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# Nutritional Transition: A Qualitative Study on the Socio-Cultural Dynamics and Perceptions Associated with Food Practices Among the Angami Naga Tribe, Nagaland, India


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## Abstract

*Food habits and food intake are changing on a global scale and pose a triple burden of obesity, malnutrition, and cardiovascular conditions among Indigenous people who experience high morbidity due to socio-economic and cultural circumstances. Therefore, this study aimed to explore the sociocultural dynamics and perceptions associated with food practices among the Angami Naga tribe of Nagaland. The local settings were investigated based on qualitative research, and data were collected from 57 participants across three focus group discussions. The population under research consists of voluntary participants from the Angami Naga tribe living in Kohima district, Nagaland, aged between 20 and 59 years. For this purpose, a semi-structured interview schedule was used, and recruitment continued until thematic saturation occurred. Both verbal and written consent were obtained, and the FGDs were audio-recorded, transcribed verbatim, and thematically analyzed. The data show that although the traditional diet consists of large amounts of rice, meat, and unique indigenous cuisines with very little use of oil, the population is experiencing a dramatic change towards the consumption of highly and ultra-processed foods because of the convenience of meals, growth in the market, availability, and lack of time. At the same time, many community members admit to deliberately changing their dietary habits to overcome certain health conditions, including weight problems. Despite the fading of food taboos and a change in dietary habits between generations, there is still a great emphasis on the cultural meaning of food, its identity function, and its importance for celebrations. The study concluded that the Angami tribe is struggling with the dual burden of malnutrition and emerging diseases related to modern lifestyles in an obesogenic environment. This highlights the necessity of culturally sensitive nutritional interventions that promote traditional healthy food practices and portion control. Future research should evaluate community-based, culturally tailored interventions and longitudinal dietary changes among Indigenous populations.*

**Keywords:** Nutrition Transition, Angami Naga Tribe, Indigenous Food Systems, Socio-cultural, Traditional Diet, Tribal Nutrition, Food Culture, Qualitative Research.

## Introduction

The global nutrition environment is currently witnessing an unparalleled paradigm shift termed the nutrition transition, which can result in a perplexing problem known as the triple burden of obesity, malnutrition, and the threat of developing cardiovascular disease among vulnerable populations (Kshatriya & Acharya, 2016). In such a scenario, the affected communities not only struggle with insufficient nutrient consumption (malnutrition) but also suffer from overconsumption of calories, leading to overweight/obesity and cardiovascular diseases (Kshatriya & Acharya, 2016). The sociocultural

changes experienced by these communities play a pivotal role in the epidemiological transition, facilitating the presence of nutritional dilemmas. Indigenous communities across different parts of the world have to confront health concerns, with high morbidity being one of the key characteristics of these communities (Narain, 2019; Sahu et al., 2024). The health problems associated with tribal people in India are diverse, as they arise from socioeconomic status, geographical location, and cultural beliefs (Narain, 2019; Roy et al., 2023). In addition, tribal people are extremely nutritionally vulnerable, as women carry the greatest proportionate share, and it has been noted in research studies that low-quality nutritional status prevails among these populations. Although many of these tribal groups reside in rich biodiverse regions, the majority of them exhibit low nutritional status (Kapoor et al., 2022). Inadequate nutrient intake has also been reported by several studies and data collected by the National Nutrition Monitoring Bureau (NNMB), with insufficient intake levels of Vitamin A iron, and riboflavin, among others, and with overall inadequate nutrient intake in all food groups compared to dietary requirements (Kapoor et al., 2022). These sociocultural changes often result in epidemiological transitions and bring about the triple burden of nutrition, where various communities have to deal with rapid changes (Kshatriya & Acharya, 2016).

### Research Objectives

The study was conducted with the following objectives:

- To explore the socio-cultural dynamics influencing food practices among the Angami Naga Tribe.
- To understand the community's perceptions on traditional and modern dietary practices.

### Review of Literature

Food cultures today are marked by a transition where people's eating habits and activity levels change due to urbanization (Kshatriya & Acharya, 2016). This situation in India is evidenced by the National Family Health Survey (NFHS), where the prevalence of overweight and obesity among adults has been steadily increasing from 9.3% among men

and 12.6% among women in NFHS-3 (2005-2006) to 27.3% among men and 30.7% among women in NFHS-6 (2023-2024) (International Institute for Population Sciences [IIPS] & Macro International, 2007; International Institute for Population Sciences [IIPS], 2026). Approximately 5.7% of Indian mother-child pair combinations suffer from the triple burden, which correlates directly with the mother's educational status and family wealth status (Kumar et al., 2021). This issue is not only limited to urban areas; high cases of stunting along with emerging obesity have also been documented in community-based surveys (Jaleel et al., 2023).

### Socio-Cultural Foundations and Tribal Food Systems

Tribal food systems are often referred to as sustainable diets because of their integration of proper nutrition and environmental suitability (Marak et al., 2026). However, these food systems are exposed to many threats as a result of modernization in all communities. The process of land expropriation, displacement, and cultural change has resulted in the replacement of the traditional local nutrition system with industrialized food (Barreau et al., 2019; Correal, 2009; Lam et al., 2023). This process is usually facilitated by the perceived status that people associate with development and progress (Companion, 2013; Buksh et al., 2022). Consequently, such modern processes negatively affect the unique biodiversity and nutritional value of food systems of these indigenous societies, resulting in biocultural diversity loss (Swiderska et al., 2022). Furthermore, the shift towards a Western diet, caused by urbanization and changes in socioeconomic status, might lead to significant consequences for health outcomes and disease burden among Indigenous people (Casari et al., 2022).

The food culture of the Angami Nagas exemplifies the complex connection between nutrition, identity, and social relations (Atungbou, 2020; Yano, 2014). In traditional Angami society, which was largely meat-eating, food served as a measure of wealth and social class (Hutton 1921; Yano 2014). The culinary traditions of Angamis include raw, cooked, and fermented dishes, which perfectly correspond to the principles of Levi-Strauss's culinary triangle (Yano,

2014). Food for the Angami Nagas represents much more than just nutrition. It plays an essential role in cultural identity, religion and celebrations, serving as an important tool of social bonding (Yano, 2014). The emergence of Christianity challenged some of the traditional food taboos, even for the Angami Naga tribe, and resulted in changes in the dietary habits of women. Although religion did not impose strict restrictions on food preparation in Angami society, it influenced the practice of selling food items, highlighting the economic interactions surrounding food (Yano 2014). Thus, the objective of this study was to examine the sociocultural aspects and perceptions affecting the food practices of the Angamis.

### Research Gap

While documentation on the state of health among Indian tribes is growing, scientific discourse is still characterized by descriptive, cross-sectional, and biomedical approaches (Bhattacharya et al., 2025). There is a noticeable gap in the food literature on subaltern food cultures in Northeast India, especially in how daily food practices are formed (Atungbou, 2020).

Modern scientific literature often fails to synthesize the lived experiences and views of people living in these communities (Bhattacharya et al., 2025). There is also limited knowledge about how prestige is associated with certain food choices. Thus, this study aims to explore the community perspective to understand the why's and how's of these transitions, rather than focusing solely on clinical indicators.

### Study Area

The study was conducted in the Kohima district of Nagaland. This area is known for its high level of biodiversity and is home to the Angami Naga tribe. Kohima Village was selected as the only study location in Kohima based on one distinguished criterion: the village has a unique nature in the sense that it is a census town that represents both the urban and rural settings (Census 2011, India, n.d.). As such, it was selected to capture a wide range of variables related to nutrition transition and obesity among the Angami Naga tribal population in terms

of the living environment. In the present study, the terms Angamis and Angami Naga tribe are used interchangeably.

### Methodology

A qualitative, ethnographic research design was chosen to analyze the lived experiences and sociocultural perceptions of the Angami Naga tribe. The use of qualitative design makes it possible to focus on the voices of the population being studied through the analysis of food stories, thus reflecting the tribal reality of the nutrition transition and not only clinical statistics (Thompson et al., 2018).

The data analysis presented in this study is grounded in two theoretical frameworks: food memories and relational accountability. Food memories can be considered intangible heritage because the food experience of tribal people includes various tangible sensations and bodily experiences, as well as collective rituals that build a sense of community (Lee, 2022). Food memories provide inspiration for cultural expression and active community engagement based on common values (Clair et al., 2011).

The second conceptual foundation of the study is Relational Accountability, which can be described as a philosophical paradigm for conducting research among tribal populations (Latulippe, 2015; Reo, 2019). This ethical approach implies the responsibility of the researcher for the whole community, including relationships with its environment (Reo, 2019). In this study, food meanings were formulated with respect to the community's lived experience.

- The target population for the study is the Angami Naga tribe with the following inclusion criteria
- Resident of Kohima district and a member of the Angami tribe
- Age between 20 and 59 years
- Willing to participate

Purposive sampling was employed to select participants for the focus group discussion (FGD). Individuals possessing the capacity to provide profound information about their personal food choice preferences and physical activity habits influenced by various factors, including social, cultural, and economic aspects of the Angami people's lives, were recruited. The recruiting process was performed

until thematic saturation was achieved within the focus group. A semi-structured interview schedule was used for focus group discussions lasting 80–90 minutes for each discussion. All discussions were audio-recorded with the consent of the participants. The audio recordings were then transcribed verbatim to ensure the reliability of the qualitative data. In addition, nonverbal signs observed during the course of the discussion were documented for further thematic analysis. To maintain confidentiality, the names of the participants were coded, and only age and gender were used.

## Results

The results of this study indicate that eating habits depend on health objectives, current lifestyle trends, and evolving cultural traditions. The findings are presented under several headings, each corresponding to a key component of the study's findings and their broader implications.

### Demographic Profile

A total of 57 participants were included in the study conducted across three focus group discussions (FGDs), comprising 35 females (61.4%) and 22 males (38.6%), with ages ranging from 26 to 59 years. The inclusion of both male and female participants from a broad age range provided diverse perspectives on food choices, cultural food beliefs, and nutrition transition among Angami adults.

### General Eating Habits and Composition

Many participants mentioned a diet that was mostly composed of rice. A 34-year-old female states, “3 meals- rice, veg stew, meat and 2 snacks- tea & biscuits,” a 57-year-old male mentions, “rice, cereals, vegetables, fruits and meat.” Other common components include “boiled green leafy vegetables, potato fries, dhal,” and different types of meat. The majority of the participants also expressed a preference for home-cooked meals, with a 50-year-old woman preferring “home cook meals over fatty foods” and a 27-year-old female listing “home cooked meals” as what she typically enjoys.

In terms of nutrient composition, the participants made a conscious effort to maintain a dietary balance. A 38-year-old female aims for “more veg, fruits lean

meat and low-fat dairy products,” and a 33-year-old female emphasizes “more greens.” But some diets are still mostly cereal-based, with a 34-year-old female noting, “majority of the composition is from rice along with three or four chops of meat with almost one cup of veggies,” and another 29-year-old female stating her diet is “mainly rice.”

However, meal times may vary as per the time of festivities, for example, “during festive seasons and birthdays/wedding parties”, or “during winter season meals are usually eaten very early.” Participants also stated that family meals, especially breakfast and dinner, were common practices.

### Traditional Foods and Preparation Methods

Traditional meals and cooking methods play a significant role, especially in Angami culture. Some traditional foods are “fermented bamboo shoots, smoked meat” [35 yrs old, male], “fermented dry fish and soyabean, perilla seeds, smoked pork” [34 yrs old, female], “galho” and “gapha” (porridge) [38 yrs old, female; 37 yrs old, male], and “muodi” (a traditional meat dish slow cooked with animals’ blood and spices) [35 years old, male; 37 years old, male]. These foods are often prepared using the “traditional stew method” [35 yrs old, male; 34 yrs old, female] or “plain boiling with little salt and little or no oil” [33 years old, female]. Notably, most participants preferred traditional cooking methods because they used less oil and fewer artificial ingredients. A 33-year-old woman says, “Traditional cooking is often healthier because we don’t have to add a lot of oil and tastemakers.”

### Changes in Diet and Reasons for Managing Health and Weight

The study indicated that many participants reported consciously modifying their food choices during the previous year, largely driven by health concerns and a desire to live a healthier life. Some changes from the findings are as follows:

A 38-year-old female mentioned to have “reduced rice consumption, consume whole grain flatbread, limited high saturated fats and sugar.” Others aimed to “reduce oil and fats” [50 yrs old, female], or “cutting carbs- refine flour” [33 years old, female].

A 33-year-old female “tried to reduce the portion of rice, sugar and processed foods,” and a 32-year-old female has “limited my sugar and oil intake and reduced my rice portion.”

A 27-year-old woman “increased foods rice in fibres and vitamins,” and a 35-year-old male incorporated “more greens and meat, less rice” for weight management.

The primary reasons for these changes were “health issues” [34 yrs old, female; 50 yrs old, female] and “lifestyle change” [27 years old, female]. For example, a 33-year-old female states, “my profession training motivated me to live a healthier lifestyle,” and a 34-year-old female reduced sugar and dairy “because of acid reflux.”

The effects of these alterations on health and weight vary. Positive outcomes included “more active and lose weight” [38 yrs old, female], “more energised” [27 yrs old, female], and “less fatigue after cutting carbs” [33 years old, female]. Some noted “less bloating when I decreased my portion size” [30 years old, female]. Some people, on the other hand, expressed difficulty, such as a 32-year-old woman seeing “not much change, maybe it is because I do not do any physical exercise,” and a 29-year-old female admitting, “I cannot stick to restricting foods. I tend to binge on it after cutting it out of my diet for a week or two.”

The general agreement is that nutrition is “very important” [57 yrs old, male] for controlling obesity and boosting health since it “lowers risks for serious health problems and boosts immunity” [38 yrs old, female]. People set goals like “stable weight, healthy heart, increase muscles and reduce fats” [35 yrs old, male] or “to be fit and healthy” [34 yrs old, female].

### **Consumption of Processed and Ultra-Processed Foods**

The study found that participants often ate processed and ultra-processed foods, “bread, fast foods” [35 yrs old, male], “cheese, bread, chips, yoghurt, salted nuts, sodas, fast-food, sweets, ice-cream, processed meat” [34 yrs old, female], and “noodles, cookies, juices, sausages” [34 yrs old, female].

The perceived change in processed food consumption over the years is attributed to factors

like “easily accessible, less preparation time” [34 yrs old, female; 50 yrs old, female], “longer shelf life” [38 yrs old, female], and “attractive packaging, pocket friendly, easier to prepare and easily available” [33 yrs old, female]. “For me there are more shops that sells all these food items now and a lot more influence from western and outside influences promote these consumptions”, says a 29-year-old female.

Availability of processed and ultra-processed foods has been on a rise due to various factors like “easier access and affordability of processed food” [29 yrs old, male], “market expansion, western cultural influence” [26 yrs old, male] and because “processed foods seem to be cheaper/affordable than the locally available food and more time is required to prepare traditional food” [37 yrs old, male].

High calorie beverages and fast food are primarily treated as a “treat” that can be enjoyed occasionally by many [35 yrs old, male; 34 yrs old, female; 38 yrs old, female]. For some, high-calorie beverages and fast foods are being incorporated in their diet. A 29-year-old female respondent indicated they “became go-to meal due to tight schedules,” and a 40-year-old female pointed out “it has become a part of my diet.” Another respondent noted that noodles are a part of their diet, consumed as “evening or afternoon snacks with tea” [34 yrs old, female].

### **Cultural Importance and Identity**

Food in the Angami community is very much a part of their traditional beliefs and values. A 33-year-old woman articulated that, food “reflects the place and environment where we are from as the food is gathered and obtained from the environment around us.”

There are certain food and ways of their preparation that symbolises the culture of the AngamiNagas.

A 34-year-old female participant noted, “muodi comes to mind, because we usually consume that during festivals. I feel its special because it is not something we can cook and eat every day or on our own. it tastes better when cooked in large portion.” The practice of cooking “chickens for every single milestone and occasion” is also highlighted by a participant [38 yrs old male; 46 yrs old, female].

A 29-year-old female respondent emphasizes

that “fermented soyabean is one which reflects our culture... also muodiis a speciality of the Angamis.”

According to a 34-year-old female respondent “Any meat cooked in traditional way of cooking-with water, pounded dried red chili, and ginger always gives a homely feeling no matter where its cooked.” The belief that “rice gives us energy” is also a culturally ingrained idea for some [50-year-old female; 57-year-old male].

The Angamis’ eating habits are different from those of other Naga communities in that they “add very little salt and eat less smoked meat compared to other communities among the nagas,” [57-year-old male], they also have their own cultural foods, such as “muodi, kemenya roti (glutenous rice snack), niekhrü(traditional snack made from glutenous rice and perilla seeds), and nierhüko(glutenous puffed rice).” Participants also mentioned “Sekrenyi festival” as promoting cultural practices, including those related to food.

Cultural beliefs have a profound influence on dietary practices. A 49-year-old man narrated, Before Christianity, there were certain ken-yü (taboos) we practised, like, it is ken-yüto eat cats, and women are also not allowed to eat certain hunting animals, especially with horns, ... but nowadays, I think we started consuming everything”.

### **Preservation and Challenges to Traditional Angami Dietary Practices**

Efforts to preserve traditional dietary practices have been noted. These include “preservation through festivities” [34 yrs old, female], “culinary workshops initiated by communities, NGO’s” [50 yrs old, female], and the knowledge being “handed from our grandparents to our parents and then to us” [34 years old, female]. The Sekrenyi festival is said to help keep food traditions alive [26 years old, male; 35 years old, male].

The way people follow traditional practices is changing. Younger generations “tend to be more into eating and trying out non-traditional food” [29 yrs old, male] and “consume more of junk food and less of our typical diet” [26 years old, male]. A 35-year-old male observes that “older generation of Angami’s mostly eat what are produced from their fields, while the younger generations consume food

brought from the market.” The shift from “thutshe”/ “zutho” (local rice beer) to “tea and coffee” was also noted [48 years old, male].

### **A 59-year-old man narrates**

“During our childhood, we only ate meat during very special festivals. Previously, 1 kg of meat was shared by 10-13 members of our family, but now I see people buying and cooking more than 2-3 kgs of meat just for a small family... We eat fewer farmed vegetables now. Many vegetables that we did not know earlier, such as broccoli and beetroot, are now available in the market. Earlier, we were content with whatever wild fruits we got; now, almost all fruits are purchased from the market.”

“Introduction of processed food has altered our eating pattern” [29 years old, male]. Traditional food tends to be “expensive and time consuming” and “require trained person/experts to cook” [37 years old, male]. A 46-years-old female participant mentions the trend of “fusion dishes” and “availability of diverse supermarket ingredients.”

With urbanization, it has become difficult to source ingredients like “wood worms, bees, mushroom are hard to come across” [29 years old, male]. With the “decrease in farming activity” it has become “challenging to source organic vegetables” and there might be the risk of “extinction of jungle animals, which are delicacies,” [35 years old, male]. The prohibition on hunting means that “we use to depend on forest and jungle for delicacies but now... many people stopped,” [56 years old, male].

### **A 49-year-old male also narrates on current lifestyle**

“I am reminded when my dad would tell us about how they worked in the field for days cultivating rice, and they would help each other in their Peli(peer group within an age range)throughout the season. They would help each other prepare the paddy field and sow the seeds; they also assisted in harvesting, threshing, and manually hand-pounding the rice they had cultivated. So, even though they eat in huge amounts, their labor compensates for it. Today we eat double of what they used to eat but we do not do even half the amount they work for”.

## The Role of Healthcare Professionals in Encouraging Culturally Appropriate Eating Habits Among the Angamis

Participants recognized the diverse ways in which healthcare professionals can contribute to addressing nutrition-related problems and encourage healthier behaviors among the Angami Naga tribe. These include education sessions, provision of expert advice, and advocacy for change within the system.

### Educational Initiatives and Awareness

Many participants mentioned the importance of educational programs. A 29-year-old male participant states that conducting such an initiative is necessary, “conducting educational dietary workshops among schools and colleges should be the first step to promote dietary practise among us.” Another participant aged 56 years old, female insists

What we really need now, not only for the Angami people, but for our Naga community as a whole, is nutrition education, not just to depend on medicine, but to actually control and maintain our diet to prevent comorbidities of obesity. We should not encourage easy and convenient meals but focus on home-cooked meals and the medicinal plants and herbs that are around us, and use our way of cooking, such as steaming or stewing, rather than deep frying, because if we really think about it, our traditionally cooked meals are very simple, cooked with very little oil.

### Direct Medical Guidance

Healthcare professionals play a vital role in addressing the problem of nutritional habits and encouraging healthy behaviors among the Angami Naga tribe by implementing educational programmes, utilizing authoritative medical knowledge, and advocating for traditional foodways. One of the themes highlighted by the participants was the necessity of educating young children on healthy nutrition and portion control. Participant aged 57 years old, who finds it difficult to limit meat intake mentions, “Education for controlling portion and maintaining healthy diet should be taught to our young children so that they can adapt to it.”

A 29-year-old male participant suggested “educational dietary workshops in schools and

colleges” as a basic step to encourage healthy eating habits.

There was a strong perception among participants that advice from a doctor carries significant weight and can overcome existing stigma or skepticism. A 26-year-old male stated, “I do not think educational strategies or seminars will be effective unless recommended by a doctor.” Another participant at 49 years old highlights the need of the community for knowledge but adds “given the stigma around, I doubt people will take it seriously until it is said by a ‘doctor’.” This means that healthcare professionals, especially doctors, are perceived to be credible people whose advice people listen to more than that of other people.

Participants mentioned instances where doctors directly advised them on nutrition. “The doctor advised both my husband and I to reduce meat and salt from our diet.” This implies that the consultation that takes place between individuals and their healthcare providers is also effective.

Healthcare professionals can also help solve certain dietary concerns, such as the over-consumption of specific foods. “They should encourage the people to avoid the consumption of salt and smoked meat in large quantities,” [37 years old, male]. Furthermore, the misunderstanding that “it will be okay as long as they take medicines,” [56 years old, male] makes it necessary to provide proper advice on the role of diet in health maintenance.

### Discussion

The narrative analysis reveals a complex dynamic between the Angami community’s traditional identity and the changing food environment over the years. Despite being aware that rice is still the most crucial component of their diet in the context of both historical background and our findings, it becomes evident that changes take place in how they perceive and consume food.

Dietary preferences and cultural traditions in the case of the Angami Naga tribal population are strongly connected to their sense of identity, since food plays a central role in defining cultural identity. According to the present study, this community still prefers rice as the primary source of calories, combined with traditional dishes like Galhoand

Muodi consumed during celebrations. In other words, these preparations go beyond being food. Such dishes symbolize the ‘sociality of food,’ with specific products being used alongside traditional cooking methods that are inextricably linked to different holidays and festivals (Atungbou 2020). The history of Angami food culture is based on sustainable practices associated with local self-sufficiency and traditional connections with nature (Tiwari, 2024). While globalization and modernization have enriched their diets, the cultural memory of traditional cooking, such as boiling and steaming of vegetables as well as using indigenous crops, remains an essential element of their food culture even today (Meyer-Rochow, 2025). However, a distinct transition is occurring in how adults in the community perceive traditional and modern foods. Although traditional food is considered healthier because of the use of natural components and less oil, and modern foods are often associated with prestige and sophistication, yet nutritionally deficient (Maxfield et al., 2016; Shaikh et al., 2017), the reason behind the switch lies not only in people’s taste but rather in the practical needs of modern society (Kumar et al., 2022). Tight work schedules and the availability of food at the store have become the driving forces behind this transition, resulting in what used to be occasional foods turning into go-to meals.

The Nutritional Transition Model developed by Popkin explains that nutrition and dietary habits are influenced by socioeconomic development and are categorized into five stages. In the first stage, referred to as the hunter-gatherer stage, people eat nutritious food and exercise regularly. Stage two, known as “Famine,” refers to a period of insufficient food sources and malnutrition. The third stage is called “Receding Famine,” which involves food availability and varied diets for people. Stage four is named Degenerative diseases, “Degenerative diseases,” which comprises of consumption of processed foods by people, resulting in obesity and the fifth stage “Behavioural Change” reflects a shift toward healthier diets and lifestyles to prevent chronic diseases (Popkin & Ng, 2021). The dietary behavior of Angami Naga tribal reflects the ongoing nutrition transition processes in Northeast India as this region

experiences transition into stage four, which is defined by significantly increasing consumption of processed meat, snack foods, and high-calorie meals (Wright & Gupta, 2017). The physiological effects of this shift can be clearly traced, for instance, through numerous studies on tribal communities in the region, including the Angami Naga tribe, which reveals a high incidence of hypertension and cardiovascular risks, specifically among urban men in such populations (Ghosh & Peseyie, 2022). Hence, there is a dual burden affecting these ethnic groups due to both a lack of nutrients and obesity-related diseases in the context of the modern lifestyle. Despite all these, the Angami Naga tribe demonstrates a lot of resilience to changes in the food environment through attempts to control the amount of sugar and fat to alleviate health problems that they are suffering from. On the other hand, they are exposed to an obesogenic environment because processed food is more available and affordable than traditional foods. However, the latter is expensive and requires a significant amount of time to prepare (Tiwari, 2024).

### Future recommendation

Future research and intervention may include:

- Cohort studies that will examine the metabolic impact of shifting towards a ‘fusion’ diet among the tribal youth, to assess the long-term metabolic impact of shifting away from the high-nutrient dense foods to more consumption of foods purchased from the markets.
- Future research could also work to design interventions specifically tailored for the Angami communities, taking into their traditional cooking methods, in creating healthier meals.
- The impact of the urban landscape in maintaining healthy dietary practices among Angami populations should also be investigated.
- Future comparative research should seek out other Naga tribes to ascertain whether Angami resiliency pattern apply to other communities.

### Conclusion

The current study has various limitations. First, the study used qualitative data obtained from only 57 participants in three FGDs within one study

area, which may limit its generalizability among other Angami communities and even other Naga populations. Second, as with other studies involving qualitative data, participants' responses could have been affected by recall and social desirability biases.

Nonetheless, the current study demonstrates that the Angami Naga tribe presents both traditional/staple diets which are more prevalent among the older adult population, and a shift towards a diet based on convenience and processed food among the younger adult population due to changes in modern lifestyle. Such a shift is associated with malnutrition and chronic lifestyle diseases. This emphasizes the importance of culturally appropriate interventions involving the preservation of healthy eating practices, improvement of nutrition education, and promotion of portion control in the local community. The study also reveals the need for resilience and food sovereignty as key strategies to assist in tackling these health problems among the Angami Naga tribe. Despite such changes, traditional foods remain a core part of cultural identity and social cohesion.

Based on these findings, several community-based nutrition interventions that can be implemented may include community-based nutrition education programs, food literacy programs for schools and churches, reviving traditional food festivals, cooking demonstrations, kitchen gardens, promoting indigenous foods, and cooperation of health care providers, village councils, and community agencies in delivering culturally appropriate dietary counselling.

**Conflict of Interest: None.**

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