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Assessing Households' Food Insecurity Affected by Climate Change in Koshk e Robat Sangi District, Herat Province

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ABSTRACT

Physically and economically, access to sufficient, safe and nutritious food for an active and healthy life is a basic human right. We assessed the households' food insecurity in Koshk e Robat Sangi district using the household food insecurity access scale (HFIAS). In this research, 383 standard questionnaires were distributed to the households in different villages of the districts, and the results were analyzed using descriptive statistical methods. The level of food insecurity was varied among the participants. Seventy-seven percent of the participants expressed concern about food insecurity in their households during the last 30 days. Most participants (91.9%) were not able to consume desired food, had limited variety of food and ate food that they did not desire due to lack of resources. The insufficient food intake by the investigated population shows that 27% are classified as moderately food insecure, and 37.9 % are severely food insecure. The findings of the research indicate that participants live with food insecure condition, which 75.4 % of participants live in a food insecure condition. Climate changes, rapid population growth and technological barriers are known as leading causes of food insecurity. Providing financial support to low-income households and management of natural resources could improve food security.

Keywords: Food insecurity, Household, Koshk e Robat Sangi

INTRODUCTION

Food security and access to a minimum sufficient amount of nutritious food are basic human rights (Fahy, 2022). Food security is the first step to maintaining the intellectual, mental, and physical, health of society. The physical and economic access of all people at all times to sufficient safe and nutritious food to meet their food needs and food preferences for an active and healthy life is defined as food security (FAO, 2008). Food insecurity is a major challenge facing developing countries (Adeniyi & Dinbabo, 2019). Ensuring food security in villages and remote areas could be a key factor in the development of agriculture and livestock (Chawarika, 2016). Consecutive droughts, natural disasters, lack of infrastructure and rapid population growth are the main factors in intensifying the problems of production, distribution and access to sufficient food in underdeveloped countries (FAO, 2023). Economic access, stability and utilization of food links to climate change (WFP, 2017). Extreme temperatures, droughts, floods, earthquakes, landslides and avalanches are major climate change signs in Afghanistan which cause half of all deaths in the country (World Bank & GFDRR, 2017).

Food insecurity has been escalating in Afghanistan where people live with food insecurity. The 2022 global hunger index, Afghanistan ranked 109 out of 121 countries by receiving 29.9 GHI (Global Hunger Index) scores which known as the level of serious hunger. World food program estimated that 15.3 million people are facing acute food insecurity in Afghanistan. Climate changes and drought, have worsened food insecurity in Afghanistan. Assessment level of household food insecurity in urban regions of Iran showed with 21 percent of food secure, 46.5 percent Mildly, 25.0 percent moderately and 7.5 and severely food insecure (Salarkia et al., 2014). Climate changes have negative effects on the food security conditions in the agricultural sector of the Hamadan- Bahar Region, Iran (Soltani et al., 2022). Climate change has a large effect on the food available for residents of Hai District and other regions of Tanzania (Lema et al., 2014). Households' demographics and socioeconomic factors have influence on food insecurity. Households with a large family size found more food insecurity (Shahzad et al., 2021) Changing in climate showed a nexus with food insecurity in Matande communal lands, Mwenezi district, Zimbabwe (Muzerengi et al., 2023). The current research was conducted to

assess household food insecurity affected by climate change in Koshk e Robat Sangi district, Herat Province during the summer of 2021.

MATERIALS AND METHODS

Research Type

The research was designed using a descriptive-survey method, with subjects selected based on their interest through Non-Probability: Convenience sampling from different regions of the district population.

Area Under Study (Case Study)

Koshk e Robat Sangi is district located 55 km north direction of Herat city. Torghundi border which located at the north part of the district, which has given political and economic importance to the district. The latitude of the district is 34.95578, and the longitude is 62.23321. The total area of this district is estimated to be about 5000 square kilometers. According to the National Statistics and Information Authority (NSIA), in 2019 the district population was estimated 141,585 people distributed in 215 villages.

Statistical Population Under Investigation and Sample Size

Since the population of the district was estimated 141,585 people, Morgan's table was used to retrieve the data, 383 Household Food Insecurity Access Scale (HFIAS) standard questionnaires with nine questions (for each questionnaire) were distributed to the households from different regions by using health centers of the district.

Household food insecurity was assessed by using the HFIAS 9-item standard questionnaires. The participants were asked about their condition and experiences with food insecurity during the last 30 days. The questionnaires were filled out by a trained student during face to face interviews with heads of families. HFIAS 9-item questionnaire scores were used as a basis for assessment. households were classified into four categories of food access insecurity: secure (green color), mildly food insecure (yellow color), moderately food insecure (orange color) and severely food insecure (red color).

Data Analysis

First, the obtained data was checked for their validity. After that, the questionnaires were analyzed by using IBM-SPSS-26 software and descriptive statistics methods (frequency, percentage and average). In the end, Household Food Insecurity measured by HFIAS guidelines (Coates et al., 2007).

RESULTS AND DISCUSSION

The demographic characteristics of the participants of this survey are shown in Table 1. 88.3 percent of the family heads were males. 47.3 percent of respondents were illiterate followed by primary school (37.3%). Concerning economic status, most participants (52.5 %) had an average income lower than 10,000 AFN/month. 26-40 years old were the maximum respondents (45.2 %). Similarly, Table 1 indicates the body mass index (BMI) of all participants in the survey which shows that 57.44 % population was underweight.

Table 1. Demographic characteristics of Koshk e Robat Sangi households

Variables		Frequency (n=383)	Percent (%)	Mean ± SD	Total (Valid)
Gender	Male	338	88.3	-	383
	Female	45	11.7		
Education	Illiterate	181	47.3	-	383
	Primary School	143	37.3		
	Diploma	38	9.9		
	Bachelors and up	21	5.5		
Economic Status (AFN/Month)	Low (<10000 AFN)	201	52.5	-	383
	Moderate (10000-25000 AFN)	168	43.9		
	High (>25000 AFN)	14	3.7		
Age (years)	18-25	80	20.9	39.52±17.63	383
	26-40	173	45.2		
	41-0	101	26.4		
	60-100	29	7.6		
BMI (Kg/m^2)	Underweight	220	57.44	-	383
	Normal weight	143	37.34		
	Overweight	20	5.22		

Table 2 illustrates the responses status of households to the HFIAS questionnaire and levels of households' food insecurity. Data shows that 52.7 percent of the participants were often worried about food. Consumption of limited types of food due to lack of resources was chosen for the sometimes (45.2 %). The households consumed food in situations where they did not want to consume it (41.8%). Most of the respondents took food less than the required amount (48.3%). In total, 89 percent of the participants reduced meal taking during the last 30 days due to the unavailability of enough food. 52.5 percent of participants experienced sleeping hungry, while 19.8 percent spent a day and night hungry during the last 30 days.

Table 2. The responses status of the households to HFIAS questionnaire and levels of households' food insecurity

Questions	Levels of food insecurity	Do you or your household members during past 30 day have the following problems with ensuring food security:	Response (n-383)								Food insecurity status (%)
			No		Yes						
					Rarely		sometimes		Often		
			N	(%)	N	(%)	N	(%)	N	(%)	
Q1	Anxiety and uncertainty	Worry about food	49	12.8	35	9.1	97	25.3	202	52.7	Secure=23 Mildly food insecure = 77
Q2		Inability to consume the desired types of food	30	7.8	44	11.5	135	35.2	174	45.4	Secure=7.9 Mildly food insecure = 39.9 Moderate food insecure= 52.2 Severely food insecure= 0
Q3	Insufficient quality	Consumption of limited types of food	27	7.0	55	14.4	137	45.2	128	33.4	
Q4		Consumption of food in conditions of unwillingness to consume	34	8.9	50	13.1	139	36.3	160	41.8	
Q5		Eating less than the required amount	34	8.9	72	18.8	185	48.3	92	24.0	Secure=35.1 Mildly food insecure= 0 Moderate food insecure= 27 Severely food insecure=37.9
Q6		Reduce meals taking	42	11.0	90	23.5	170	44.4	81	21.1	
Q7	Insufficient food intake	Unavailability food in any form among household members	107	27.9	124	32.4	114	29.8	38	9.9	
Q8		Sleeping hungry at night	182	47.5	145	37.9	46	12.0	10	2.6	
Q9		Spending whole day and night without eating	307	80.2	60	15.7	14	3.7	2	0.5	
Averages			**Food secure = 24.6**						**Food insecure = 75.4**		

Food secure | Mildly food insecure | Moderate food insecure | Severely food insecure

The food insecurity levels are classified in 3 groups Anxiety and uncertainty, Insufficient quality and insufficient food intake. 77 percent of participants were worried about the availability of sufficient food in their households during last the 30 days. 91.9 percent of the participants were not able to consume desired food, ate a limited variety of food and ate food that no desire to consume due to lack of resources. 37.9 percent of the investigated population were severely food insecure who were not able to take sufficient food. The research findings show that most of the participants from the area under investigation suffered from food insecurity. Various researches suggested different reasons and factors as the cause of food insecurity in underdeveloped countries. Ahmed et al. (2021) introduced poverty, increasing population and climate change as the leading cause of food insecurity. Similar findings were reported by Elobeid, et al. (2000) and Ilaboya et al. (2012) and Salarkia et al. (2014).

Figure 1 shows the overall level of food insecurity of the survey participants. The findings indicate that, most of the participants in the present survey suffer from different level of food insecurity. moderate food insecure (32.4 %) leading among all levels of food insecurity.

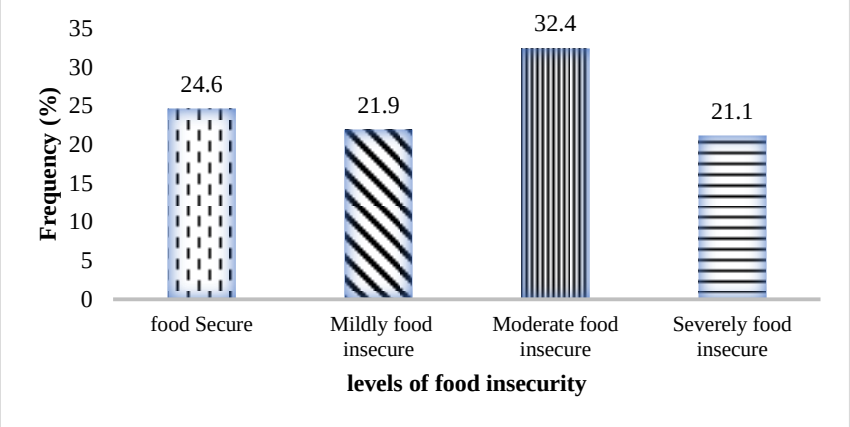

Figure 1. Frequency of food insecurity status among households in koshk e Robat Sangi district

CONCLUSION

The level of food insecurity of Koshk e Robat Sangi district residents was assessed using the household food insecurity access scale. According to the findings from the present survey, the level of food insecurity in the district is clearly evident as the majority of the participants live with food insecurity (75.4 %). Providing economic and financial support to low-income households, offering agriculture subsidies to the farmer household, minimizing factors causing climate changes and managing water resources is highly recommended.

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