



Traditional to Modern: Food consumption Pattern Shifts in the Toda Tribal Community

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Abstract: Preferences and availability are connected with tribal food culture and choices. The purpose of this study is to investigate the food consumption habits of the Toda tribes in Nilgiris, Tamil Nadu. Around 352 adult Toda tribe members were chosen, and their food intake patterns were examined using a semi-structured food frequency questionnaire. Rice became a staple cereal for all Todas, wheat was consumed two to three times a week. Pulses like moong dal and toor dal were consumed several times a week and were a vital part of the Toda diet. Green leafy vegetables such as Malabar spinach, creeping wood sorrel, amaranthus, palak, and cabbage were commonly consumed by all the Toda people twice a week. Vegetables like cauliflower, ladies finger, cluster beans, cucumber, various gourds, brinjal, and drumstick were consumed by the selected Todas twice or thrice a week, depending on availability. Nearly 45% of the selected Todas consumed tapioca, yam, and sweet potato twice a week, depending on availability. Ginger was used by the majority (89%) of the selected Todas. Plums, mulberries, pears, and wild mangoes were regularly consumed by the Toda people. Milk was a central component of the Toda diet, with all 352 selected Toda tribes consuming it daily. Palm oil was fundamental and widely used oil in the Toda tribe's daily cooking. Eggs, fish, crab, poultry, and mutton were preferred by only 11% of the Toda tribe, with these individuals likely consuming them on an occasional basis. The remaining 89% did not consume these items, as they were not staple foods for the Toda people. Around 6% of the Toda tribe consumed biscuits daily and 5% consumed fast foods such as puffs, pizza, burgers, and chat items once a month. Nearly 1% reported the preference for purchasing instant food products such as idli-dosa batter, masala powders, vermicelli, and pickles. It was found that only one percent preferred outside food once or twice a week, when they left their munds due to their occupation. An ongoing nutritional transition is indicated by this move from nutrient-rich traditional diets to energy-dense market foods, a trend seen not only among other indigenous populations in India but also around the world.

Keywords: food frequency, food culture, food consumption, toda tribes, nutrition transition

INTRODUCTION

The Toda community represents a Dravidian ethnic group residing in the Nilgiri Mountains of Tamil Nadu. According to the Toda, their origins trace back to the forested area of lesser elevations found between the Kanarese and Tamil Districts, oriented towards the Hasanur Pass within the Eastern Ghats, located to the north-east of the Nilgiris (Jeyaveeragandhi, 2018). They are well-known for their pastoral lifestyle, centered on buffalo herding, which holds both economic and religious significance in their culture. Toda society is organized into clans, each with its own sacred buffalo and dairy, reflecting their deep spiritual connection to these animals. The architecture of the Toda huts, known as "munds," is also distinctive, featuring a curved, barrel-shaped structure that is unique to their community. Being one of the elements of traditional Pukhoor, their embroidery is also a very important aspect of Toda culture and it is characterized by the use of red and black patterns over a white shawl. Though modernization and other exogenous influences squeezed them hard, the Todas have kept their cultural identity still intact, sticking with their traditional customs and language, which belonged to the Dravidian language family.

They face several health challenges due to their traditional lifestyle and limited access to health facilities. The Todas have succeeded in conserving a lot of their cultural heritage, though with very little knowledge about nutrition or even modern health practices. It leads to many other health disorders, such as malnutrition and lifestyle diseases. A large part of the Toda population is affected by nutritional disorders, partly due to their dependency on a diet that has not adapted well to modern nutritional demands. Though they have a very good understanding of their natural environment and traditional skills, it does not all come under the prescribed norms of modern nutrition. Recent efforts to address these issues include initiatives to improve healthcare access and integrate modern nutritional knowledge into their traditional practices. These efforts are critical to improving the overall health and well-being of the Toda community (Tribal Health Report, 2023).



Cultural sustainability plays a vital role in the sustainable development of tribal communities. It recognizes how important it is to preserve and bring back customs, languages, and knowledge that form the core of tribal communities' identity and toughness. When development projects respect and include cultural heritage, they can boost social unity and community pride (Throsby, 2008). The main hurdle to sustainable growth in tribal communities is people not knowing or understanding policies and programs. To strengthen policies and programs, literacy rates must be raised, with 59% of indigenous people being literate. The government should focus on tribal development, preserving cultural heritage, traditional ways of life, and unique languages. Tackling corruption and making systems more see-through has a big impact on keeping the real identity of scheduled tribes and helping them grown in a lasting way (Yoganandham 2023).

The majority of the Todas' religious rituals are based on the milking and churning processes of the dairy. The care of these animals, which are seen as more sacred than the others, is coupled with several ceremonials, and the lives of the inhabitants are largely committed to their buffaloes. Men take care of the sacred animals. The daily activities of the dairy have taken on a religious aspect, and practically every significant event in the life of the buffaloes is accompanied by religious rites (Preetha and Dharmaraj, 2018).

The recent studies underscore how the Toda tribe's dietary patterns are interconnected with their cultural affiliations and ecological knowledge. Their nutrition tradition not only enables them to feed themselves but also forms a significant part in their social and religious ways of life. The attitude that the Toda people have towards food thus reflects their very symbiotic relationship with the environment, more specifically the Nilgiri Biosphere, in which they reside. In this regard, the practice of consumption pattern of the Toda tribe is sustainable, considering the maintenance of their natural resources (Gowri Priya & Bhat, 2023). How long a person lives, how well they age, and how many diseases they get are all greatly influenced by their nutritional behavior, eating habits, and patterns. Hence the present study was pursued to know the current food consumption pattern of toda tribal community.

METHODOLOGY

Because of the nature of the study and the fact that every procedure was part of standard care, the PSG Institute of Medical Science and Research's human ethics committee waived ethical approval. The researchers carried out the investigation after receiving ethical approval. A cross-sectional study of the population was conducted between October 2023 and September 2024. Since the Toda are a Dravidian ethnic group, the Nilgiris and Kotagiri were chosen for the study since they are located in Tamil Nadu's Nilgiri Mountains. Individuals from the Toda tribe who were willing to participate in the study and were at least 30 years old, regardless of gender, were included in the study; those from other tribal communities who were not interested in the study were not. As per the 2011 Population Census, the anticipated sample size was 352. Using a semi-structured food frequency questionnaire and the interview approach, a house-to-house survey was carried out among randomly chosen Toda tribes in Munds, Nilgiris, and Kotagiri. The SPSS Inc. (IBM) software was used to calculate and analyze the data.

RESULTS AND DISCUSSION

The food frequency pattern of the selected Toda tribes, an indigenous community from the Nilgiri Hills of southern India, is influenced by their pastoral lifestyle and agricultural practices. The Toda people have a unique and culturally distinct diet. Toda people's diet revolves primarily around milk and rice, with vegetables contributing less frequently but still playing an important role. The consumption of wild foods, forest products, and seasonal fruits adds variety to their diet. This indicates that their diet includes a substantial amount of plant-based foods. While dairy and plant-based foods form the core of the Toda diet, they are not strict vegetarians and do consume meat, though less frequently and mainly for ceremonial purposes. The frequency of consuming different food groups by the selected Todas are displayed in below table.

Table - 1
Food Frequency pattern of selected toda tribes

Table with 7 main columns: FoodGroups, Fooditems, Daily (No, %), Weekly twice/Thrice (No, %), Monthly once/ Twice (No, %), Occasionally (No, %), Never (No, %). Rows include Rice Parboiled, Raw Rice, and Rice Flakes.



	Wheat/ Wheat flour	-	-	352	100	-	-	-	-	-	-
	Semolina/Maida	-	-	-	-	352	100	-	-	-	-
	Finger Millet	-	-	-	-	352	100	-	-	-	-
	Itallian Millet	-	-	-	-	-	-	312	89	40	11
	Kodo Millet	-	-	-	-	-	-	312	89	40	11
	Little Millet	-	-	-	-	-	-	312	89	40	11
	Barley	-	-	-	-	296	84	56	16	-	-
Pulse Consumption	Red gramdhal	-	-	352	100	-	-	-	-	-	-
	Greengram dhal	-	-	352	100	-	-	-	-	-	-
	Whole green gram	-	-	352	100	-	-	-	-	-	-
	Urad dal	-	-	352	100	-	-	-	-	-	-
	Bengalgram dhal	-	-	-	-	352	100	-	-	-	-
	Horse gram	-	-	-	-	352	100	-	-	-	-
	Cow Pea	-	-	-	-	352	100	-	-	-	-
	Meal makers	-	-	-	-	-	-	298	85	54	15
Green Leafy Vegetables	Malabar Spinach	-	-	352	100	-	-	-	-	-	-
	Cabbage	-	-	352	100	-	-	-	-	-	-
	Creeping wood sorrel	-	-	352	100	-	-	-	-	-	-
	Manathakali	-	-	-	-	352	100	-	-	-	-
	Amaranthus	-	-	352	100	-	-	-	-	-	-
	Palak	-	-	352	100	-	-	-	-	-	-
	Ponnaganni	-	-	-	-	352	100	-	-	-	-
	Agathi	-	-	-	-	352	100	-	-	-	-
	Drumstick leaves	-	-	-	-	352	100	-	-	-	-
Other Vegetables	Ladies finger	-	-	352	100	-	-	-	-	-	-
	Cluster beans	-	-	352	100	-	-	-	-	-	-
	Cauliflower	-	-	352	100	-	-	-	-	-	-
	Brinjal	-	-	352	100	-	-	-	-	-	-
	Drumstick	-	-	352	100	-	-	-	-	-	-
	Sundakai	-	-	-	-	-	-	352	100	-	-
	Gourd varieties	-	-	352	100	-	-	-	-	-	-



	Pumpkin	-	-			352	100	-	-	-	-
	Cucumber	-	-	352	100	-	-	-	-	-	-
Roots and Tubers	Tapioca	-	-	158	45	154	44	40	11	-	-
	Yam	-	-	158	45	154	44	40	11	-	-
	Sweet potato	-	-	158	45	154	44	40	11	-	-
	Radish	-	-	352	100	-	-	-	-	-	-
	Beetroot	-	-	352	100	-	-	-	-	-	-
	Potato	-	-	352	100	-	-	-	-	-	-
	Carrot	-	-	352	100	-	-	-	-	-	-
	Ginger	312	89	40	11	-	-	-	-	-	-
Fruits	Plums	-	-	352	100	-	-	-	-	-	-
	Mulberries	-	-	352	100	-	-	-	-	-	-
	Pine apple	-	-	-	-	352	100	-	-	-	-
	Orange	-	-	-	-	352	100	-	-	-	-
	Avocado	-	-	-	-	352	100	-	-	-	-
	Pears	-	-	352	100	-	-	-	-	-	-
	Wild mangoes	-	-	352	100	-	-	-	-	-	-
	Figs	-	-	-	-	352	100	-	-	-	-
	Banana	299	85	53	15	-	-	-	-	-	-
	Guava	-	-	-	-	352	100	-	-	-	-
	Papaya	-	-	-	-	352	100	-	-	-	-
	Sapota	-	-	-	-	352	100	-	-	-	-
	Custard Apple	-	-	-	-	352	100	-	-	-	-
	Apple	-	-	-	-	352	100	-	-	-	-
	Grapes	-	-	-	-	352	100	-	-	-	-
pomegranate	-	-	-	-	352	100	-	-	-	-	
Milk and milk products	Cow/Buffalo's Milk	352	100	-	-	-	-	-	-	-	-
	Curd	352	100	-	-	-	-	-	-	-	-
	Buttermilk	-	-	-	-	352	100	-	-	-	-
	Butter	-	-	-	-	-	-	352	100	-	-
	Ghee	-	-	-	-	352	100	-	-	-	-
	Cheese	-	-	-	-	-	-	-	-	352	100
	Paneer	-	-	-	-	-	-	-	-	352	100
Oils and Fats	Palm oil	352	100	-	-	-	-	-	-	-	-
	Coconut oil	-	-	352	100	-	-	-	-	-	-
	Groundnut oil	-	-	352	100	-	-	-	-	-	-
	Sunflower oil	-	-	352	100	-	-	-	-	-	-
Sugar and sugar products	Refined sugar	352	100	-	-	-	-	-	-	-	-
	Jaggery	-	-	352	100	-	-	-	-	-	-
	Honey	-	-	-	-	352	100	-	-	-	-
	Palm sugar	-	-	-	-	352	100	-	-	-	-
Non-veg Consumption	Egg	-	-	-	-	-	-	38	11	314	89
	Fish	-	-	-	-	-	-	38	11	314	89
	Crab	-	-	-	-	-	-	17	5	335	65
	Poultry (Chicken/ Other birds)	-	-	-	-	-	-	38	11	314	89
	Mutton	-	-	-	-	-	-	38	11	314	89
	Beef	-	-	-	-	-	-	-	-	352	100
	Pork/Rat/Mice/ Cat/ Rabbits/ Snails/ Squirrels/ Crabs	-	-	-	-	-	-	-	-	352	100



Snacks/ Miscellaneous foods	Biscuits	22	6	330	94	-	-	-	-	-	-
	Fried foods (Murukku/Vadai)	-	-	352	100	-	-	-	-	-	-
	Corn/ groundnuts	-	-	352	100	-	-	-	-	-	-
	Fast foods Puffs Pizza/Burger Chat items	-	-	-	-	18	5	11	3	323	92
	Proprietary drinks boost, Bournvita, Horlicks	-	-	-	-	20	6	8	2	324	92
	Commercially available Sweets/ Ice creams	-	-	-	-	11	3	8	2	333	95

(i) Cereal, Millets and Products

Rice became a staple cereal for all Todas, especially in recent times, due to its widespread cultivation and easy availability. Wheat was consumed two to three times a week, typically in the form of rotis, upma, or porridge. Finger millet was included in their diet once or twice a month, while other millets such as Italian millet, kodo millet, and little millet were consumed occasionally by 89% of the population. Additionally, 84% of the Todas consumed barley once or twice a month.

(ii) Pulse consumption

Pulses like moong dal and toor dal were consumed several times a week and were a vital part of the Toda diet. These pulses served as a primary source of protein, especially since the traditional Toda diet did not rely much on meat. When paired with rice, pulses provided a complete protein, aligning with the Toda dietary pattern that emphasized simple and nutritious meals. Other pulses, such as Bengal gram, horse gram, and cow pea, were consumed less frequently, about two to three times a month, depending on availability and preference. Additionally, meal maker was occasionally used as a protein supplement in curries, stir-fries, or mixed rice dishes by 85% of the selected Toda participants.

(iii) Green leafy vegetables

Green leafy vegetables such as Malabar spinach (Basella or puisaag), creeping wood sorrel, amaranthus, palak, and cabbage were commonly consumed by all the Toda people twice a week. Other greens like manathakali, Ponnaganni, drumstick leaves, and Agathi were eaten once or twice a month, depending on availability.

(iv) Other vegetables

Historically, the Toda people were pastoralists, relying on their cattle for milk, curd, and butter. Their diet was relatively simple, with limited vegetable intake, primarily those cultivated locally. Vegetables like cauliflower, ladies finger, cluster beans, cucumber, various gourds, brinjal, and drumstick were consumed by the selected Todas twice or thrice a week, depending on availability. Pumpkin was consumed two to three times a month based on its availability, while sundakai was eaten occasionally.

(v) Roots and tubers

Roots and tubers historically played a smaller role in the traditional diet of the Toda people in the Nilgiri Hills, as their diet was primarily focused on dairy products, grains like rice, and some green vegetables. However, with changes in agricultural practices and the availability of more diverse food sources, the consumption of roots and tubers likely increased in recent times. Radish, beetroot, potato, and carrot were mostly consumed by the selected Todas on a weekly basis. Nearly 45% of the selected Todas consumed tapioca, yam, and sweet potato twice a week, depending on availability. Ginger was used by the majority (89%) of the selected Todas.

(vi) Fruits

The Toda tribe's diet was primarily based on the natural resources available in the Nilgiri Hills, including not only fruits but also dairy products, grains, and tubers. Plums, mulberries, pears, and wild mangoes were regularly consumed by the Toda people due to their abundance in the region and their nutritional benefits. These fruits were staples in the diet of many Toda families, indicating their frequent inclusion in daily meals. In contrast, fruits like pineapples, oranges, avocados, figs, guava, papaya, sapota, custard apple, apple, grapes, and pomegranate were more seasonal and consumed less frequently, typically during certain times of the year when they were in season. This occasional intake suggested that these fruits were enjoyed during specific periods. Bananas, being versatile and easily accessible, were consumed frequently in the Toda diet. Approximately 85% of the selected Toda tribes (299 tribes) consumed bananas



daily, while 15% (53 tribes) ate them weekly, highlighting bananas as a key source of energy, potassium, and fiber in their diet.

(vii) Milk and milk products

The consumption of dairy products among the Toda tribe reflected a strong reliance on milk and its by-products, which were an essential part of their traditional diet. The data suggested varying levels of consumption for different dairy items, as discussed here. Milk was a central component of the Toda diet, with all 352 selected Toda tribes consuming it daily. This emphasized milk's critical role as a primary source of nutrition, providing essential proteins, fats, and vitamins. Milk from cows or buffaloes was likely consumed directly and used to produce other dairy products, which were integral to the tribe's food practices. Curd was another daily staple in the Toda diet, consumed by all the selected tribes. The high consumption of curd highlighted its cultural and nutritional significance in their daily routine. Buttermilk, butter, and ghee, made from the liquid left after churning curd, were consumed twice a month by all the selected Toda tribes. Interestingly, cheese was not part of the Toda tribe's diet. Paneer, a fresh cheese made from curd, was also not consumed by the Toda tribes. The Toda people did not traditionally prepare paneer, instead preferring other dairy products like curd or ghee, which were more integral to their dietary and cultural practices.

(viii) Fats and oils

Palm oil was fundamental and widely used oil in the Toda tribe's daily cooking. The 100% consumption rate indicated its importance as a regular part of the Toda diet. Palm oil was often used for cooking, frying, and as a key ingredient in traditional dishes. Its widespread use in the Toda community was likely due to its availability, particularly through the Public Distribution System (PDS). Coconut oil, groundnut oil, and sunflower oil were also consumed by all the selected Toda tribes, but at a lesser frequency, as they were considered special-use oils and viewed as healthier alternatives.

(xi) Sugar and sugar products

Refined sugar was consumed daily by all the selected 352 Toda tribes, indicating its importance as a staple in their diet. It was likely used in various foods and beverages, as it was available through the Public Distribution System (PDS). Jaggery was consumed less frequently, about once or twice a month, by all 352 Toda tribes, suggesting it was used on special occasions, possibly for its health benefits or in traditional and ceremonial meals. Honey and palm sugar were also consumed occasionally by all the selected Toda tribes, indicating that these were used as sweeteners on specific occasions or as part of medicinal and health practices.

(x) Non vegetarian foods

Eggs, fish, crab, poultry, and mutton were preferred by only 11% of the Toda tribe, with these individuals likely consuming them on an occasional basis. The remaining 89% did not consume these items, as they were not staple foods for the Toda people. The consumption of non-vegetarian items was influenced by cultural and religious preferences. The entire selected Toda tribe (100%) abstained from consuming beef, due to religious, cultural, and ethical reasons, as certain tribes or communities prohibit the consumption of beef, particularly in regions where cows are revered or hold cultural significance. None of the selected Toda tribes consumed various non-vegetarian items such as pork, rat, mice, cats, rabbits, snails, squirrels, or crabs. This reflected cultural taboos and dietary preferences that excluded such animals from their regular or occasional food sources.

(xi) Snacks and Miscellaneous foods

A small percentage (6%) of the Toda tribe consumed biscuits daily, suggesting that while biscuits were available locally, they were not a significant part of the diet for most people. The majority of the Toda tribe consumed biscuits on a weekly basis, indicating that biscuits were seen as an occasional snack rather than a daily necessity, yet still present regularly in their diet. All the selected Toda tribe members consumed fried foods like Murukku and Vadai, along with corn and groundnuts, at least twice a week. These snacks were popular and integral to their cultural diet, likely enjoyed by all. Corn was either roasted or boiled, while groundnuts served as an easy and nutritious snack.

Only a small percentage (5%) of the Toda tribe consumed fast foods such as puffs, pizza, burgers, and chat items once a month. This suggested that fast food consumption was minimal and likely considered an occasional treat. Another small percentage (3%) consumed fast foods occasionally, indicating some exposure to modern fast food culture. A large majority (92%) of the Toda tribe did not consume fast food, reflecting their preference for traditional, home-cooked foods and limited access to or interest in fast food.

A minor group of the selected Toda tribe members (6%) consumed proprietary drinks like Boost, Bournvita, and Horlicks once a month, possibly for extra energy during illness or for nutritional support. A few individuals (2%)



consumed these drinks occasionally, suggesting they were used for specific needs or occasions, but not as a regular part of their diet. Most of the Toda tribe (92%) did not consume these drinks, indicating a preference for natural or homemade beverages over commercially available options.

Marginal group of the selected tribes (3%) consumed commercially available sweets or ice creams once a month, suggesting an occasional indulgence, likely during special events or when available. A slightly larger portion (2%) consumed sweets or ice creams occasionally, but this remained a minor part of their overall diet. A significant majority (95%) of the Toda tribe did not consume commercially available sweets or ice creams, reflecting a clear preference for traditional sweets or natural food sources.

IMPACT OF MODERNIZATION ON FOOD CULTURE OF SELECTED TODA TRIBES

Tribal societies' eating habits are intricate and impacted by a number of interrelated elements, such as social structure, culture, environment, economy, and health. Tribal people's eating habits may change as a result of exposure to mainstream diets, such as processed meals, fast food, or foods from other cultures, when they relocate to cities or interact with non-tribal communities. Interactions with local communities lead to the introduction of new crops, cooking methods, food preparation techniques, and eating patterns.

Although not common in all tribal communities, the usage of gas stoves is steadily rising, particularly in places where modernization and government initiatives have made gas access more practical. However, because of cultural customs, financial constraints, and inadequate infrastructure, traditional cooking techniques including wood, charcoal, and other biomass continue to be prevalent in many tribal communities. Despite the health and environmental benefits of switching to gas stoves, there are obstacles that must be overcome with sustained government assistance and infrastructure development.

CONCLUSION

According to the results of the 24-hour diet recall and food frequency analysis, the Toda tribal study participants began to include the processed and packaged foods, fast meals, and instant foods under the snacks and miscellaneous foods category. This change demonstrates how increased market accessibility has led to a growth in the daily diets of these tribal people, which include non-traditional processed foods that are frequently rich in fat, sugar, and salt. An ongoing nutritional transition is indicated by this move from nutrient-rich traditional diets to energy-dense market foods, a trend seen not only among other indigenous populations in India but also around the world.

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REFERENCES

- [1]. Gowri Priya, K., & Bhat, L. D. (2023). Nutrition, lifestyle and health status among tribal communities: A case study of particularly vulnerable tribal group of Kerala. In *Sustainable Health Through Food, Nutrition, and Lifestyle* (pp. 273-287). Singapore: Springer Nature Singapore.
- [2]. Jeyaveeragandhi, C. (2018). Cultivating tribes of todas—a historical study the Reference of Tamil Nadu. *International Journal of Research and Analytical Reviews*. http://ijrar.com/upload_issue/ijrar_issue_1950.pdf
- [3]. Praseetha M S and Dr. T. Dharmaraj. (2018). The self governing body of todas in Nilgiri district. *Journal of Emerging Technologies and Innovative Research*. Volume 5 (10); pp: 180-183
- [4]. Throsby, D. (2008). Cultural Capital and Sustainability Concepts in the Economics of Cultural Heritage. *Conservation Science in Cultural Heritage*, 8, 9-15.
- [5]. Tribal Health Report. (2023). Tribal health in India: Comprehensive report on the status and challenges. Ministry of Health & Family Welfare and Ministry of Tribal Affairs, Government of India. Retrieved from <https://tribalhealthreport.in>
- [6]. Yoganandham, G. (2023). Socio-Economic Conditions of Primitive Tribal Groups in Nilgiris District Considering Environment, Societal Issues, And Education-An Assessment. *International Journal of All Research Education and Scientific Methods*. Volume 11, Issue 7; PP: 1990-2001