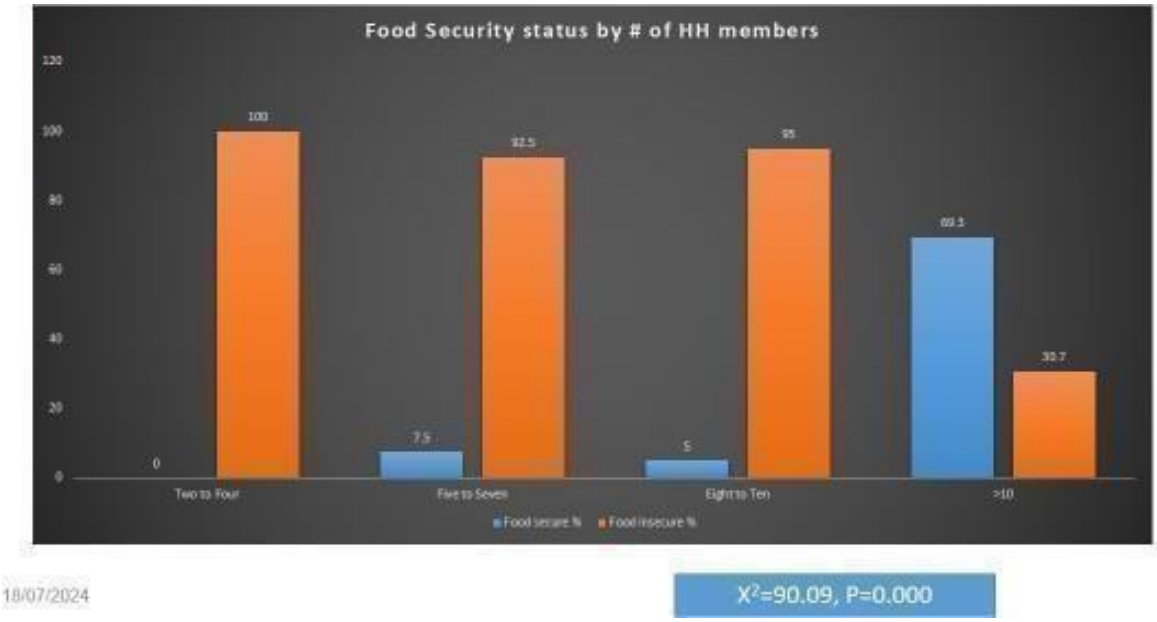

Figure 9. the food security levelwas significantly associated with type ofhouse

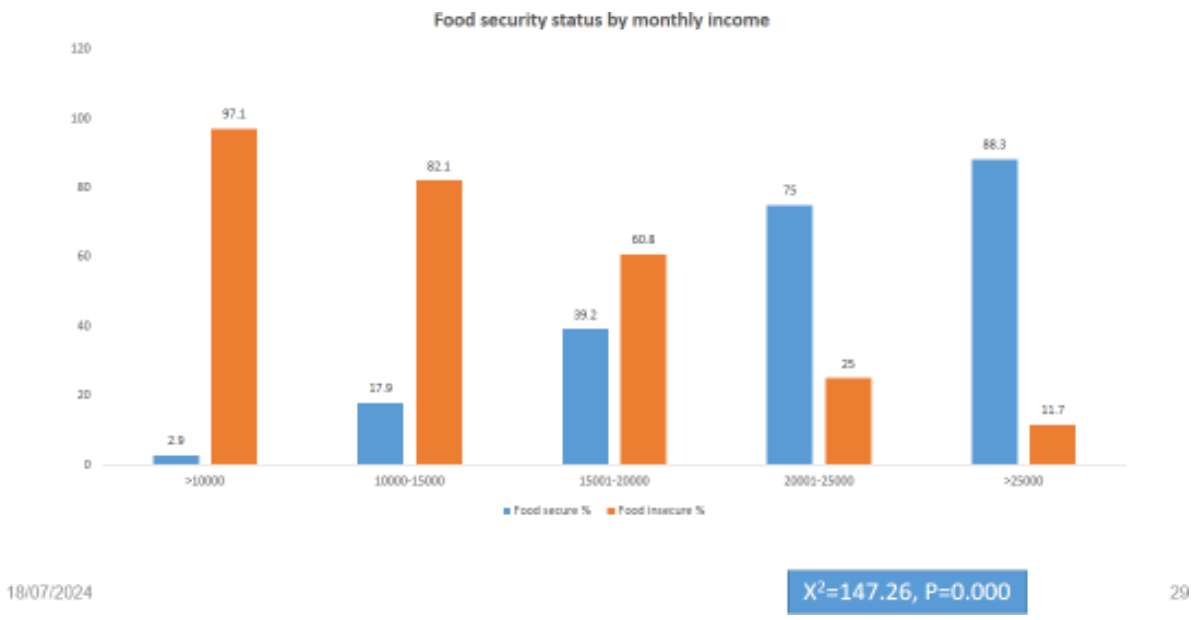

Figure 10. the food security level was significantly associated with type of monthly income

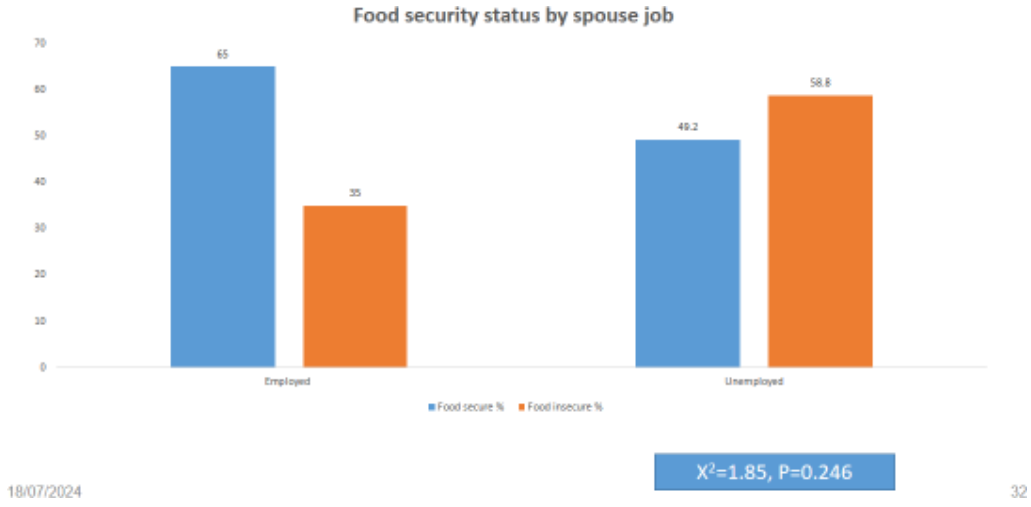

Figure 11. the food security levelwas not significantlyassociated withtype ofspouse job

Figure 12. the food security levelwas significantly associated withtype ofBMI

Figure 13. the food security level was significantly associated with type of having live stock

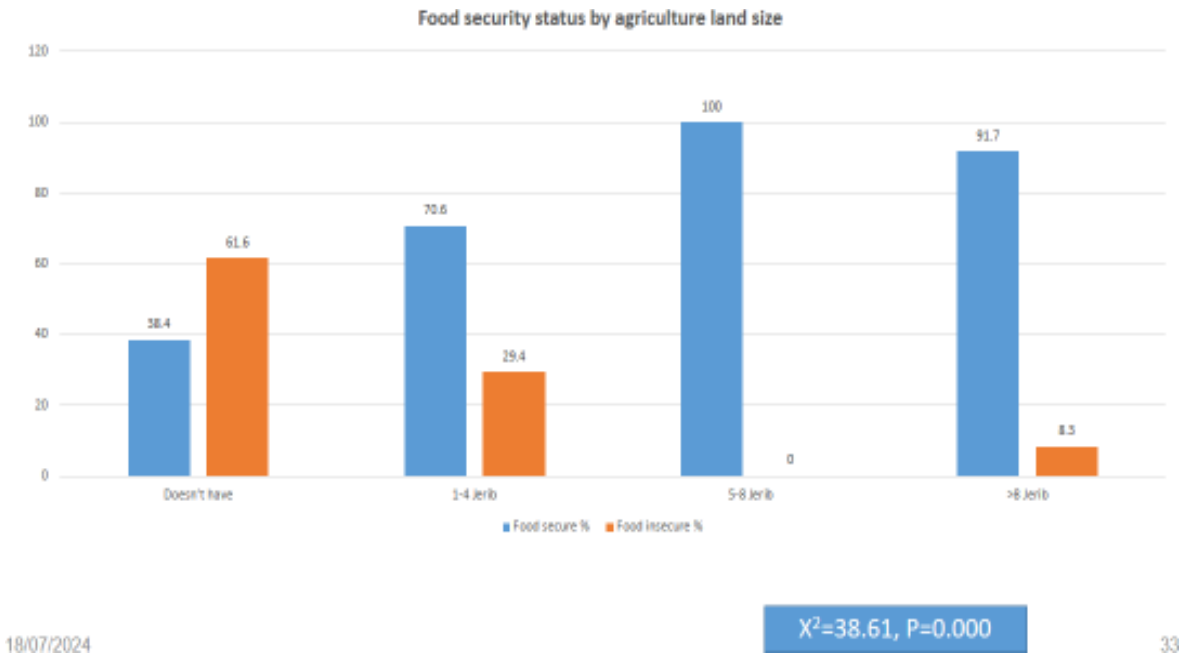

Figure 14. the food security levelwas significantly associated with type ofhaving agriculture land size

Figure 15. the food security level was significantly associated with type of marital status

Table 4.3: Case Processing Summary based on different variables for food security

Variables	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age	284	100.0%	0	0.0%	284	100.0%
Ethnicity	284	100.0%	0	0.0%	284	100.0%
District	284	100.0%	0	0.0%	284	100.0%
Education Level	284	100.0%	0	0.0%	284	100.0%
Job Status	284	100.0%	0	0.0%	284	100.0%
Marital Status	284	100.0%	0	0.0%	284	100.0%
Number of families in Household	284	100.0%	0	0.0%	284	100.0%
Number	284	100.0%	0	0.0%	284	100.0%
Own house	284	100.0%	0	0.0%	284	100.0%
Monthly Income	284	100.0%	0	0.0%	284	100.0%
NGO Support	284	100.0%	0	0.0%	284	100.0%
Wife Alive	284	100.0%	0	0.0%	284	100.0%
Wife job status	284	100.0%	0	0.0%	284	100.0%
Wife Education Level	284	100.0%	0	0.0%	284	100.0%
Land Size	284	100.0%	0	0.0%	284	100.0%
number Animals	284	100.0%	0	0.0%	284	100.0%
BMI Category	284	100.0%	0	0.0%	284	100.0%

Table 4.3.1: Cross tab report of food security with respect to age

Age		Food Security			
		High	Marginal	low	very low
	Count	12	1	0	
less than 20years	% within Age	75.0%	6.3%	0.0%	18.
	% within Food_Security	8.9%	12.5%	0.0%	2.
	% of Total	4.2%	0.4%	0.0%	1.
20-30 years	Count	122	5	14	
	% within Age	60.7%	2.5%	7.0%	29.
	% within Food_Security	90.4%	62.5%	66.7%	50.
	% of Total	43.0%	1.8%	4.9%	21.
31-40 years	Count	0	1	3	
	% within Age	0.0%	2.6%	7.9%	89.
	% within Food_Security	0.0%	12.5%	14.3%	28.
	% of Total	0.0%	0.4%	1.1%	12.
41-50 years	Count	0	1	3	
	% within Age	0.0%	6.3%	18.8%	75.
	% within Food_Security	0.0%	12.5%	14.3%	10.
	% of Total Count	0.0%	0.4%	1.1%	4.
		1	0	1	
more than 40 years	% within Age	7.7%	0.0%	7.7%	84.
	% within Food_Security	0.7%	0.0%	4.8%	9.
	% of Total	0.4%	0.0%	0.4%	3.
	Count	135	8	21	1
	% within Age	47.5%	2.8%	7.4%	42.
	% within Food_Security	100.0%	100.0%	100.0%	100.
	% of Total	47.5%	2.8%	7.4%	42.

Table 4.3.2: Effect of Ethnicity on Food Security

Ethnicity		Food Security			
		High	**Marginal**	**low**	**very low**
	Count	130	8	21	116
Pashtun	% within Ethnicity	47.3%	2.9%	7.6%	42.2%
	% within Food_Security	96.3%	100.0%	100.0%	96.7%
	% of Total	45.8%	2.8%	7.4%	40.8%
Tajik	Count	4	0	0	2
	% within Ethnicity	66.7%	0.0%	0.0%	33.3%
	% within Food_Security	3.0%	0.0%	0.0%	1.7%
	% of Total	1.4%	0.0%	0.0%	0.7%
Pashaee	Count	1	0	0	1
	% within Ethnicity	50.0%	0.0%	0.0%	50.0%
	% within Food_Security	0.7%	0.0%	0.0%	0.8%
	% of Total	0.4%	0.0%	0.0%	0.4%
11.00	Count	0	0	0	1
	% within Ethnicity	0.0%	0.0%	0.0%	100.0%
	% within Food_Security	0.0%	0.0%	0.0%	0.8%
	% of Total	0.0%	0.0%	0.0%	0.4%
	Count	135	8	21	120
	% within Ethnicity	47.5%	2.8%	7.4%	42.3%
	% within Food_Security	100.0%	100.0%	100.0%	100.0%
	% of Total	47.5%	2.8%	7.4%	42.3%

Table 4.3.3: Food security with respect to districts

District		Food Security			
		High	**Marginal**	**low**	**very low**
	Count	8	2	0	24
Bahsood	% within District	23.5%	5.9%	0.0%	70.6%
	% within Food_Security	5.9%	25.0%	0.0%	20.0%
	% of Total	2.8%	0.7%	0.0%	8.5%
Jalalabad	Count	51	0	4	14
	% within District	73.9%	0.0%	5.8%	20.3%
	% within Food_Security	37.8%	0.0%	19.0%	11.7%
	% of Total	18.0%	0.0%	1.4%	4.9%
Sarkhrod	Count	8	1	2	2
	% within District	61.5%	7.7%	15.4%	15.4%
	% within Food_Security	5.9%	12.5%	9.5%	1.7%
	% of Total	2.8%	0.4%	0.7%	0.7%
Khogini	Count	35	0	1	8
	% within District	79.5%	0.0%	2.3%	18.2%
	% within Food_Security	25.9%	0.0%	4.8%	6.7%
	% of Total	12.3%	0.0%	0.4%	2.8%
Sherzad	Count	3	2	3	15
	% within District	13.0%	8.7%	13.0%	65.2%
	% within Food_Security	2.2%	25.0%	14.3%	12.5%
	% of Total	1.1%	0.7%	1.1%	5.3%
Pachiragam	Count	0	0	0	9
	% within District	0.0%	0.0%	0.0%	100.0%
	% within Food_Security	0.0%	0.0%	0.0%	7.5%
	% of Total	0.0%	0.0%	0.0%	3.2%
Chaperhar	Count	14	0	0	5
	% within District	73.7%	0.0%	0.0%	26.3%
	% of Total	2.8%	0.7%	0.0%	8.5%
Kama	Count	9	1	4	15
	% within District	31.0%	3.4%	13.8%	51.7%
	% within Food_Security	6.7%	12.5%	19.0%	12.5%

Table 4.3.4: Education level is also associated with food security

Education Level	**Count**	**High**	**Marginal**	**low**
Illiterate	% within Education_Level	18.1%	3.2%	9.6%
	% within Food_Security	12.6%	37.5%	42.9%
	% of Total	6.0%	1.1%	3.2%
Baccularate	Count	91	4	8
	% within Education_Level	65.5%	2.9%	5.8%
	% within Food_Security	67.4%	50.0%	38.1%
	% of Total	32.0%	1.4%	2.8%
Bachelor	Count	27	1	3
	% within Education_Level	55.1%	2.0%	6.1%
	% within Food_Security	20.0%	12.5%	14.3%
	% of Total	9.5%	0.4%	1.1%
Master	Count	0	0	1
	% within Education_Level	0.0%	0.0%	50.0%
	% within Food_Security	0.0%	0.0%	4.8%
	% of Total	0.0%	0.0%	0.4%
	Count	135	8	21
	% within Education_Level	47.5%	2.8%	7.4%
	% within Food_Security	100.0%	100.0%	100.0%
	% of Total	47.5%	2.8%	7.4%

Table 4.3.5: Chi square data about food security

Chi Square test	Value	df	Asymptotic Significance (2 sided)
Pearson Chi-Square	59.704	9	.000
Likelihood Ratio	61.073	9	.000
Linear-by-Linear Association	24.760	1	.000
No of Valid Cases	284	n/a	n/a

Table 4.3.6: Data about job status with respect to food security

Job Status		Food Security		
		High	Marginal	low
Employed	Count	111	7	17
	% within Job Status	46.6%	2.9%	7.1%
	% within Food_Security	82.2%	87.5%	81.0%
	% of Total	39.1%	2.5%	6.0%
Count	24	1	4	1
% within Job_Status	52.2%	2.2%	8.7%	37.0
% within Food_Security	17.8%	12.5%	19.0%	14.2
% of Total	8.5%	0.4%	1.4%	6.0
Count	135	8	21	1
% within Job_Status	47.5%	2.8%	7.4%	42.3
% within Food_Security	100.0%	100.0%	100.0%	100.0
% of Total	47.5%	2.8%	7.4%	42.3

Table 4.3.7 Chi square test on job status

Chi-Square test	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.819	3	.845
Likelihood Ratio	.826	3	.843
Linear-by-Linear Association	.520	1	.471
No of Valid Cases	284	2	.452

Table 4.3.8: Marital status with respect to food security

Marital Status		Food Security			
		High	Marginal	low	very low
Married	Count	24	4	10	8
	% withinMartial_Status	20.3%	3.4%	8.5%	67.8%
	% withinFood_Security	17.8%	50.0%	47.6%	66.7%
	% of Total	8.5%	1.4%	3.5%	28.2%
Singe	Count	111	4	11	3
	% within Martial_Status	67.3%	2.4%	6.7%	23.6%

Table 4.3.9: Chi square test to study the effect of marital status

Variables	Value	Df	Asymptotic Significance(2-sided)
Pearson Chi-Square	65.537	6	.000
Likelihood Ratio	69.141	6	.000
Linear-by-Linear Association	53.588	1	.000
N of Valid Cases	284	n/a	n/a

Table 4.3.10: Effect of own house on food security

House Related food security			Food_Security			
			High	**Marginal**	**low**	**very low**
Own house	Yes	Count	123	5	10	57
		% within Own_house	63.1%	2.6%	5.1%	29.2%
		% within Food_Security	91.1%	62.5%	47.6%	47.5%
		% of Total	43.3%	1.8%	3.5%	20.1%
	No	Count	12	3	11	63
		% within Own_house	13.5%	3.4%	12.4%	70.8%
		% within Food_Security	8.9%	37.5%	52.4%	52.5%
		% of Total	4.2%	1.1%	3.9%	22.2%
Total		Count	135	8	21	120
		% within Own_house	47.5%	2.8%	7.4%	42.3%
		% within Food_Security	100.0 %	100.0%	100.0 %	100.0%
		% of Total	47.5%	2.8%	7.4%	42.3%

Table 4.3.11: chi square test on own-house related food security

Chi square test	**Value**	**Df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	61.057	3	.000
Likelihood Ratio	66.476	3	.000
Linear-by-Linear Association	58.379	1	.000
N of Valid Cases	284	-------	-------

Table 4.3.12: Effect of monthly Income on food security

Effect of Monthly Income			High food security	Marginal Food security	low food security
Monthly Income	less than 10000	Count	1	1	1
		% within Monthly Income	1.4%	1.4%	1.4%
		% within Food_Security	0.7%	12.5%	4.8%
		% of Total	0.4%	0.4%	0.4%
	10000-15000	Count	2	3	7
		% within Monthly_Income	7.1%	10.7%	25.0%
		% within Food_Security	1.5%	37.5%	33.3%
		% of Total	0.7%	1.1%	2.5%
	15001-20000	Count	18	2	7
		% within MonthlyIncome	35.3%	3.9%	13.7%
		% within Food_Security	13.3%	25.0%	33.3%
		% of Total	6.3%	0.7%	2.5%
	20001-25000	Count	16	2	1
		% within Monthly Income	66.7%	8.3%	4.2%
		% within Food_Security	11.9%	25.0%	4.8%
		% of Total	5.6%	0.7%	0.4%
	More than25000	Count	98	0	5
		% within Monthly Income	88.3%	0.0%	4.5%
		% within Food_Security	72.6%	0.0%	23.8%
		% of Total	34.5%	0.0%	1.8%
Total		Count	135	8	21
		% within Monthly_Income	47.5%	2.8%	7.4%
		% within Food_Security	100.0%	100.0%	100.0%
		% of Total	47.5%	2.8%	7.4%

Table 4.3.13: Food security related with no of families

Food_Security						
Number of families in Household		**High food security**	**Marginal Food security**	**low food security**	**very low food security**	**Total**
1-2	Count	4	3	6	59	72
	% within Number of families in Household	5.6%	4.2%	8.3%	81.9%	100.0%
	% within Food_Security	3.0%	37.5%	28.6%	49.2%	25.4%
	% of Total	1.4%	1.1%	2.1%	20.8%	25.4%
3-4	Count	55	4	10	52	121
	% within Number of families in Household	45.5%	3.3%	8.3%	43.0%	100.0%
	% within Food_Security	40.7%	50.0%	47.6%	43.3%	42.6%
	% of Total	19.4%	1.4%	3.5%	18.3%	42.6%
More than 4	Count	76	1	5	9	91
	% within Number of families in Household	83.5%	1.1%	5.5%	9.9%	100.0%
	% within Food_Security	56.3%	12.5%	23.8%	7.5%	32.0%
	% of Total	26.8%	0.4%	1.8%	3.2%	32.0%
Total	Count	135	8	21	120	284
	% within Number of families in Household	47.5%	2.8%	7.4%	42.3%	100.0%
	% within Food_Security	100.0 %	100.0 %	100.0 %	100.0 %	100.0%
	% of Total	47.5%	2.8%	7.4%	42.3%	100.0%

Chapter 5. Discussion

The purpose of the current study was to determine the prevalence of household food insecurity and the contributing factors in the Afghan province of Nangarhar. The present investigation's findings revealed a noteworthy 49.6% household food insecurity rate, which is intimately associated with the respondents' sociodemographic attributes. These findings are consistent with previous studies conducted in Afghanistan and other similar geographic areas.

A notable proportion of food insecurity exists in the province of Nangarhar, where 49.6% of households report having some degree of food insecurity. The findings of an earlier study conducted in the eastern region of Afghanistan by Ahmadzai and Akbay (2019) align with this outcome. According to their findings, 46.9% of households were food insecure. A multitude of factors have been linked to food insecurity, such as rural landlessness, poverty, instability, unsustainable livelihoods, a lack of work opportunities, low incomes, and a rise in the number of refugees and internally displaced people (IDPs). Because to the COVID-19 pandemic, natural disasters, political unrest, and other relevant causes, the Afghan people are not as wealthy as other people.
The disparity between the results of this inquiry and the study by Ahmazai and Akbay (2019) may be explained by this.

Samim and Zhiquan (2020) conducted a secondary data analysis which indicates that 11 million Afghans require food aid, with 53.2% of the population experiencing food insecurity. According to the most recent data from the Integrated Food Security Phase Classification (IPC), 13.1 million individuals, or 29% of the population, are classified as experiencing acute food insecurity at a high degree (IPC Phase 3 or higher).

The main causes of this extreme food insecurity are the weak economy, high unemployment rates made worse by restricted income access, which decreased purchasing power, ongoing high food and agricultural input costs, declining remittances, and fewer job opportunities (IPC, 2024).

According to the study's findings, there is a significant correlation between the type of district, age, marital status, amount of education the head of the household has received, number of families residing there, homeownership, spouse's educational background, ownership of livestock, and agricultural land ownership and the degree of food security. Food insecurity and the spouse's employment status, race, or occupation, however, were not linked.

Recent research on the socioeconomic determinants of severe household food insecurity (HFI) in rural Afghanistan by Najam et al. (2023) found that families headed by women were much more likely to experience HFI.
Even while the risk of severe HFI was the same for household heads who were religious or not formal learners,

those with any level of formal education had a much lower chance of developing severe HFI. Furthermore, doing any kind of agricultural labor decreased the likelihood of having a severe HFI. Additionally, they discovered a negative correlation between household income per member and HFI and a positive correlation between household size and severe HFI. They recommend that income- generating opportunities and skills should be given priority in programs designed to reduce household financial inequality (HFI) in rural families.

These ought to be aimed at households headed by women, those with lower incomes, multi-member households, those without an agricultural pursuit, and households with multiple members.

In contrast, Samim et al. (2021) examined the incidence and contributing factors of food insecurity among farming households in the Takhar region of Afghanistan.

Compared to 66.79% of households experiencing food hardship, 30.53% of agricultural households had extreme food insecurity, according to their research findings. Food insecurity experienced by farming households in the study area was significantly influenced by a number of factors, including access to non-agricultural income, farm revenue, animal units, group participation, farm diseases, floods, conflict, borrowing, and

the education level of the family head. These findings were discovered when family-specific socioeconomic and demographic factors were considered.

A different study claims that because of the political upheaval in Afghanistan, food insecurity has significantly gotten worse. Saif-Nijat et al. (2023) report that during the Taliban regime, 98% of Afghan households reported food insecurity, up from 70% the year before. This situation has led to a decrease in the physical, psychological, and environmental quality of life for Afghans. They therefore recommended intensifying measures to improve Afghans' food security and nutrition by non- governmental groups, foreign organizations, and local forces.

Food insecurity in Afghanistan may be lessened by the distribution of food packages, an increase in food availability across the country, particularly in rural and underdeveloped areas, and assistance from developed nations collaborating with appropriate authorities to put policies that end malnutrition and food insecurity into effect. In parallel, Islam et al. (2022) discovered that food insecurity was linked to political unrest and the third COVID-19 wave, making it very challenging for individuals to get daily necessities.

The same study was carried out with differing outcomes in many developing nations. Twelve districts were chosen for the study's data collection: Surkhroud, Rodat, Goshta, Pachir Agam, Kabir Abad, Kot, Khogiani, Behsood, Sherzad, Kama, Dehbala, Goshta, and Chaperhar. A thorough questionnaire covering all elements of agriculture and domestic life was created specifically for the study. The impact was assessed by conducting an analysis of relevant sociodemographic data about the respondents and their households, such as age, gender, education, type of residence, level of education, number of animals, land area, support from non-governmental organizations, size of household, number of families, number of members in a family, marital status, wife's educational attainment, nutritional status, and a few other unique traits of the head of the household.

In Afghanistan, a country populated mostly by men, men are expected to take care of all household necessities, including food, clothes, shelter, healthcare, and schooling. Due of this, men head most families; although, on occasion, women who are widowed, divorced, or separated also head the home. In contrast, households headed by men are less likely to

experience food insecurity byover twice as much (ALCS, 2016).

More information, human resources, possessions, and potential for increased income are all present in the residences headed by men.

On the other hand, compared to households headed by males, low-income households headed by women are more likely to be extremely impoverished and experience higher levels of food insecurity, according to the Zambian Living Conditions Monitoring Survey (Chibende), 2011.

Within a country such as Afghanistan, where family relationships are solid and based on mutual regard, moral principles, and societal norms, the head of the household is the one who makes family decisions. Consequently, age has a significant impact on maturity and the head of the household's capacity to make more sensible socioeconomic and domestic decisions (SFSA, 2014).

It is anticipated that households in the research regions will be particularly susceptible to food insecurity because family heads typically have extremely high rates of illiteracy. Heads of households with a high school education or above, on the other hand, have higher levels of income, food consumption, and expenditure. For example, without education, heads of households scored lower on food consumption by 3.5 points compared to heads of primary education and nine points compared to heads of higher education (SFSA, 2016).

In 2018, 88.9% of American families reported having enough food. 11.1 percent of all households, or 14.3 million, were food insecure. Food-insecure households periodically struggled to provide enough food for every member of the home due to a lack of resources. The decline from a peak of 14.9 percent in 2011 was followed by a statistically significant decline from 2017 (11.8%).

The number of American households experiencing severely low food security decreased slightly from 4.5 percent in 2017 to 4.3 percent in 2018 (5.6 million households). In this more severe spectrum of food insecurity, certain household members consumed less food, and occasionally throughout the year,

Chapter 6. Conclusion

The magnitude of food insecurity in the Afghan area of Nangarhar was shown by the study's findings. The results also demonstrated that the sort of district, the age, marital status, and educational level of the head of the household, the number of families residing there, home ownership, monthly income, BMI, spouse's educational background, livestock ownership, and agricultural land were the primary factors influencing food insecurity in the study area.

These results confirm previous research carried out in Afghanistan and other similar environments across the globe, and they show the ongoing difficulties households encounter in obtaining an adequate and healthful supply of food.

Reducing food insecurity in Nangarhar province and other comparable contexts will require addressing these factors. Targeted interventions, methods for reducing poverty, the restoration of livelihoods, and easier access to essential services are some of these approaches. To enhance the overall state of food security in Afghanistan and to support evidence-based policies and activities, further study is required to gain a deeper understanding of the dynamics of food insufficiency.

The relationship between the dependent and independent variables in the collected data was investigated using the chi-square test and SPSS v.23. Of the homes, 50.4% had great food security (94.4% had outstanding food security and 5.6% had moderate food security), compared to 49.6% of those that were food insecure.

The results showed that there was a significant correlation between the type of district (2 = 84.99, P = 0.000), age (2 = 75.88, P = 0.000), marital status (2 = 59.17, P = 0.000), education level (2 = 52.72, P = 0.000), number of families in the household (2 = 90.40, P = 0.000), number of household members (2

= 90.09, P = 0.000), ownership of the house building (2 = 58.18, P = 0.000), monthly income (~^2 = 147.26, P = 0.000), spouse education level (~^2 = 10.00, P = 0.019), land size for agriculture (~^2 = 38..61, P = 0.000), and number of livestock (^2 = 23.38, P = 0.246).

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