



Research Article

Shaping Healthy Future through Improved Dietary Pattern and Food Security of Agricultural Households Access to Basic Services and Productive Assets? Evidence from Kashmir Valley

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Abstract | The point of this investigation contemplate is to look at the conceivable impacts of rural assets and essential administrations on the level of dietary differences and nourishment security in rural family units in the Kashmir valley. A sample of 300 family units was contacted for collection of data and information. Agreeing to the discoveries, 100% of farmers possessed the land, but 99% of farmers had rights over the land they cultivated. Within the test range, the normal separation between the families that were inspected and the open and private clinics is 1.25 km and 8 km, separately. Most homes consume vegetables, meat and rice. The family dietary differing qualities score uncovered that 30% of family units had a tall level of dietary differences. Nourishment uncertainty influenced 17% of families, with a normal seriousness and profundity of 0.11, agreeing to information on nourishment costs. Through logit model it was found that the dietary differences status of families was essentially impacted by the taking after components: land proprietorship, sexual orientation, agriculturist affiliations, agreeable social orders, expansion visits and credit accessibility. The logit demonstrates that there's a critical relationship between nourishment uncertainty and the taking after components: age, family estimate, land possession, expansion visits, credit accessibility, land rights and separate to restorative centers. In this manner, approach activities pointed at making strides households' get to usable agrarian land and utilitarian healthcare services are fundamental to extend dietary differences and nourishment security.

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Introduction

For guaranteed food security, less perpetuation of poverty and to enhance economic advancement

and sustainability in agriculture there is requirement of both productive agricultural assets and sound infrastructural base. Productive agricultural assets include assets that are used to produce agricultural

goods and services (Wani, 2013; Jamaludheen *et al.*, 2022). These assets are immovable in nature like land holdings and buildings or movable like livestock, farm equipment and implements. According to Obayelu *et al.* (2014), basic services include those that make it possible to provide the environment needed for primary, secondary and tertiary production activities. Physical, social and institutional infrastructure can be categorized (Rahji, 2007; Obayelu *et al.*, 2014; Demenge *et al.*, 2015). Having efficient public infrastructure in the agriculture sector depends upon sustainable farm-productivity growth, agro-industry development and efficient farm operation (Baba *et al.*, 2014; Oni, 2013). Smallholder farmers, living in remote part of Kashmir valley are characterized by a poor road network with less markets and towns, the poor state of public infrastructure and having lack of market information (Wani, 2013).

The quality and nature of the rural road network in Kashmir are far below what is required to sustain the rural agricultural economy and approximately 72% of the rural population does not have access to an all-season road (Baba *et al.*, 2014). Food insecurity and poverty are being made worse by Kashmir's inadequate public infrastructure, which includes high food commodity prices, ineffective and inefficient agricultural marketing and weak market intelligence, between farmers and agricultural traders (Wani, 2011; Wani *et al.*, 2009).

As supported by maintainable advancement objectives, nourishment security is getting to be a best need for governments and advancement organizations, especially in low-income countries (FAO, 2022). To realize zero starvation and nourishment security, one of the goals of the maintainable advancement plan is to bolster economical and profitable farming through expanded ventures in rustic foundation, bolster for smallholder agriculturists and evenhanded get to land, markets, innovation, data and other pertinent and profitable assets for all agriculturists (UNICEF/WHO, 2022). The seriousness of nourishment frailty in Kashmir may be related to the by and large household nourishment demand-supply crevice, given the move from farming to cultivation and indeed the development of houses and other commercial outlets. Kashmir's agrarian yield and residential nourishment supply are deficient to meet the rising requests of the growing UT's populace (Wani, 2007, 2011; Metu *et al.*, 2016).

In the Kashmir Valley, dietary patterns and food security among agricultural households are influenced by a complex interplay of socio-economic factors, access to basic services and productive assets. Studies show that rural households in the region face challenges in achieving food security due to limited access to quality agricultural inputs, lack of modern farming techniques and inadequate infrastructure. Khan and Wani (2015, 2019), emphasize that the dietary patterns of rural women in the valley are closely linked to their nutritional status, which is often compromised due to poor access to diverse food sources. Further, Bhat and Bhat (2016, 2018) highlight that food security is closely tied to the availability of productive assets, such as land, livestock and water resources, which are essential for ensuring a steady food supply. The second is access to basic services including healthcare, education and sanitation. This again ensures the resilience of agricultural households towards food insecurity in general (Wani and Khan, 2017). It, therefore, means that improvement on these factors may boost the health and well-being of agricultural communities of Kashmir Valley and subsequently promote a safe and sustainable future.

The Kashmir Valley, agricultural practice and resource access directly and strongly impact food security and dietary patterns. Socio-economic factors have a greater impact on availability and household diets due to agriculture productivity in the case of rural regions, have established (Ahmad and Rasool, 2014). Bhat and Qadri (2017) suggest that policy intervention is urgently needed to improve agriculture practices to meet food security with the constraints of limited resources and climate variability. Mir and Dar (2018) further argue that access to land, water resources and agricultural extension services is key to improving crop yield and diversified diets for food security among rural households in the region. Wani and Yousuf (2015) argue that the dietary pattern in rural areas is often not sufficient because the food grown in the locality is less diversified, leading to low nutritional outcomes. To this effect, Zargar and Wani (2019) suggest that enhancement of agricultural extension services and modern farming techniques can dramatically enhance both food security and health outcomes of the agricultural communities through productivity and better nutrition. Therefore, improving access to productive assets, infrastructure and services remains at the center of addressing food security issues in the Kashmir Valley.

The body of research indicates that for Kashmir's food system to grow, there must be a significant investment made in rural infrastructure. The effect of rural infrastructure accessibility on the productivity of food crops in the Kashmir valley was assessed by [Baba et al. \(2014\)](#); [Wani \(2007\)](#). The study demonstrated that agricultural income and the productivity of food and horticultural crops produced are significantly impacted by rural infrastructure and the availability of agricultural inputs. More specifically, compared to their counterparts in less developed infrastructure, farmers in areas with better infrastructure make more money per hectare of land under cultivation. The findings indicated that sufficient renovation and rehabilitation of the current infrastructure are needed to improve the residents of the study area's situation about food security. Considering this, the current study will examine how basic infrastructure and agricultural assets in Kashmir affected the dietary diversity and food security of smallholder agricultural households. The study aims to achieve the following general objectives.

- Examine the socioeconomic traits of the participants in the selected region.
- Smallholder agricultural households reach to essential infrastructure and useful resources.
- Examine the food habits of the region's smallholder farming households.
- Ascertain the smallholder agricultural households' level of food security.
- Find out the relationship between smallholder agricultural households' access to productive assets and basic services with different available diets.
- Examine how the availability of basic services and productive assets affects the food security of smallholder agricultural households.

Rationale of the study

The motivation of this research is based on the need to deal with the socio-economic problem of food insecurity and poverty of the Kashmiri farmers. Even though agriculture contributes significantly to the provision of food and sustaining the economy, the farmers are constrained due to low access to productive assets such as land, livestock and equipment's and poor infrastructural development. Inadequate roads, lack of market information and poorly developed infrastructure also worsen food insecurity and poverty. This study seeks to analyze the impact of these infrastructural and resource deficits on the dietary and food diversity of the smallholder households within

Kashmir valley and their socio-economic status, ability to access resources and engage in agriculture. It is also important to bring out more dimensions on the relationship between agricultural resources and infrastructure and food security so as to make it easier for policymakers to improve agricultural productivity, food security and the livelihoods of rural residents in the region.

Materials and Methods

Universe and sampling procedure

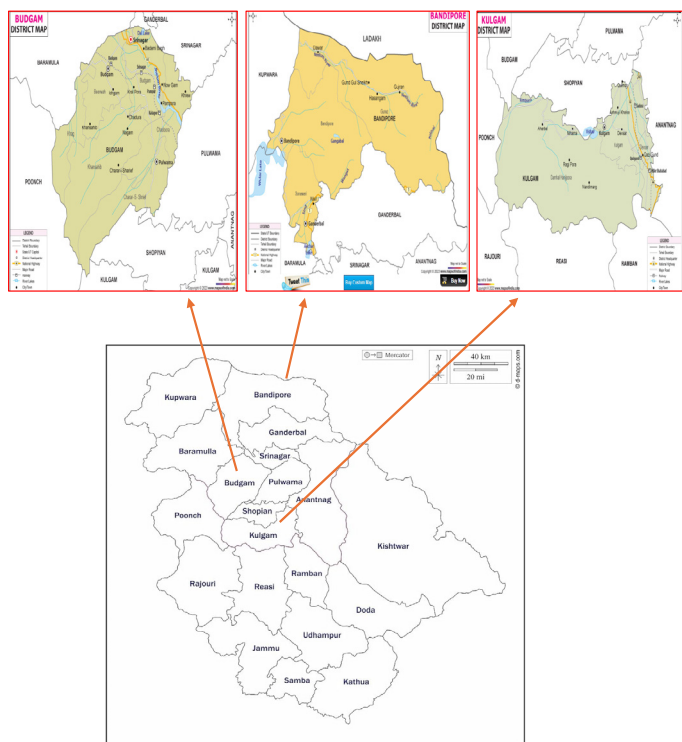
Kashmir valley, one of the northern states/UT's of India is the target area under focus. Most of the UT's rural residents are farmers who grow a variety of food and horticultural crops, including rice, maize, vegetables, fruits, almonds, saffron, walnut and many more. For agricultural administrative convenience, the Kashmir valley is divided into 10 administrative districts. For carrying out this study, three (03) districts namely Budgam, Bandipora and Kulgam from three regions of Kashmir were selected for the survey purposes. The data was obtained by using an unorganized questionnaire. The data and information were obtained from three hundred (300) smallholder agricultural households with a population of 5200 members by using multistage random sampling and systematic sampling techniques. To make the study result oriented, two blocks each are chosen at random from all three districts. During the final stage of sampling, 12 villages were selected through sampling procedure. The sampling was done in consultation with the UT Agriculture Production Department and the experts of Agricultural University. The map of the sampled area is given as:

Methods and tools of data analysis

The same parameters were used for assessment because dietary patterns, the consumption of high-quality foods and socioeconomic characteristics are some of the indicators for determining the population's wellbeing and standard of living. The sample size was taken by using the formula:

$$\text{Sample size} = \frac{[z^2 * p(1-p)] / e^2}{1 + \frac{[z^2 * p(1-p)] / e^2}{N}}$$

For drawing reasonable results, descriptive statistics were carried out, the scenario drawn is presented in ([Figure 1](#)).



Map of sample area.

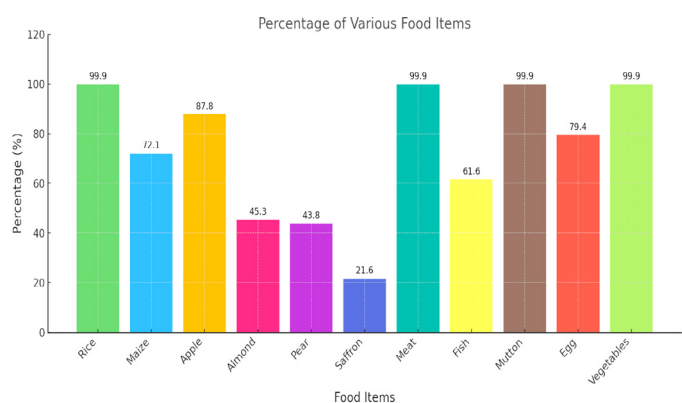


Figure 1: Percentage of food items consumed by households.

Dietary pattern of household

A 24-hour schedule of dietary patterns of households in the sampled area was followed for collecting necessary information. The information collected was mainly analysed to get the logical results and was substantiated by the methodology previously followed by (Muhammad-Lawal *et al.*, 2017; Mango *et al.*, 2014; Wani, 2007; Agbadi *et al.*, 2017). Since we are aware that preparing food is still and from centuries is considered the responsibility of women folk and therefore, they were asked for the food they had consumed (Muhammad-Lawal *et al.*, 2017; Wani, 2007). Female household members were asked to provide details about the meals, dishes and other foods and drinks they had eaten and drunk over the course of the previous day. Following that, food combinations were created using this data. A

household's reported number of food combinations was analyzed to determine the HDDS (household dietary diversity score), which is a number between 0 and 12. Three main categories were identified for HDDS: Low, medium and high dietary diversity (Table 4).

Ordered logistic regression model

An ordered logistic regression model was utilized to explore the relationship between the dietary differences of agrarian family units and their get to fundamental framework administrations and generation resources.

$$Z_i = \alpha_0 + A_i \Gamma + B_i \delta + C_i \eta + \zeta$$

Where; Low dietary diversity is represented by $Z_i = 1$, medium dietary diversity by $Z_i = 2$ and high dietary diversity by $Z_i = 3$. α_0 = Constant access to basic services for a household is represented by the vector of variables A_i , which includes: Visits for extensions A_{i1} and credit availability A_{i2} , access to productive assets by the household is represented by the vector of variables B_i , which includes: B_{i1} = Ownership of land, household-level socioeconomic characteristics are represented by the vector C_i , which includes the following: C_{i1} , = gender, C_{i2} , = age and C_{i3} , = size of the household. Education levels S_4 C_{i4} - C_{i6} , Farm association, secondary/tertiary education and primary education.

Measuring food security

The adjusted Foster-Greer-Thorbecke (FGT) decomposable degree was utilized to degree the nourishment security of families (Akerle *et al.*, 2013; Ayinde *et al.*, 2012; Iqbal *et al.*, 2018; Ibrahim *et al.*, 2019). The shape of the demonstration in utilize is:

$$P\beta = \frac{1}{M} \sum_{i=1}^r \left[\frac{Xw_i}{X} \right]^\beta$$

$$P_\alpha = \frac{1}{N} \sum_{i=1}^q \left[\frac{Z - y_i}{Z} \right]^\alpha \dots (2)$$

Where; P_β speaks to the FGT file. The headcount proportion, or the rate of family units underneath the nourishment security line, is given by the taking after condition: r = Number of nourishment unreliable family units; x = Food security line for family; w_i = per-capita nourishment consumption of ith uncertain family; M = Total number of families; and $\beta = 0$. The nourishment security crevice file, or the rate of the

nourishment security limit (line) that an normal family encountering nourishment frailty will have to be reach the nourishment security line, is given by $\beta = 1$. The nourishment insecurity severity list, or $\beta = 2$, allocates a weight to the foremost nourishment unreliable individuals. The closer the esteem is to 1, the more genuine the nourishment frailty. The two-thirds cruel per-capita family nourishment use was utilized as the benchmark to divide households into those that were nourishment secure and those that were not to form the food-security line. The food-security line was calculated with the help of the following equation;

$$HPCFE = \frac{HFE}{HS} \dots (3)$$

Where; HFE= Household food expenditure; NHS= Number of household sizes; HPCFE= Household per-capita food expenditure.

Logistics regression model

To analyse the relationship between food poverty in the study area and productive assets and basic service accessibility, a logistic regression model was estimated (Ibrahim *et al.*, 2019).

$$Y_i = Q_i'\theta + R_i'\Phi + S_i\beta + \varepsilon$$

Where: $Y_i = 0$ in the absence of food insecurity and 1 in the presence of it; $\beta =$ Constant Q' is a vector of variables that denotes the availability of basic services for a household. Among these are Q_1 (extension visit) and Q_2 (availability of credit). The kilometers to the private health center are indicated by Q_3 and the kilometers to the public health center are indicated by Q_4 . A household's access to productive assets is indicated by the vector of variables called R' .

These include $R_1 =$ Possession of land, $R_2 =$ Proper land, S' stands for the vector of socioeconomic characteristics at the household level, which includes $S_1 =$ gender, $S_2 =$ age, $S_3 =$ size of household, $S_4 =$ status of marriage, $S_5 =$ year of education, $S_6 =$ number of house-employees and $S_7 =$ membership in the farm operation.

Rationale for using regression

In this research, regression analysis is employed to quantify and analyze the relationships between several independent variables (including access to basic services, productive assets and socioeconomic

characteristics) and the main dependent outcomes (dietary diversity and food insecurity). An ordered logistic regression model fits best, since dietary diversity is a categorical variable, with order (low, medium and high diversity). A logistic regression model is appropriate to analyze the binary outcome of food insecurity (present or absent). These methods provide the capability to comprehensively evaluate multiple predictors, assess their relative importance and adjust for potential interaction effects to yield a powerful framework for determining significant determinants and targeting interventions to optimize food security and dietary diversity within agrarian systems.

Results and Discussion

Table 1 present the summary statistics of the socio-economic characteristics of the sampled agricultural households. The findings reveal that men lead 92% of the sampled agricultural households. The heads of households are about 40 years old on average. Roughly 21% of heads of agricultural households said they had never attended any kind of formal schooling, 32% had finished elementary school, 19% had finished secondary school and 8% had gone to post-secondary education. There were about 5 people living in the average household. Each household had on average, 2 people working in the farming department. 50% of agricultural households benefited from agricultural extension services and 11% of respondents said they had access to agricultural credit. Most households (91%) were the owners of their farmed land. The distance to primary health care was roughly 8 km away be it private and 8 km away in case of private healthcare facilities.

The dietary differences score (HDDS) for family units has appeared in Figure 2. The normal HDDS for respondents is 8.21, showing that the lion's share of families (84.32%) has a tall level of dietary differing qualities. The larger part of inspected families devoured more than five nourishment bunches, with cruel scores for moo dietary differing qualities (9.58%) and medium dietary differences (6.10%) being 2.42 and 7.01, separately. Our discoveries adjust with the discoveries of (Wani, 2007; Udoh and Udoh's, 2019).

Table 1: Socio-economic characteristics of households in the sampled area.

Variables	Description	Mean	Standard deviation
Age	Dummy for the head of the home's gender (male=1)	0.92	0.42
Gender	Household head's age (years)	39.63	8.12
Size of household	Members of the household	5.32	1.31
Level of education attained	Years of education for the head of the home (years)	6.75	4.11
Family members' participation in farm operations	Members of the household working on the family farm (No)	5.64	1.91
Extension services	Extension agent visits during the production season (No)	5.34	2.82
Credit availability	Dummy for the head of the household's credit access (Have access = 1)	0.11	0.21
Land ownership	Dummy for the household's land ownership (Owned = 1)	0.91	0.53
The private health center's distance	The distance in kilometers to the closest private medical facility	8.84	4.06
The distance between the government health center	The distance (in kilometers) to the closest government health facility	1.60	1.91

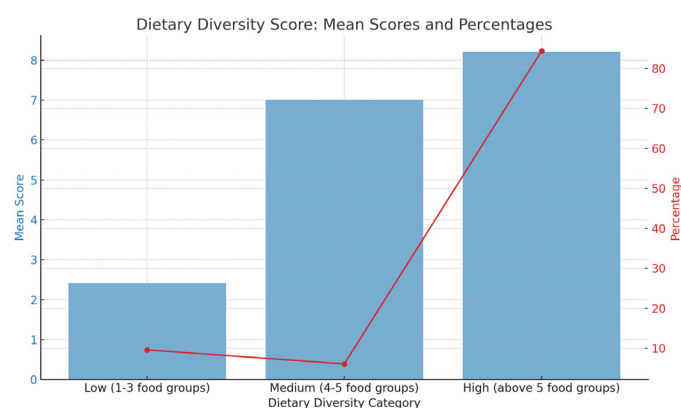


Figure 2: Household dietary diversity score (HDDS) distribution.

Table 2: The impact of productive assets and basic service accessibility on the dietary diversity status of households is examined using ordered logistic regression analysis.

Variables	Coeff.	Std. Error	z-stat.	p value
Gender	-3.102***	1.213	-4.32	0.022
Age	0.034	0.098	0.56	0.765
Size of household	-0.032	0.212	-0.32	0.987
Primary education	-0.109	0.876	-0.4	0.890
Secondary/tertiary education	0.212	0.866	0.32	0.843
Credit access	6.231***	1.214	4.31	0.021
Ownership of Land	3.215***	0.985	4.22	0.012
cut1	6.276	2.563		
cut2	5.421	2.376		
Number of observations	256			
Likelihood ratio Chi ² (11)	46.25			
Probability > Chi ²	0.000			
Pseudo R ²	0.342			
Log-likelihood	-78.56432			

***Significance at 1% level, **Significance at 5% level, *Significance at 10% level.

Impact of household dietary diversity status on access to productive assets and basic services

A requested calculated relapse demonstration was utilized to assess the impact of respondents' get to essential administrations and profitable resources on the dietary differing qualities status of their family units (Tables 2 and 3). The show included eight illustrative factors that impacted households' dietary differing qualities status; four of these factors were factually critical. These incorporate the head of the household's sex, the amount of expansion visits, the availability of credit and land proprietorship (Table 3). The p-value (0.000) and probability proportion chi-square (78.56) of the study showed that all the factors together have a critical effect on the state of dietary differing qualities in families. The cutoff focuses, or limit values of the fundamental inactive variable, speak to the three dietary differing qualities bunches. The assessed coefficients of each autonomous variable appear to show how likely it is that the subordinate variable (dietary differences status) will alter in reaction to each autonomous variable. The minimal impacts of each autonomous variable were evaluated to require into thought the real magnitude of an alter within the autonomous factors (Table 4). Gender has a significant and negative influence (p<0.01) on the level of dietary diversity within the family; Households headed by men are less likely to achieve high levels of dietary diversity than households headed by women. This is based on using the low dietary diversity group (Y = 1) as the basic gender category. Male households are more likely to have a poor or moderately varied diet (49.8% and 4.8%, respectively).7%) compared to households headed by women, but according to

Table 3: Findings from the marginal effects on the likelihood of a household's dietary diversity status based on access to productive assets and basic services.

Variables	Y = 1 (Low)		Y = 2 (Medium)		Y = 3 (High)	
	Dy/Dx	Std. Err.	Dy/Dx	Std. Err.	Dy/Dx	Std. Err.
Gender	0.564***	0.212	0.080**	0.032	-0.673***	0.234
Age	-0.021	0.021	-0.002	0.003	0.004	0.006
Household size	0.011	0.010	0.003	0.005	-0.004	0.032
Primary	0.011	0.060	0.009	0.034	-0.021	0.078
Secondary	-0.021	0.054	-0.008	0.032	0.023	0.079
No of extension visit	-0.032**	0.023	-0.016**	0.007	0.042***	0.021
credit access	-0.563**	0.243	-0.067	0.047	0.643***	0.097
Ownership of land	-0.213**	0.067	-0.097***	0.043	0.342***	0.096

***Significance at 1% level, **Significance at 5% level, *Significance at 10% level.

Table 4: Distribution of household food security status (HFSS).

Status of household food security (HFSS)	Interpretation	Value
P ₀	Ratio of headcount	0.35
P ₁	Poverty Gap	0.21
P ₂	Severity	0.12
Mean household per capita expenditure per month	₹7872 (\$32.9USD)	
Poverty line	₹5248 (\$23.7USD)	
Observation	300	

Note: official exchange rate: \$410/₹1

marginal effect estimates they are less likely to rely on a highly varied diet (51.2%). This may be due to cultural and social norms that place women in charge of choosing and preparing meals. This makes them more likely to be aware of the nutritional benefits of different food groups and the ideal ways to mix foods to improve their family's health and nutrition. This finding is consistent with the research of [Taruving et al. \(2013\)](#) who showed that families were ranked based on the statistical significance of the estimated coefficients and examined marginal effects. Furthermore, the results ([Lucett et al., 2015](#); [Wani, 2007](#)) confirm that there is a positive and significant relationship (p<0.01) between access to counseling services and family dietary diversity, meaning that families Those who use counseling services are likely to be in a higher category. The study results explain why farms benefit more from extension services than from extension services tailored to a specific farm. Additionally, access to Extension services can result in more efficient resource management, increased household income and an increase in the number of nutrient-dense foods available for consumption.

The dietary diversity of smallholder agricultural households is positive and significantly (p<0.01) impacted by credit availability, suggesting that credit availability increases the likelihood that a household will be in the high group. Access to credit for agriculture is a major barrier to farming households' productivity, so availability of credit allows them to buy high-quality inputs that improve output, enhance income and increase the supply of food and the finding was supported by [Annim and Frempong \(2018\)](#) and [Bidisha et al. \(2017\)](#).

The status of dietary diversity in households is significantly influenced by ownership of land (p<0.012). Meaning thereby, possession of land increases the likelihood of falling into the high category. This indicates that landowner-farming households have greater potential to grow a wider variety of crops, which will ultimately broaden their dietary options and the same results were supported by [Kiboi et al. \(2017\)](#).

Factors influencing the agricultural household's state of food security

A logistic regression model was used to examine the impact of agricultural households' access to basic services and production resources on their food security. [Table 5](#) shows the estimated coefficient, marginal effects, standard errors, z-scores and P values. The estimated chi-square value of the logistic regression was 121.511, with a p-value of 0.0000. The likelihood ratio statistics demonstrated the overall adequacy of the model. The study found that the following variables significantly predict the level of agricultural food security: age, farm size, marital status, number of farm members, secondary contacts, availability of credit, land ownership and distance to public and private farms. Health centers ([Table 5](#)).

Table 5: Results of a logistic regression analysis show how a household's level of food security is impacted by its access to productive assets and basic services.

Variable	Y (dy/ dx)	Coefficient	Standard error	z-statistics	p value
Gender	0.033	0.322	0.954	0.67	0.564
Age of the respondent	0.014	0.123**	0.056	1.67	0.064
Size of Household	0.142	1.121***	0.465	3.23	0.012
Marital Status	-0.134	-1.221**	0.675	-3.20	0.054
Year of education	-0.005	-0.032	0.089	-0.45	0.812
Number of household members working on the farm	-0.118	-1.019**	0.321	-2.31	0.020
Extension contacts	-0.075	-0.542**	0.270	-3.64	0.023
Access to credit	-0.321	-5.324***	1.412	-4.32	0.004
Land ownership	-0.321	-5.321***	1.454	-4.09	0.003
Distance to the private health centre	8.67	4.267***	3.213	4.22	0.003
Distance to the public health centre	1.60	0.976**	0.232	3.11	0.024
Constant		-5.213***	2.431	-1.56	0.365
No of observation		300			
LR chi2(14)		121.511			
Probability>Chi ²		0.000			
Log-likelihood		-59.123			
Pseudo R ²		0.480			

***Significance at 1% level, **Significance at 5% level, *Significance at 10% level.

The age of the household head has a positive and significant influence ($p < 0.034$) on the household's level of food poverty. This means that as the age of the household head increases from year to year, the likelihood of food insecurity in the household also increases. This may be because as farmers age, they become less secure in their food supply and are no longer able to carry out their agricultural activities. The results are consistent with those of (Abdullah *et al.*, 2019). There is a positive and significant correlation ($p < 0.001$) between household size and food security status, indicating that the number of people in a household increases the likelihood of food poverty by 14.2%.

The age of the household head has a positive and significant influence ($p < 0.034$) on the level of food poverty in the household. This means that as the head of the household gets older each year, the likelihood of household food insecurity also increases. This may be because as farmers age, their food security decreases as they are no longer able to carry out their agricultural activities. The results are consistent with those of (Abdullah *et al.*, 2019). There is a positive and significant correlation ($p < 0.001$) between household size and food security status, indicating that the number of people in a household increases the likelihood of food poverty by 14.2%.

The number of household members working as farmers has a significant negative impact on household food security. This reduces the likelihood of a family experiencing food insecurity by 11.8% if one of its members operates a farm. This means that the addition of a working-age family member has a positive and significant impact on the family's ability to maintain food security. According to Amazy *et al.* (2006), each of these factors has a positive impact on agricultural production and improves food security. The risk of food insecurity among agricultural households decreases when they have access to credit, as evidenced by the significant negative correlation ($p < 0.01$) between food insecurity and credit availability. Through access to credit, agribusinesses can make a significant contribution to the purchase of high-quality inputs, thereby increasing farm income and ensuring food security. The results are consistent with the research of Kehinde and Kehinde (2020).

There is a negative and significant ($p < 0.01$) correlation between food insecurity and land ownership, indicating that agricultural households with land are less likely than those without it to experience food insecurity. Households can use land for both agricultural and non-agricultural uses, making it an asset. A household that owns land has the power to choose which crops to grow and how much of them leave uncultivated. In

addition to its agricultural applications, land can be used for a wide range of non-agricultural ones, such as providing security for loans and resilience against shocks.

The distances to public and private hospitals are substantially positively correlated with food insecurity, according to the distance to private and public hospital coefficients. According to the corresponding marginal effects, the likelihood of food insecurity increases with distance from private and public hospitals. This finding implies that residing a greater distance from the health center may result in higher healthcare-related expenses, such as transportation costs, forcing the household to choose between allocating its financial resources more sparingly to healthcare or food.

Conclusions and Recommendations

The study highlights how smallholder agricultural households in Kashmir valley dealt with dietary diversity and food poverty in relation to their access to productive assets and basic services. The results show that over 85% of the agricultural households surveyed had very varied diets, with meat, vegetables, rice and oil being the most consumed food groups. Furthermore, adequate access to productive assets and essential services may reduce a household's food insecurity and dietary diversity.

Recommendations

To make the dietary diversity pattern of the area better suited for the population, the study suggested that interested parties mobilize around smallholder farming households in Kashmir valley.

- Helping families use the health centers in their neighborhoods to lower their out-of-pocket medical expenses, which will boost the amount of food consumed by the family.
- Putting laws into place to guarantee fair land-redistribution among farming households so that valuable crops can be grown on commercial lines.
- Helping agricultural households access low-cost credit from official and informal lenders to boost agricultural investment for higher output and enhanced income.
- Increasing the institutional support for extension service delivery to enable effective management of agricultural resources.

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Novelty Statement

This paper details the new horizon of Shaping Healthy Future by Improved Dietary Pattern and Food Security of Agricultural Households Access to Basic Services and Productive Assets. The particularity of the study is theoretically exploring the crossover of dietary patterns, food security and accessibility of basic service and productive asset in the farming household of Kashmir valley. Incorporation of household-level data would offer new insight into socio-economic and infrastructural factors influencing nutritional outcomes. Hence, the results of the present study can contribute a novel perspective to policy interventions meant for strengthening food security and sustainable livelihoods in agrarian conflict-prone regions.

Author's Contribution

Arshad Bhat: Conceived the idea, framed the methodology, analyzed the data and compiled the paper.

M. H. Wani: Suggested the sample area, guided places how to move ahead.

Abid Sultan: Helped in collection of data and review of literature.

Conflict of interest

The authors have declared no conflict of interest.

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