Exploring variation of influences of caste and ethnicity in rural mountain household food security in Nepal

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Abstract

This study investigates the impact of caste and ethnicity on household food security in Makalu Rural Municipality, a rural mountainous area in Nepal characterized by its diverse ethnic composition and reliance on subsistence agriculture. Employing a cross-sectional household survey methodology, data were collected from 262 households using the Household Food Insecurity Access Scale to measure food security levels. The study reveals significant variations in food security across different caste and ethnicity, with Sherpa households exhibiting the highest levels of food insecurity. These disparities are influenced by socio-economic factors closely linked to the caste and ethnicity system, which restricts access to resources and opportunities. Findings are interpreted through the lens of human capital theory and entitlement theory, emphasizing the role of social and economic entitlements in securing food. The study concludes with recommendations for policy interventions that address both the economic and socio-cultural dimensions of food insecurity. The implications of this research are critical for designing targeted strategies that enhance food security in rural Nepal, particularly by addressing caste and ethnicity-based disparities.

Keywords: *food security, caste and ethnicity, rural mountain, human capital theory*

Introduction

Food security, as defined by the United Nations' Committee on World Food Security, is the condition in which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2009). This comprehensive definition highlights the complexity of food security, which encompasses availability, access, utilization, and stability of food resources (Barrett, 2010). Despite significant progress globally, food insecurity remains a persistent problem, particularly in rural and mountainous regions where geographical isolation compounds socio-economic vulnerabilities (Smith, 2019).

Existing knowledge about food security indicates diverse influencing factors including economic status, agricultural capacity, climate change, and socio-political dynamics (Maxwell, 1996). In rural mountain regions, unique challenges such as harsh climates, difficult terrains, and limited infrastructural development exacerbate these issues, often leading to higher rates of food insecurity (Rosenzweig & Parry, 1994). Research has shown that these areas frequently suffer from inadequate food production and limited access to markets, which significantly impacts their food security status (Smit & Wandel, 2006).

There is an expected knowledge gap in understanding how localized social structures, such as caste and ethnicity systems in regions like Nepal, impact food security. Studies in similar settings have pointed to social stratification as a critical determinant of access to resources and economic opportunities, which in turn affects food availability and stability (Corinna et al., 2017). Given the complexity of food security challenges in mountainous regions, there is a pressing need for more localized studies that consider the interplay of social, economic, and environmental factors in shaping food security outcomes (Bhatta et al., 2015).

The importance of studying food security in the rural mountain region of Makalu Rural Municipality, Nepal, cannot be overstated. This region, characterized by its diverse population and subsistence-based economy, presents a unique opportunity to explore the impact of socio-economic variables, particularly caste and ethnicity, on food security (Jones & Thornton, 2013). Such studies are crucial for designing effective interventions that address the specific needs and challenges of these communities (Morton, 2007). By investigating these dynamics within the context of Nepal's mountainous regions, this study aims to contribute valuable insights into the broader discourse on rural food security and inform policy directions that can alleviate food insecurity in similar contexts globally (Pandey et al., 2016).

Theoretical Background and Empirical Evidences

Despite progress, over 690 million people remain chronically undernourished, underscoring the ongoing challenge of food insecurity at a global scale (WFP, 2020). Food security, forms the basis for international policies and research, emphasizing the multidimensional nature of food security which encompasses availability, access, utilization, and stability (Barrett, 2010).

Several theories have been proposed to understand the dynamics of food security. The entitlement theory, developed by Amartya Sen, argues that food security is determined not only by food production but also by the entitlements or rights that individuals have to obtain food through means such as cultivation, bartering, or

purchasing (Sen, 1981). This theory has been instrumental in shifting the focus from aggregate food availability to individual access to food. Moreover, livelihood theory extends this perspective by linking food security to the broader range of resources that individuals, households, and communities manage in pursuit of sustainable livelihoods (Chambers &Conway, 1992).

In developing countries, empirical studies have frequently highlighted the impact of socioeconomic factors such as poverty, inequality, and unemployment on food security. The economic growth in low-income countries often leads to significant improvements in food security by increasing income levels and thus food access (World Bank, 2012). However, studies such as those by Maxwell and Caldwell (2008) have found that rapid urbanization and the marginalization of smallholder farmers can exacerbate food insecurity, even in contexts of economic growth.

Focusing on South Asia, and Nepal specifically, the reliance on agrarian economies makes the region particularly vulnerable to food insecurity due to factors such as climate change and land degradation (Pandey et al., 2016). The FAO notes that fluctuations in food production due to monsoon variability significantly affect food availability in this region (FAO, 2016). Additionally, cultural factors such as caste and ethnicity systems influence access to land and economic opportunities, thereby affecting food security (Beteille, 1999).

Food security in Nepal is critically challenged by a combination of economic, environmental, and social factors. As a predominantly agrarian society, many regions, especially rural and mountainous areas, are heavily dependent on subsistence farming that is vulnerable to climate variability and natural disasters such as floods and landslides. This vulnerability is compounded by inadequate agricultural infrastructure and market access, which restricts food availability and increases susceptibility to food shortages. Moreover, socio-economic disparities, including caste and ethnicity-based discrimination, further exacerbate food insecurity by limiting certain communities' access to agricultural resources and economic opportunities (FAO, 2021; WFP, 2020). These conditions necessitate comprehensive and inclusive policies to enhance food production, distribution, and accessibility across all sectors of Nepali society.

Mountainous regions like Makalu Rural Municipality present unique challenges for food security. The geographical isolation often leads to difficulties in transporting goods and accessing markets, which can severely impact food availability and prices (Smit & Wandel, 2006). Moreover, the limited arable land and the vulnerability to natural disasters further complicate efforts to achieve food security (Jones &

Thornton, 2013). Empirical studies in these areas often highlight the need for targeted agricultural policies and infrastructure development to enhance food access and sustainability (Bhatta et al., 2015). In this context, by integrating these global, regional, and local perspectives, this study aims to uncover the specific socio-economic factors, including caste and ethnicity, that influence food security in Makalu Rural Municipality, ward 2 of Sankhuwasabha, Nepal. Understanding these dynamics is crucial for designing effective interventions that can address the unique challenges faced by mountainous regions in Nepal as well.

Objectives

This paper aims to explore the variations of influence of caste and ethnicity in household food security in rural mountain region of Nepal. It explores to what extent caste and ethnicity influence the household food security in the study area. Since food security is multidimensional concept, this paper mainly focuses on food uncertainty or anxiety, quantity, quality, reduction, consequences and shame. The arguments are developed by using both secondary and primary data.

Methodology

Study Area

The research was conducted in Makalu Rural Municipality, Ward no. 2, which is situated in a mountainous region of Nepal, bordering the Tibet Autonomous Region of China to the north, and interconnected with wards 1, 5, and 3 of Makalu Rural Municipality to the west, south, and east respectively. This area is known for its diverse population and subsistence-based economy, with agriculture as the primary livelihood, supplemented by tourism and foreign employment.

Study Design

The study employed a cross-sectional household survey design to collect data from the selected households within the study area. This design was chosen to capture a snapshot of food security status and its association with the caste and ethnicity of household heads at a specific point in time.

Sampling

A total of 262 households were randomly selected from the 758 households in the study area. The sample size was determined based on the population size, considering the logistical constraints and the need to achieve statistically significant results. Random sampling was utilized to ensure that every household had an equal chance of being selected, which helps in minimizing selection bias and improving the representativeness of the sample.

Data Collection

Data were collected in 2022 using a structured survey questionnaire, which was administered face-to-face. The respondents were primarily household heads; however, in instances where the household head was unavailable, the senior-most member of the household capable of providing reliable information was approached. This approach ensured that accurate and comprehensive data were obtained regarding household food security.

Respondents eligible for the survey were those aged 22 years or older, chosen based on their expected capability to provide detailed and accurate information about their household. Special considerations were made for respondents who faced health or physical challenges, in which case another knowledgeable household member was selected to participate in the survey.

Measurement of Variables

The primary independent variable studied was the caste and ethnicity of the household head, which was categorized into four major groups: Chhetri, Rai, Gurung, and Sherpa. The dependent variable, food security, was measured using the Household Food Insecurity Access Scale (HFIAS), developed by USAID's Food and Nutrition Technical Assistance Project (FANTA). This scale comprises nine questions that address different dimensions of food insecurity, including anxiety about food supply, insufficient food quality, and reduced food intake. Responses were captured on a Likert scale ranging from 0 (never) to 3 (often), with higher scores indicating greater food insecurity.

Data Analysis

The collected data were analyzed using descriptive statistics to summarize the demographic characteristics and food security status of the households. Crosstabulations were utilized to explore the relationship between the caste and ethnicity of household heads and food security scores. Statistical significance was assessed using Pearson correlation coefficients to determine the strength and direction of the relationship between caste and ethnicity and food security.

Results and Discussion

Descriptive Statistics

The study involved 262 households within Makalu Rural Municipality, focusing on four major caste and ethnicity: Chhetri, Rai, Gurung, and Sherpa. Rai and Sherpa were the predominant caste and ethnicity, comprising 38.9% and 37.4% of the sample, respectively, followed by Chhetri (20.2%) and Gurung (3.4%). The distribution reflects the diverse ethnic composition of the area.

Table 1

Distribution of Household Heads by Caste and Ethnicity

Caste and ethnicity	Frequency	Percent
Chhetri	53	20.2
Rai	102	38.9
Gurung	9	3.4
Sherpa	98	37.4
Total	262	100.0

Food Security Intensity Score

The Food Security Intensity Scores ranged from 0 to 27, with a mean score of 5.67, indicating a moderate level of food insecurity across the households. The distribution of scores showed that the majority of households had lower scores, suggesting fewer food security issues.

Table 2

Food Security Intensity Scores

Score	Frequency	Percent
0	35	13.4
1-2	54	20.6
3-5	53	20.2
6-10	82	31.3
11+	38	14.5
Total	262	100.0

Caste/Ethnicity and Food Security

The study revealed significant variations in food security scores among different castes and ethnicities. Sherpa households exhibited higher food security scores on average, suggesting greater food insecurity, while Rai households demonstrated lower scores, indicating better food security.

Table 3

Food Security Intensity Score by Caste and Ethnicity

Caste and ethnicity	Score Range	Mean Score
Chhetri	0-27	4.0
Rai	0-27	3.5
Gurung	0-27	5.0
Sherpa	0-27	6.5

Statistical Analysis: Correlations

Pearson's correlation coefficient indicated a statistically significant, albeit weak, negative correlation between caste and ethnicity status and food security scores ($r = -0.148$, $p = .016$). This result suggests that higher caste and ethnicity status is associated with slightly better food security outcomes, but the relationship is not robust.

Table 4

Correlation between Caste and Food Security Intensity Scores

Variable	Pearson's R	P	N
Caste of Household Head	-0.148	.016	262

Pearson's R value indicates the strength and direction of the linear relationship between caste and food security scores. A negative R value suggests an inverse relationship, where higher caste status is associated with lower food security scores, implying better food security. The significance (p-value) indicates that this correlation is statistically significant at the $p < .05$ level.

Socio-Cultural Dynamics

The differences in food security across caste and ethnicity could be attributed to socio-cultural factors such as land ownership, access to agricultural resources, and historical marginalization. Higher caste and ethnicity such as Chhetri and Rai typically have better access to productive resources, which can lead to better food security outcomes. In contrast, lower caste and ethnicity like the Gurungs and Sherpas, despite their strong cultural ties to agriculture, often face systemic barriers that limit their food production capabilities.

Economic Activities

Economic activities also play a crucial role in shaping food security outcomes. In regions dominated by subsistence agriculture, households with better access to markets and diversified income sources tend to experience lower levels of food insecurity. The Rai, who have historically been more integrated into local markets, exhibit better food security compared to the Sherpa, whose remote mountainous settlements limit their market access.

Climate and Geography

The impact of climate variability, particularly in mountainous regions, cannot be overlooked. Fluctuating weather patterns often disrupt agricultural cycles, impacting food production and security. Households in higher altitudes, like those of the Sherpa, are more susceptible to these changes, further compounding their food insecurity issues.

Conclusion

The study of food security in Makalu Rural Municipality has revealed critical insights into the role of caste and ethnicity in shaping access to food resources and overall food security. The findings indicate that food security varies significantly among different caste and ethnicity groups, with Sherpa households experiencing higher food insecurity compared to Chhetri, Rai, and Gurung households. This variation can be largely attributed to socio-economic factors that are intertwined with the caste and ethnicity system, a deep-rooted social structure in Nepal that affects access to resources and opportunities.

Drawing from human capital theory (Becker, 1964), the disparities observed can also be interpreted through the lens of differential access to education and economic resources among the caste and ethnicity. Higher educational attainment and better economic opportunities, which are often less accessible to lower caste and ethnicity, are crucial for improving agricultural productivity and securing food resources (Bashir et al., 2012). This aligns with the entitlement theory proposed by Amartya Sen (1981), which emphasizes the role of social and economic entitlements in securing food. In Makalu Rural Municipality, caste and ethnicity influences these entitlements significantly, affecting both direct access to food and the capabilities to utilize available resources effectively.

These findings highlight the need for targeted policy interventions that consider both caste and ethnicity dynamics and geographic disparities. Enhancing access to agricultural resources, improving market integration, and developing robust support systems for marginalized communities could significantly improve food security

in the region. Policies need to be inclusive and specifically targeted to support marginalized communities, ensuring equitable access to resources, education, and economic opportunities.

For future research, it is recommended that a more detailed analysis of intra-household dynamics and the role of women in food security be conducted, as these elements could provide further depth to understanding how food security is managed at the household level. Longitudinal studies would also help in tracking changes over time and the impact of specific interventions.

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