

# Food Insecurity Among The Scheduled Tribes In Kerala: An Exploration Of Self-Reported Experiences Of Hunger

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## Abstract

*Understanding food insecurity requires a thorough exploration of the lived realities of those affected, to get a clearer picture of its scale and severity. Lived or self-reported data on hunger and food insecurity is vital for evaluating mitigation efforts and informing policy decisions regarding various aspects of food insecurity. The cross-sectional study among 391 Households using Household Food Insecurity Access Scale (HFIAS), reveals the emotional, cultural, and behavioral experiences of food insecurity experienced by Scheduled Tribe households in Kerala. The results highlight that psychological stress and anxiety regarding food supply are the most prevalent issues, with 53.2% of respondents reporting anxiety and uncertainty about food availability. Compromises in food quality, such as the inability to eat preferred foods or reliance on limited or undesirable options, are also prominent concerns. The study underscores the need for framing nutritionally inclusive and culturally appropriate Food Based Safety, with the goal of addressing food insecurity among marginalized groups in a comprehensive manner.*

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## I. Introduction

Food insecurity is a critical issue that significantly impacts the marginalised sections of the society, especially Scheduled Tribes (STs), elsewhere in India. The situation in Kerala is not exception, despite the state's reputation for the so called "Kerala Model of Development". The Scheduled Tribe communities often remain on the fringes of advancements, experiencing stark disparities in access to essential resources, including food. Food insecurity among STs not only threatens their physical health but also exacerbates social inequities, hindering their overall development and well-being. Malnutrition and hunger create a vicious cycle of poverty and illness, making it increasingly difficult for these communities to break free from the grips of deprivation. Geographical isolation, limited access to welfare schemes, and socio-economic marginalisation worsen the situation for ST communities. Disruptions to their traditional livelihoods, caused by deforestation, land alienation, and climate change, further intensify their vulnerability to food shortages. Addressing food insecurity among Scheduled Tribes in Kerala is not just a matter of providing immediate relief but also of implementing sustainable, long-term solutions that empower these communities.

Self-reported or experienced based information on the prevalence of hunger and food insecurity are important for monitoring the efforts made to mitigate such problems and to support policy decision making. It gives a picture of subjective resilience, psychological factors and perception among individuals and households regarding various aspects of food insecurity (Kennedy, E. 2005; Sethi, V., et.al,2017). Self-reported experiences of hunger highlight the effectiveness and challenges of policy interventions addressing food insecurity, shedding light on its social, biological, nutritional, and economic aspects. (Rose D., 1999, Grimaccia, E.,et.al 2022). One of the chief advantages of self-reported measurement of hunger is that, the responses is relative to the cultural practices, social normative influences and personal values that reflects their sense of deprivation, which may or may not always coincide with some external or absolute standard or objective measurement (Hendriks, S.2015).

## II. Review Of Literature

The ethnographic research conducted by Radimer, Olsen and Campbell (1992) in the USA found that food insecurity begins with uncertainty and anxiety about access to food, gradually leading to a monotonous and nutritionally deficient diet as the situation worsens. Similar trends were found in several ethnographic research that examined the impact of hunger on elderly Americans and low-income households in Quebec, Canada (Wolfe et al., 1998; Wolfe et al., 2003; Hamelin et al, 2002). Research on hunger experiences revealed that food insecurity commonly caused anxiety and psychological stress, as respondents feared running out of food in the future. Additionally, worsening food access conditions led respondents to make compromises in their food choices, ultimately reducing the quality and variety of their diet. (Hendriks, S. 2015; Saint Ville, A. et.al.2019). The experience-based measurement of food security relies on the responses of the households related to diverse facets of the food insecurity experience, commonly known as "domains" (Hamilton et al., 1997).

The Household Food Insecurity Access Scale (HFIAS) is a method used to determine the annual prevalence of food insecurity in the United States (Coates, J. et.al,2007). The approach is predicated on the notion that the experience of food insecurity (access) results in predictable behaviors and reactions that can be recorded, quantified, and summed up on a scale through a survey (Gebreyesus, S. H.et.al,2015). It takes into account the perceptions that food is of insufficient quantity (for adults and children), perceptions that food is of insufficient quality (includes aspects of dietary diversity, nutritional adequacy, and preference), reported reductions in food intake (for adults and children), reported consequences of reduced food intake (for adults and children), and feelings of shame for resorting to socially unacceptable means to obtain food resources.

The HFIAS questionnaire is comprised of nine "occurrence" questions, which reflect a usually increasing level of food insecurity (access), and nine "frequency-of-occurrence" questions, which are answered as a follow-up to each incidence question to find out how frequently the situation happened in the preceding 30 days (Pandey, R., & Bardsley, D. K. 2019). If the respondent states that the condition mentioned in the relevant occurrence question was not encountered in the preceding four weeks, the frequency-of-occurrence question is skipped. The measurement captures severity of food insecurity, starting with anxiety over food availability, followed by deteriorating food quality, reduced quantity, and ultimately experiencing hunger through the night and entire day without eating (Holland, A. C. et.al,2011; Farhadian, A.et.al ,2015).

Each occurrence question has a root (a recall period or timeframe), a frame (a reference to a particular action or attitude), and two response possibilities (0 = no, 1 = yes). Each "no" response option also has a "skip code" next to it. For "Yes" response, the respondent is asked how frequently the condition mentioned in the previous occurrence question occurred in the four weeks prior to each HFIAS frequency-of-occurrence question (Usaid,2007). There are three possible responses, with one denoting rarely, two denoting sometimes, and three denoting often. The nine questions of HFIAS are shown in the table 1.

Table 1: Household Food Insecurity Access Scale (HFIAS) Measurement Tool		
SI No	Questions	Response
1	In the past four weeks, did you worry that your household would not have enough food?	0 = No (skip to Q2) 1=Yes
1a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)
2	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	0 = No (skip to Q2) 1=Yes
2a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)
3	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	0 = No (skip to Q2) 1=Yes
3a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)
4	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	0 = No (skip to Q2) 1=Yes
4a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)

5	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	0 = No (skip to Q2) 1=Yes
5a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)
6	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	0 = No (skip to Q2) 1=Yes
6a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)
7	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	0 = No (skip to Q2) 1=Yes
7a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)
8	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	0 = No (skip to Q2) 1=Yes
8a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)
9	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	0 = No (skip to Q2) 1=Yes
9a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)

Source: USAID 2007

### III. Data Source And Methodology.

Statistics presented in the study are based on community-based, cross-sectional study among 391 Scheduled Tribe Households from six scheduled Tribe communities (Paniya, Irular, Muthuvan, Kanikkar, Malayarayan, and Kurichiya) from five districts in Kerala Thiruvananthapuram, Kottayam, Idukki, Palakkad and Wayanad. The selection of district was based on the concentration of the population of selected Scheduled Tribe communities in each district. The number of households in each category was selected proportionate to their percentage in the total Scheduled Tribe households of Kerala. Primary data were collected from the sample households based on a random sampling method using interview schedules. Information was also collected from ST promoters and Key informants.

Sample size of the population was calculated by Yamane formulae  $n = N / (1 + e2N)$ . The sample size selected for the study is 391 households. Household Food Insecurity Access Scale (HFIAS) was used to measure the experiences of households related to food security.

**Table 2: Profile of The Scheduled Tribe Households taken for the Study**

Community	Number	Percentage
Irular	54	13.8
Kanikkar	43	11
Kurichiya	57	14.6
Malayaraya	58	14.8
Muthuvan	31	7.9
Paniya	148	37.9
Total	391	100

### HFIAS Levels of Food Insecurity among the Tribal Households

According to the HFIAS scores, the food insecurity levels of the households under study are categorised as Food Secured (0-1), Mildly Insecure (2-7), Moderately Insecure (8-14) and Severely Insecure (15-27). Table 3 shows the categorisation of food insecurity levels of households.

Table 3: HFIAS Levels of Food Insecurity among the Tribal Households	Percentage
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Food Insecurity	Number of Households	
Secure	257	65.73
Mild Insecure	122	31.20
Moderately insecure	8	2.05
Severely Insecure	4	1.02
Total	391	100

*Source: Computed*

It is clear from the table that, out of the total 391 households, 257 come under the food secure category, and the rest 134 come under the insecure category. Among the insecure category, the majority, i.e., 122 households (31.2 per cent) belong to the mildly food insecure category, 8 households (2.05 per cent) belong to the moderately food insecure category and the rest, only Four households (1.02 per cent) belong to the severely insecure category.

#### Household Food Insecurity Access-related Conditions (HFIAC) among the Tribal Households in Kerala

The HFIAC indicators offer a clear picture of the attitudes and behaviours of the households related to food insecurity. It not only measures the occurrence of food insecurity but also provide a nuanced understanding of its frequency. This makes a powerful tool for identifying both the extent and the nature of the problem within the surveyed population, aiding in targeted policy-making and intervention efforts. The Household Food Insecurity Access-related Conditions are calculated by:

Households experiencing the condition at any time during the recall period =	
Per cent of households that responded "yes" to a specific occurrence question	X 100
Total number of households responding to that specific occurrence question	

*Source: USAID, 2007*

Households experiencing the condition at a given frequency =	
Per cent of households that responded, "Rarely/Sometimes/Often" to a specific frequency of occurrence question	X 100
Total number of households responding to that specific frequency of occurrence question	

*Source: (USAID, 2007)*

The Household Food Insecurity Access-related Conditions at any time during the recall period of the scheduled tribe households in Kerala under study are shown in table 4.

**Table 4: Household Food Insecurity Access-related Conditions of the Tribal Households in Kerala**

Sl. No.	Statements	Index (%)	Frequency of Experience		
			Rarely (%)	Sometimes (%)	Often (%)
Anxiety and uncertainty about the household food supply					
1	Worry about food	53.2	18.9	27.4	6.9
Insufficient Quality					
2	Unable to eat preferred foods	35.5	18.4	9.4	7.7
3	Eat just a few kinds of foods	17.9	11.6	4.3	2.0
4	Eat foods you really do not want to eat	7.9	4.1	2.8	1.0
Insufficient food intake and its physical consequences					
5	Eat a smaller meal	3.8	1.3	2.0	0.5
6	Eat fewer meals in a day	2.8	1.3	0.8	0.7
7	No food of any kind in the household	1.8	1.3	0.5	0
8	Go to sleep hungry	0.5	0.5	0	0
9	Go a whole day and night without eating	0	0	0	0
Source: Computed					

It is clear from the table 4 that with respect to the condition of worry about food, 53.2 per cent of the Scheduled Tribes households have anxiety and uncertainty about the household food supply (with 18.9 per cent experience this condition rarely, 27.4 per cent experience this sometimes, and the rest 6.9 per cent often experience). The survey indicates that food anxiety is prevalent among individuals who lack a regular income or independent means of cultivation, as well as those with limited mobility due to health-related issues or inadequate travel facilities. Most of the respondents opined that the anxiety about food is more during the rainy season. Some

respondents shared that their spouse spent most of their earnings on alcohol and other unnecessary expenses, making them anxious about food. Food worries were also more common among widows and those who were separated or abandoned. There was no concern about food among those who had the means to obtain enough food.

Regarding the condition of insufficient quality of food, 35.5 per cent of the households responded that they could not eat preferred foods (with 18.4 per cent experience this condition rarely, 9.4 per cent experience it sometimes, and the rest, 7.7 per cent, often experience this condition). About 17.9 per cent of the households experienced the condition of eating just a few kinds of foods (with 11.6 per cent experienced the condition rarely, 4.3 per cent experienced it sometimes, and the rest 2 per cent often experienced it). Regarding the condition of eating food, they really do not want to eat; 7.9 per cent of the households experienced the condition (with 4.1 per cent experienced it rarely, 2.8 per cent sometimes experienced it, and the rest one per cent often experienced it). The lack of regular employment and income appears to be a key factor preventing Scheduled Tribes from accessing their preferred foods. The survey revealed that many respondents favored tribal-specific foods; however, their access to forest resources—a vital source of food and livelihood—has been restricted due to government forest preservation policies and encroachment by non-tribal communities. Interestingly, the Paniya community differed from other Scheduled Tribes by showing a preference for non-tribal-specific foods, particularly meals from hotels.

In response to the condition of eating a smaller meal, 3.8 per cent of the households have experienced this condition (with 1.3 per cent experienced this condition rarely, 2 per cent sometimes experienced it, and the rest 0.5 per cent often experienced the situation). In response to the condition of eating fewer meals in a day, 2.8 per cent of the households have experienced this condition (with 1.3 per cent experienced this condition rarely, 0.8 per cent sometimes experienced it, and the rest 0.7 per cent often experienced the situation). In response to the condition of eating No food of any kind in the household, 1.8 per cent of the households have experienced this condition (with 1.3 per cent experienced this condition rarely, and 0.5 per cent sometimes experienced the situation). In response to the condition of going to sleep hungry, 0.5 per cent of the households have experienced this condition rarely. It is clear from the table that no households are experiencing the situation of going a whole day and night without hunger.

#### Household Food Insecurity Access-related Domains among the Tribal Households in Kerala

Household Food Insecurity Access-related Domains offer a concise overview of the frequency with which families engage in one or more of the three categories represented by the HFIAS Anxiety and Uncertainty, Insufficient Quality, and Insufficient Food Intake and its Physical Consequences. These domains give a clear picture of the households experiencing any of the conditions at any level of severity in each domain (USAID, 2007). This is calculated by:

Households experiencing the domains at any time during the recall period =	
Per cent of households that responded “yes” to any of the conditions in a specific domain.	X 100
Total number of households responding to any of the conditions in a specific domain.	
Source : USAID, 2007	

The Household Food Insecurity Access-related domains at any time during the recall period of the households in Kerala under study are shown in table 5.

Table 5: Household Food Insecurity Access-related Domains of the Tribal Households in Kerala		
Sl. No.	Statements	Index (%)
Anxiety and uncertainty about the household food supply		
1	Worry about food	53.2
Insufficient Quality		
2	Unable to eat preferred foods	35.5
3	Eat just a few kinds of foods.	
4	Eat foods you really do not want to eat.	
Insufficient food intake and its physical consequences		
5	Eat a smaller meal	4.1
6	Eat fewer meals in a day.	
7	No food of any kind in the household	
8	Go to sleep hungry	
9	Go a whole day and night without eating.	
Source: Computed		

The first domain, Anxiety and uncertainty about the household food supply, affects 53.2% of Scheduled Tribe households in Kerala. In the second domain, Insufficient quality of food, 35.5% of households face this issue. The third domain, Insufficient food intake and its physical consequences, is experienced by only 4.1% of households. None of the households in the study area reported going an entire day and night without food. However, many shared experiences or stories from their childhood or the era of their parents and grandparents when such situations were more common. The commitment of the government to provide food security through food-based safety net interventions like PDS, Mid-Day Meals, and ICDS may be the reason for this. Respondents from Palakkad opined that community kitchen is a boon to them in times of scarcity of food. Also, some respondents opined that occasionally they would get in-kind support from religious institutions and other charitable services.

#### **IV. Conclusion**

The Experience-based measurement of food security shows that more than half of Scheduled Tribe households have anxiety and uncertainty about the quality and quantity of food and access to food supply. Due to socioeconomic and ethnic constraints, they are unable to eat preferred food, eat just a few kinds of food and unable to eat food they really want to eat. Thus, the study captures the physical, social, cultural and psychological experiences of individuals regarding the quality, quantity and regularity of food. It thus reflects their real sense of deprivation, which may or may not always coincide with some absolute standard or objective measurement. This kind of reflection highlights the nuanced, subjective aspects of food insecurity that quantitative tools often fail to capture. It underscores the importance of complementing statistical measurements with qualitative insights to gain a fuller understanding of lived experiences and their broader implications.

To ensure the nutritional security of a population, it's crucial to focus not just on the quantity of food, but also on the quality and diversity of the diet. Effective policy interventions are necessary to address the multifaceted nature of nutritional insecurity. These policies should aim at improving access to a variety of nutritious foods, promoting sustainable agricultural practices, and supporting education on healthy eating habits. By addressing the diverse needs of vulnerable communities, such as Scheduled Tribe households, and tackling the social, cultural, and psychological dimensions of food security, we can work towards a more equitable and nourished society.

#### **References**

- [1] Coates, J., Swindale, A., & Bilinsky, P. (2007). Household Food Insecurity Access Scale (HFIAS) For Measurement Of Food Access: Indicator Guide: Version 3.
- [2] Farhadian, A., Chan, V. S., Farhadian, H., & Farhadian, H. (2015). Addressing Household Food Insecurity Using The Household Food Insecurity Access Scale (HFIAS) In A Poor Rural Community In Sabah, Malaysia. *Int J Humanit Soc Sci Invent*, 4(8), 89-100.
- [3] Gebreyesus, S. H., Lunde, T., Mariam, D. H., Woldehanna, T., & Lindtjorn, B. (2015). Is The Adapted Household Food Insecurity Access Scale (HFIAS) Developed Internationally To Measure Food Insecurity Valid In Urban And Rural Households Of Ethiopia? *BMC Nutrition*, 1, 1-10.
- [4] Grimaccia, E., Maggino, F., & Rao, J. M. (2022). On The Theory Of Measurement Of Experience-Based Food Insecurity At The Global Level. In *Italian Studies On Food And Quality Of Life* (Pp. 77-90). Cham: Springer International Publishing
- [5] Hamelin, A. M., Beaudry, M., & Habicht, J. P. (2002). Characterization Of Household Food Insecurity In Quebec: Food And Feelings. *Social Science & Medicine*, 54(1), 119-132.
- [6] Hamilton, W. L., Cook, J. T., Thompson, W. W., Buron, L. F., Frongillo, E. A., Jr., Olson, C. M. & Wehler, C. A. (1997) Household Food Security In The United States In 1995: Summary Report Of The Food Security Measurement Project. USDA Food And Consumer Service, Alexandria, VA.
- [7] Hendriks, S. (2015). The Food Security Continuum: A Novel Tool For Understanding Food Insecurity As A Range Of Experiences. *Food Security*, 7(3), 609–619.
- [8] Holland, A. C., Kennedy, M. C., & Hwang, S. W. (2011). The Assessment Of Food Security In Homeless Individuals: A Comparison Of The Food Security Survey Module And The Household Food Insecurity Access Scale. *Public Health Nutrition*, 14(12), 2254-2259.
- [9] Kennedy, E. (2005). Keynote Paper: Qualitative Measures Of Food Insecurity And Hunger. Rome: FAO.
- [10] Pandey, R., & Bardsley, D. K. (2019). An Application Of The Household Food Insecurity Access Scale To Assess Food Security In Rural Communities Of Nepal. *Asia & The Pacific Policy Studies*, 6(2), 130-150.
- [11] Radimer, K. L., Olson, C. M., Greene, J. C., Campbell, C. C., & Habicht, J. P. (1992). Understanding Hunger And Developing Indicators To Assess It In Women And Children. *Journal Of Nutrition Education*, 24(1), 36S-44S.
- [12] Rose, D. (1999). Economic Determinants And Dietary Consequences Of Food Insecurity In The United States. *The Journal Of Nutrition*, 129(2), 517S-520S.
- [13] Saint Ville, A., Po, J. Y. T., Sen, A., Bui, A., & Melgar-Quinonez, H. (2019). Food Security And The Food Insecurity Experience Scale (FIES): Ensuring Progress By 2030. *Food Security*, 11, 483-491.
- [14] Sethi, V., Maitra, C., Avula, R., Unisa, S., & Bhalla, S. (2017). Internal Validity And Reliability Of Experience-Based Household Food Insecurity Scales In Indian Settings. *Agriculture & Food Security*, 6(1), 1-17.
- [15] USAID (2007)[https://www.fao.org/fileadmin/user\\_upload/Eufao-Fsi4dm/Doctraining/Hfias.Pdf](https://www.fao.org/fileadmin/user_upload/Eufao-Fsi4dm/Doctraining/Hfias.Pdf)
- [16] Wolfe, W. S., Frongillo, E. A., & Valois, P. (2003). Understanding The Experience Of Food Insecurity By Elders Suggests Ways To Improve Its Measurement. *The Journal Of Nutrition*, 133(9), 2762-2769.
- [17] Wolfe, W. S., Olson, C. M. (1998). Hunger And Food Insecurity In The Elderly- Its Nature And Measurement. *Journal Of Aging And Health* 10(3): 327-350.