International Journal of Applied Home Science
(An International Double Blind Peer Reviewed / Refereed Research Journal of Home Science)
Volume 11 (5 & 6), May & June (2024) : 135-141
Received : 01.04.2024; Revised : 15.04.2024; Accepted : 01.05.2024

RESEARCH PAPER
ISSN : 2394-1413 (Print)
DOI: 10.36537/IJAHS/11.5&6/135-141

Indigenous Knowledge of the Food Practices among the Tribals in Kerala

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ABSTRACT

This research paper explores the "Indigenous Knowledge of Food Practices among the selected tribal population in Kerala." The study is more qualitative as it focuses on documenting the food practices of the selected tribal population in Kerala. The study adopts a multifaceted approach that combines qualitative methods like interviews, observations, and analysis of dietary patterns. The research painstakingly documents indigenous ingredients, cooking techniques, and traditional knowledge systems. By examining meal patterns, meal-skipping practices, and the underlying reasons, the research uncovers insights into dietary habits and lifestyle factors that influence food choices among the tribal population in Kerala. Furthermore, the research evaluates the nutritional value of selected traditional recipes, demonstrating their potential to contribute to balanced diets and overall well-being. The qualitative data also focuses on the food practices during different physiological stages, revealing culturally specific dietary customs observed during puberty, pregnancy, and lactation. It highlights the interplay between cultural beliefs, nutritional requirements, and socio-economic factors that shape dietary behaviors within tribal communities.

Keywords : Indigenous knowledge, Food practices, Tribal population, Meal pattern

INTRODUCTION

Food, a vital element of our identity and culture, is recognized through our dietary traditions. However, understanding the food practices of diverse ethnic groups can be a complex task. Food holds immense value in every culture, particularly during times of physiological changes such as a woman's life. Women who are fertile are considered the means to further a family lineage, but at the same time, they are often stigmatized for their fertility. Unfortunately, taboos, beliefs, and myths can hinder adolescent girls and reproductive-aged women from consuming nutritious food, despite their need for proper nutrition for optimal reproductive health. People generally tend to select foods that are culturally acceptable to them. Tribes exemplify the vast diversity in indigenous culture, tradition, and environment that significantly influence their food systems, food practices, and nutritional status (Nair, 2012). Tribal food patterns are deeply rooted in local culture and traditions, given that the way of life of these ethnic peoples is so closely connected to Mother Nature and resources. In addition to their rich social and customary traditions, these communities practice immensely diverse food practices that are based on locally available resources and techniques (KIRTADS, 2017).

Tribes in Kerala represent about eighteen percent of the total population as per the last 2011 census reports. The preservation of the cultural heritage of Indigenous people and the transmission of their traditions to future generations is not just important, it is urgent. Central to this effort is the documentation of their food practices to ensure that these traditions are not lost over time. These practices are deeply rooted in the connection between

How to cite this Article: Bahuleyan, Sivasree and Sithara Balan V (2024). Indigenous Knowledge of the Food Practices among the Tribals in Kerala. *Internat. J. Appl. Home Sci.,* **11** (5 & 6) : 135-141.

communities and their environment and are at risk of disappearing (Devika, 2015). This, in turn, will honor the wisdom of the ancestors and provide a way to pass down this knowledge to future generations, safeguarding a precious treasure of cultural heritage (Vishwanathan, 2017).

The tribal population depends on the forest and the hilly areas and prefers to use locally available resources for their livelihood (Prabhakaran, 2014). They also stick to their diverse living conditions, cultural beliefs, and practices (Nair and Menon, 2020). In response to enduring challenges such as low agricultural productivity and population pressure, tribal communities across the boundaries have chosen to pursue livelihood diversification as a strategic approach (Bora and Mahanta, 2024). Indigenous food practices have long been associated with numerous health benefits due to their emphasis on locally sourced, nutrient-rich foods. For example, millets are renowned for their exceptional nutritional content, which includes protein, fiber, vitamins, and minerals. The incorporation of these traditional staples into diets can help communities' combat malnutrition and diet-related diseases effectively (Santhosh, 2017). Moreover, indigenous food practices tend to be more environmentally sustainable than their industrialized counterparts. This is because they rely on locally adapted crops and traditional farming methods, which reduce reliance on chemical inputs, minimize greenhouse gas emissions, and conserve biodiversity. However, indigenous food practices are not without their challenges (Jeevan, 2019). Changing dietary preferences, land-use changes, and the loss of traditional knowledge pose significant obstacles. Encroachment on forest lands, for instance, threatens the availability of wild edible plants and animals that are essential to indigenous diets. In spite of these challenges, there are opportunities to revitalize and promote indigenous food practices. Community-led conservation efforts, agroecological farming practices, and the promotion of indigenous food festivals and markets can help preserve traditional foodways and support sustainable livelihoods (Menon and Pillai, 2016, Nair, 2017).

Moreover, documenting these traditions will provide valuable insight into the diverse ingredients, cooking techniques, and nutritional values that contribute to the health and well-being of Indigenous communities. The primary objective of this study is to capture and validate the indigenous food practices of the studied tribal population. The study also focuses to acknowledge culinary traditions and the profound knowledge of local resources and sustainable food practices of these communities.

METHODOLOGY

A comprehensive research study was conducted among the Paniyars (200), Irulars (200), and Kanikkars (100) - three major tribal communities in Kerala. These tribes predominantly reside in the tribal hamlets, located in Wayanad, Palakkad, and Thiruvananthapuram districts in Kerala. The study participants were carefully chosen from the tribal hamlet areas based on their voluntary willingness to participate in interviews and focus group discussions. A total of 500 respondents, consisting of both genders from three districts. The study aimed to explore the existing indigenous knowledge of food practices among the selected tribes and document the Indigenous Knowledge of food practices of the respondents.

An inclusion criterion was used to identify the respondents, including informants aged 18 years and above (both genders) and respondents staying within the tribal community (not migrated from other places) and knowing the regional circumstances well. Resourcefulness and the ability to describe one's growth experience in daily life as an individual and within their community were the primary selection criteria for key informants. The present research incorporates qualitative and quantitative methods, including ethnographic fieldworks, participant observations, interviews, and data analysis.A well-structured interview schedule was prepared along with a variety of observation techniques, such as systematic and unsystematic, open and concealed, and direct and indirect methods of observation were used for the study based on the situation, nature of the tribal settlements, and advice from the informants. The study's primary aim was to document the food practices prevalent in the tribal areas of Kerala. Special foods made on any occasion and indigenous recipes were collected as per availability. The nutritional value of the recipes wascalculated based on the RDA table of ICMR 2020.

RESULTS AND DISCUSSION

Meal patterns of the Respondents:

Studying meal patterns identifies trends, addresses nutritional gaps, and develops strategies to promote

healthier eating practices within the community, ultimately contributing to improved overall well-being. The respondents' meal frequency data was analyzed, and the details are pictured in Fig. 1.

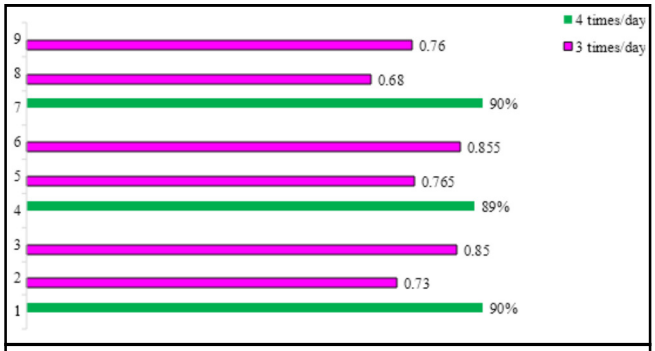

Fig. 1 : Meal patterns of the Respondents

According to the data collected, it is observed that in Thiruvananthapuram, the majority of children (90%) prefer consuming four meals a day, while both females (73%) and males (85%) tend to have three meals daily. As a result, the three-meal pattern is widely followed by the tribals in Thiruvananthapuram. Similarly, in Palakkad, most children (88.50%) opt for four meals daily, while females (76.50%) and males (85.50%) predominantly have three meals a day. In Wayanad, a similar trend is observed, with 90% of children having four meals daily, while females (68%) and males (76%) primarily stick to three meals daily. In conclusion, the data indicates that children prefer a higher meal frequency than adults. Similar practices were reported by Sanchana and Bonny (2020) on their study findings on the dietary practices of tribals in Kerala.

Meal-skipping practices :

The graphical representation of the meal-skipping behaviors in the tribal districts of Thiruvananthapuram, Palakkad, and Wayanad provides a comprehensive visualization of the frequency and types of skipped meals and the underlying reasons for this behavior. The data provides insight into the eating habits of the tribal population (Fig. 2 to 4).

Based on the data, it was found that in Thiruvananthapuram district, 35% of respondents reported skipping meals, with the majority skipping occasionally (12%). The most commonly skipped meal was breakfast (53.19%), followed by evening time snacks (27.66%), with lunch and dinner being skipped the least.

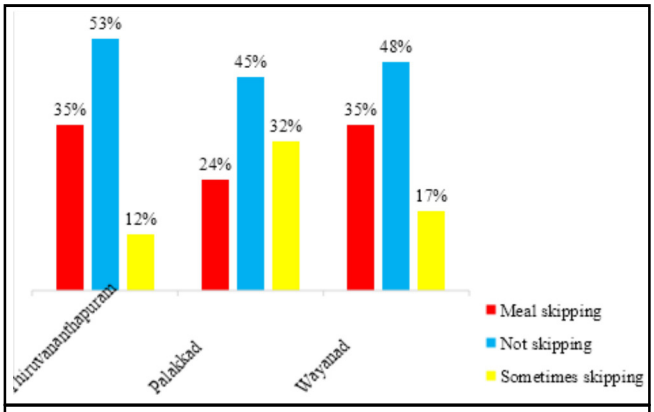

Fig. 2 : Pattern of meal skipping by the Respondents

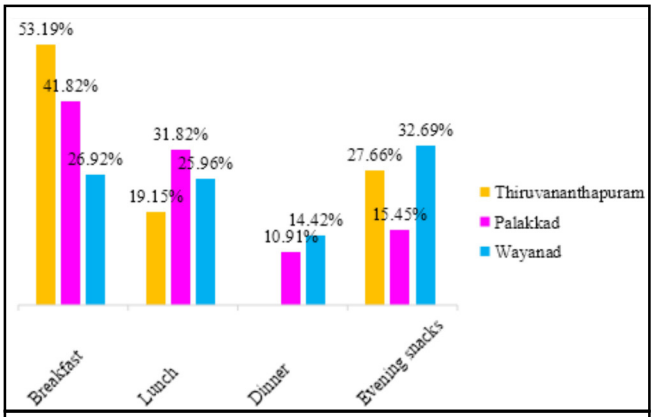

Fig. 3 : Type of meals skipped by the Respondents

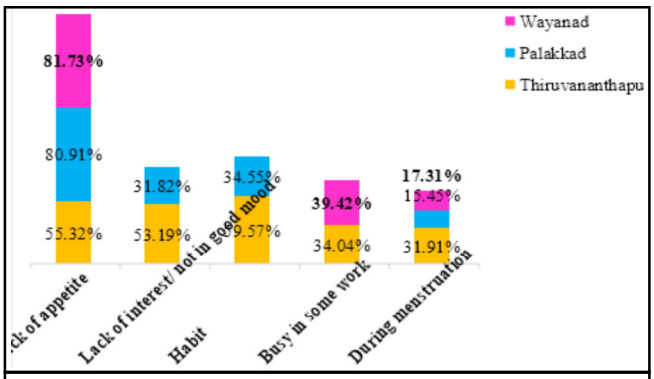

Fig. 4 : Reasons for skipping meals by the Respondents

In contrast, meal skipping was less common in Palakkad district (23.50%), with a higher percentage of people (45%) not skipping meals. However, skipping meals occasionally was somewhat common (31.50%) in Palakkad, with breakfast still being the most commonly skipped meal (41.82%), followed by lunch (31.82%), dinner, and evening snacks. The survey also revealed

Table 1 : Indigenous Knowledge on Food Consumption Practices of the Respondents

Sr. No.	Indigenous Food Practices	Thiruvananthapuram	Wayanad	Palakkad (Attappady)
1.	Use of Indigenous Ingredients	Tapioca, pumpkin, river small fishes, shell fishes	Forest honey, wild edible mushroom, green leafy vegetables, tender bamboo shoots, seeds, paddy field crabs, fishes	Different varieties of millet, wild edible greens, pumpkin, tuber crops, pulses and lentils, pond crabs and small fishes
2.	Hunting and gathering	-	Wild rabbit, rats, small birds, edible insects	Wild deer, goat, edible insects and worms
3.	Rice varieties	PDS	Bamboo rice, Pokkali, Gandhakashala, Jeerakashala	Bulutty nellu, Kranallu
4.	Millet varieties	-	Foxtail, Proso millet	Finger millet, Little millet, sorghum, pearl, foxtail, banyard kodo millet
5.	Food preservation methods	Sun-drying	Smoking, sun-drying	Smoking, sun-drying

that people in Wayanad and Thiruvananthapuram districts (39.05, 34.04%) often skipped meals while engaged in activities such as grazing cattle in the forest, indicating the impact of work on meal patterns. Irregular meal schedules and habits such as tobacco consumption contribute to this trend, influencing food skipping. These insights highlight the need for targeted interventions to address regional dietary habits and lifestyle factors to promote healthier eating behaviors.

Further, after exploring the respondents' eating patterns, data regarding indigenous knowledge were collected (Table 1).

The implementation of community kitchens in tribal areas has led to a decline in the participation of locals in agricultural pursuits. Additionally, it was noted during fieldwork that the younger members of the community exhibit a lack of knowledge regarding traditional agricultural practices, seasonal foods, and indigenous traditions within their own families and community. External peers and the impact of modern communication methods and digital media have contributed to the process of Westernization and a sense of embarrassment related to identifying as a member of a tribal community.

The data presented sheds light on indigenous food practices in three distinct regions of Kerala: Thiruvananthapuram, Wayanad, and Palakkad. These regions boast a diverse range of culinary traditions influenced by the local geography, climate, and cultural heritage. In Thiruvananthapuram, tapioca, pumpkin, river small fishes, and shellfish take center stage as key indigenous ingredients. These ingredients are widely available in the region due to its coastal location and fertile lands. In Wayanad, forest honey, wild edible mushrooms, green leafy vegetables, tender bamboo shoots, and various seeds reflect a reliance on forest resources. Paddy field crabs and fishes suggest a combination of forest and agricultural ecosystems. In Palakkad, a rich agricultural heritage is evident through the use of different varieties of millet, wild edible greens, pumpkin, tuber crops, pulses and lentils, pond crabs, and small fishes, with a greater emphasis on millets. The findings were also in alignment with the results reported by Muthulingam in 2015 and Kuriakose in 2019.

The food practices of indigenous communities are closely intertwined with socio-economic factors as they significantly impact livelihoods, community cohesion, and local economies. In places like Wayanad and Palakkad, traditional hunting and gathering practices provide sustenance for marginalized groups and contribute to cultural resilience. Additionally, the cultivation of indigenous crops, such as millet, supports small-scale farmers while promoting agricultural diversity. However, the advent of globalization, community kitchens, forest land reformations, population pressures on land, climate change, and market demands have emerged as significant challenges to the viability of indigenous food systems. These challenges threaten the continuity of cultural practices and the livelihoods of local communities.

Calculation of the Nutritive value of the selected recipes:

In accordance with the 2020 guidelines established by the Indian Council of Medical Research (ICMR), determining the Recommended Dietary Allowance (RDA) calculations for food recipes involves assessing the amount of essential nutrients provided by each dish relative to the recommended daily intake. This is crucial for ensuring that the recipes contribute to meeting the

dietary requirements necessary for optimal health. By analyzing the nutritional content of ingredients and portion sizes, RDA calculations aid in evaluating the nutritional adequacy of traditional Indigenous foods, highlighting their potential to support balanced diets. Incorporating RDA calculations into recipe development promotes nutritional awareness and healthier eating habits within communities.

To ensure consistency in the selected recipes, we have conducted comprehensive nutritive calculations, including Recommended Dietary Allowance (RDA) calculations, for each identified food recipe. By calculating the nutritive value of selected recipes from tribal cuisine, we gain insights into the nutritional content of the foods consumed in their daily diets. This analysis allows us to understand the health benefits and dietary significance of traditional tribal foods. By quantifying essential nutrients such as macronutrients (such as carbohydrates, proteins, and fats) and micronutrients (such as vitamins and minerals) composition, we can assess the nutritional adequacy of these recipes and promote their inclusion in a balanced diet for both tribal communities and the wider population (Table 2).

The comprehensive table showcasing the nutritive value of 18 carefully chosen traditional food items provides a wealth of information about their essential nutrients. These foods are abundant in vital elements like Calories, Vitamin A, C, Iron, Thiamine, and Protein, which are crucial for maintaining good health and preventing a variety of illnesses. Including these traditional foods in one's diet can promote overall well-being by providing a balanced and nutritious meal plan. Nevertheless, younger generations may not be familiar with the preparation techniques and ingredients of these dishes, and they may opt to follow their neighbors' dietary habits and food culture. The selected recipes exhibit a high nutritional value, with ample amounts of essential nutrients like proteins, carbohydrates, and micro-nutrients in each serving. Upon further exploration, these recipes could potentially serve as a valuable supplement for those seeking to maintain a balanced and healthy diet.

Food Practices throughout Various Physiological Phases:

Throughout the world, communities observe distinctive food traditions that vary depending on their life stages. These practices are steeped in cultural heritage and involve specific dietary inclusions and exclusions that are designed to enhance health and well-being. A personalized approach to nutrition is essential for every stage of life, from infancy to old age. These customs serve two crucial functions: preventing harm and promoting vitality. To maintain good health and preserve cultural identity within communities, it is important to appreciate and honor these diverse food

Table 2 : Calculation of Nutritive values of the selected recipes

Sr. No.	Recipe	Energy (KCal)	Protein (gms)	Vit A (mcg)	Iron (mg)	Thiamine (mg)	Vit C (mg)	Fat (gms)
1.	Kalli Thoran	287	2.68	9.77	2.16	0.08	22.64	10.60
2.	Simple paniya recipe	682	12.8	149.43	4.17	0.07	15.26	3.29
3.	Muduga Cheppu Upperi	169	0.664	1.64	0.25	0.03	7.26	10.08
4.	Thaal Curry	354	1.65	12.99	2.07	0.13	14.41	18.34
5.	Crab Roast	515	11.83	104.81	3.48	0.04	2.01	2.23
6.	Korangetti	1342	7.16	42	4.62	0.37	-	1.92
7.	Ponnankanni	259.29	1.6151	6.5161	2.3068	0.0495	6.6605	10.8812
8.	Pantithal	354.29	1.5696	6.5801	3.1788	0.0735	6.344	10.8892
9.	Bamboo shot curry	329.61	3.0753	9.5069	2.4302	0.1025	22.6421	11.41
10.	Steamed Pumpkin	97	0.84	70.6	0.36	0.03	8.04	0.16
11.	Koottu curry	504.81	4.112	53.8584	2.5126	0.0638	2.5696	14.8322
12.	Pepper porridge	303.3	2.7151	40.0076	1.7854	0.044	1.1211	1.3246
13.	Kambu koozh	746.6	4.388	6.78	1.031	0.061	3.356	5.103
14.	Ela Ada	629	1.9325	39.08	1.564	0.017	-	3.377
15.	Bamboo shoot pickle	273.48	2.7623	48.0984	1.8927	0.0916	15.74	11.5608
16.	Banana blossom stir fry	451.35	4.2162	210.9909	58.8989	0.0949	18.6316	11.4744
17.	Mashed tapioca	616.68	2.1099	8.0789	1.6711	0.0913	19.7266	14.2452
18.	Banana stem stir fry	511.6	3.6917	9.7469	2.6254	0.1849	15.4346	17.4139

*Per 100 gms/ one servings

Table 3 : Food consumption during several physiological stages

Food items Included	Reason	Food Restricted	Reason
Puberty			
Finger millet dumpling, Dried ginger juice	Usual food item Abdominal pain relief	Papaya. Pineapple, Jaggery, Rice flakes	Avoid bleeding, pain.
Sesame balls, wild edible spinach, drum stick leaves, agati leaves and flowers (*Sesbania grandiflora*)	Increase Haemoglobin, enhance bone strength	Coffee/tea	Avoid pain
Rice flour/rice mixed with jaggery (sweet rice)	Provides strength (Pelvic bone)	Sour foods	Highly bleeding
Raw egg with gingelly oil	Give nourishment to the girls body	Rice	Relieves Abdominal pain
Pregnancy			
Craving foods	(Psychological factor)	Papaya, gingelly seeds, jaggery, raw egg, pine apple, beans	Cause abortion, affects the shape of the baby's head, Disposition of the foetus
Wild edible varieties of greens, tuber and roots	Give nourishment to the mothers, increase blood	Black tea, wild yam	Black skinned child or fetal abnormality Misconception, its potential to cause itching or other adverse reactions during pregnancy
Meat items (on availability basis), Ginger	For strong Control oedema	Groundnut, potato	Red rashes on baby's body Delay in child's speech development
Light foods	For easy digestible and easy delivery (avoid complications during pregnancy)	Pepper, pickles	Heat (cause abortion), stomach pain, oedema
Lactation			
Palm sugar, ginger, pepper	Heal delivery wound	Egg, milk, pulses	Gastric issue, cold to the baby
Drumstick leaves+ salt boiled water. Fenugreek water, rice water	Induce milk	Hot foods	Pain during urination on baby
Garlic, dried wild tuber, small fishes	Induce milk	Sour fruits	Dysentery to the child, Hiccups
tangy soup (Tamarind pulp curry made up of traditional wild herbs)	Custom food	Tomato	Stop breast milk

practices (Table 3).

The Irular community adheres to specific dietary customs during various physiological stages. For example, during puberty, they typically consume finger millet dumplings and dried ginger while avoiding papaya, pineapple, jaggery, and rice flakes. During pregnancy, they prefer wild greens, roots, and tubers while avoiding papaya, gingelly seeds, and black tea. When lactating, they tend to consume palm sugar, drumstick leaves, and tangy soup, while avoiding eggs, milk, and pulses to prevent gastric issues in infants. However, due to economic constraints, the community is gradually shifting away from these traditional practices.

During special occasions such as weddings, births, puberty ceremonies, festivals, and agricultural rituals, the Irulars, Paniyars, and Kanikkars celebrate with grand feasts and cultural performances. In the past, male members of these families hunted wild game like pork, rats, rabbits, squirrels, deer, and birds for sustenance and additional income, even during pregnancy. However, due to modern restrictions such as limited access to forest areas and legal bans on hunting, their consumption of meat has been restricted.

If a death occurs in the hamlet, cooking ceases within the household. In the Irular community, male members purchase meals from restaurants to feed their families during this time. Neighbors also contribute by providing food. After the burial ceremony, the hamlet and individual residences are purified and coated with cow dung, and a lamp is lit at the burial site. Meals are prepared without salt, and two female members of the family and the Mannukaaran (the person who performs the rituals)

abstain from consuming non-vegetarian dishes until the end of the rites.

Conclusion

The results of the study offer a fascinating glimpse into the intricate connections that exist between food, culture, and environment in tribal societies. Through an analysis of meal patterns and practices like meal-skipping, the study sheds light on the dietary habits and lifestyle factors that influence food choices. One noteworthy finding is that traditional recipes often provide a wealth of nutrients that can contribute to overall health and well-being.

In addition to these insights, the study underscores the importance of respecting and preserving diverse food traditions, particularly during significant life stages. Cultural dietary customs play a crucial role in shaping eating behaviors within tribal communities, and it's essential to recognize this complexity. The study also highlights the impact of factors like cultural beliefs, nutritional requirements, and socio-economic status on food choices and dietary patterns.

Conflict of Interest:

There is no conflict of interest claimed for the submitted article.

Acknowledgment:

The research team duly acknowledges the Kerala State Tribal Departments and the research center for providing all sorts of support for carrying out the study.

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