

Food consumption behaviors among preschool children from ethnic minority groups in child development centers, Chiang Rai, Thailand: A qualitative study

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ABSTRACT

Dietary behaviors during early childhood play a crucial role in shaping long-term health, growth, and cognitive development. Among ethnic minority groups in northern Thailand, disparities in food access, cultural practices, and parental nutrition knowledge may contribute to inappropriate food consumption patterns. Understanding these behaviors within community childcare settings is essential for designing culturally responsive nutrition interventions. This study aimed to explore food consumption behaviors and their influencing factors among preschool children aged 2–6 years from ethnic minority groups attending child development centers in Chiang Rai Province, Thailand. A qualitative study design was employed. Purposive sampling was used to recruit 30 teachers and caretakers from nine child development centers in Mae Fah Luang District, Chiang Rai Province. Data were collected through nine focus group discussions guided by semi-structured interview questions. Transcripts were analyzed thematically following Braun and Clarke's six-phase framework.

Two major themes emerged from the analysis. Food consumption behaviors included reliance on snacks and milk as the main food source. Food was provided by the centers, which allowed children to engage in selective eating. Factors influencing consumption behaviors included cultural traditions, socioeconomic constraints, and the influence of media and advertising on children's food preferences. Preschool children from ethnic minority communities exhibited diverse and culturally influenced dietary behaviors. These findings highlight the importance of culturally sensitive nutrition education and participatory, school-based programs involving teachers, caretakers, and media literacy components to foster healthier eating habits among young children.

Keywords:

food consumption behaviors, preschool children, ethnic minority groups, qualitative research

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INTRODUCTION

Nutrition is important and preschool children (under 5 years of age) are particularly at risk of rapid changes in nutritional status.^{1,2} Preschool children are in a stage of physical, emotional, cognitive, and personality development. As a result, it is critical to promote the good health of preschool children so that they consume appropriate food in the proper proportions of all five food groups and in the correct quantities required to strengthen the body's growth and use in various activities.^{3,4,5} In early childhood, teachers, parents and caretakers act as gatekeepers of children's diets: their nutrition knowledge, beliefs and feeding practices strongly shape what and how children eat in daily life.^{2,4} If food consumption is inadequate in quantity and quality for an extended period, it will lead to nutritional difficulties, resulting in illnesses such as physical, mental, intellectual, and developmental disorders.^{4,6} The World Health Organization stated that in 2022 there were 149 million children under the age of 5 who were stunted, 45 million who were wasted, and 37 million who were overweight or obese. Moreover, almost 50% of deaths among children under 5 years of age are associated with malnutrition. These predominantly arise in low- and middle-income countries (LMICs). While global statistics commonly report malnutrition among children under 5 years of age, the present study focuses on children aged 2–6 years because this age range reflects the enrollment criteria of child development centers in the study area and represents the relevant early childhood period during which eating behaviors are developing. The burden of malnutrition has significant and enduring developmental, economic, social, and medical consequences for individuals, families, communities, and countries.⁷ In Thailand, 6.7% of children under the age of five are

moderately or extremely underweight, while 1.5% are severely underweight. Among these children, 5.4% are moderately or severely wasted, and over 10% are moderately or severely stunted. Furthermore, 8.2% of youngsters, or nearly 1 in 10, are overweight. Additionally, there is a higher likelihood of underweight, stunted, and wasted children in rural regions. Children born into non-Thai speakers' household had the highest rate of stunted growth (16.3%).⁸

Mae Fah Luang district in Chiang Rai Province, northern Thailand, comprises rural highland communities with diverse ethnic minority groups and distinct food cultures. Many families experience socioeconomic disadvantage, geographic isolation and limited access to health-promotion services.⁹ These structural conditions can constrain the availability and affordability of diverse, nutrient-dense foods in households. Caregivers with lower educational attainment may also face challenges in accessing reliable nutrition information, navigating health services and supporting healthy eating practices due to limited health literacy and financial constraints, rather than a lack of concern for their children's wellbeing.^{10,11,12} At the same time, research suggests that the school and childcare environment, where young children spend a substantial portion of their day, plays a critical role in shaping dietary behaviors.^{13,14,15} Child development centers provide regular meals and snacks and are important settings for promoting healthy eating habits among preschool children.¹⁶ Among ethnic minority preschool children in northern Thailand, previous studies have primarily focused on nutritional status and associated sociodemographic factors. For example, Janpeang et al.¹⁷ reported a high prevalence of stunting and underweight children among ethnic preschool children in North Thailand and identified several related risk factors.¹⁷ However, there is

limited qualitative evidence on the everyday food consumption behaviors of ethnic minority preschool children and the contextual factors that shape these behaviors within child development centers. In particular, little is known about how cultural traditions, household socioeconomic conditions and media exposure interact to influence children's reliance on snacks, consumption of milk, acceptance or refusal of school meals and selective eating behaviors in multi-ethnic, rural highland settings.

Despite growing evidence on the nutritional status among ethnic minority preschool children in northern Thailand, limited attention has been given to understanding their everyday food consumption behaviors and the contextual factors that shape these patterns within child development centers, where children spend a large portion of their daily lives. Previous studies have largely focused on quantitative assessments of malnutrition and sociodemographic determinants, leaving important questions unanswered regarding how cultural norms, household socioeconomic constraints, and environmental influences interact to shape children's eating behaviors in real-life settings.^{11,14,15} This gap is particularly important because child development centers play a critical role in shaping early dietary practices and represent a key setting for culturally appropriate nutrition interventions. To address these gaps and their implications for child health, this study employed a qualitative design to explore food consumption behaviors and their influencing factors among preschool children aged 2–6 years from ethnic minority groups attending child development centers in Mae Fah Luang district, Chiang Rai Province, Thailand. Specifically, this study sought to understand the patterns of food consumption behaviors observed in these children and the cultural, socioeconomic, and environmental factors shaping these

behaviors, as perceived and reported by teachers and caretakers who are directly responsible for the children's daily care, teaching, and supervision. Insights from this study are intended to inform the development of culturally responsive, school-based nutrition interventions for ethnic minority preschool children in North Thailand and similar LMIC settings.

METHODS

This qualitative study employed focus group discussions to gather information between August and December 2023 in Therd Thai sub-district, Mae Fah Luang district, Chiang Rai province, Thailand.

Participants

A total of 30 participants, comprising teachers and caretakers from all nine child development centers under the Therd Thai subdistrict Administrative Organization, Mae Fah Luang district, Chiang Rai province, Thailand were purposively selected. Inclusion criteria were having at least one year of experience working with preschool children and being responsible for their care, teaching, or supervision. Those with less than one year of experience or without direct caregiving/teaching roles were excluded. All nine centers were purposively included because they represent the full range of ethnic minority communities in this setting, ensuring maximum contextual coverage. Before each focus group discussion, participants completed a brief demographic form (age, sex, ethnicity, years of experience, and center characteristics) to support interpretations of transferability. Participants were considered key informants because of their daily engagement in children's routines, feeding practices, and developmental activities. In this study, the term "caretakers" refers to childcare staff working at child development centers, whereas "caregivers" refers to parents or family members who

provide care for the children at home. These terms are used distinctly to reflect their different roles in shaping children's eating behaviors.

Data collection and interview guidelines

The nine heads of child development centers were first contacted and informed about the study's contents, including its objectives. A schedule was arranged, and each center was notified one week prior to data collection. On the scheduled date, participants' eligibility was confirmed and written informed consent was obtained. Nine focus group discussions were conducted between August and December 2023 in meeting rooms at the child development centers, each consisting of 3-5 participants, and lasting approximately 60 minutes. Discussions were conducted in Thai. All focus group discussions were audio-recorded with permission, and detailed field notes were taken. Groups were composed of both teachers and caretakers to capture diverse perspectives on children's food consumption behaviors. To enhance trustworthiness, triangulation was achieved by collecting data from multiple informant roles (teachers and caretakers) across all nine centers serving various ethnic minority groups.

A semi-structured interview guideline was developed by the research team based on the study objectives and the relevant literature. The validation process consisted of two steps. First, the draft guidelines were reviewed by a local health team (including public health officers and nutrition staff) to assess clarity, cultural appropriateness, and feasibility in the child development center context. Second, the revised guideline was assessed for content validity by two experts (a nurse and a nutritionist), and minor wording changes were made according to their suggestions. The final guidelines consisted of four open-ended questions: (1) What are the food

consumption behaviors of your students? (2) What factors influence these behaviors? (3) How does each factor affect the behaviors? And (4) Is there any additional information you would like to provide?

Data Analysis

It is important to note that the data do not derive from direct interviews with the children themselves. Instead, information was obtained through focus group discussions with teachers and caretakers, who were considered key informants. Thus, the behaviors reported reflect the observations and experiences of these adults in their professional and caregiving roles. The nine transcripts were coded and analyzed using the six-phase thematic analysis framework of Braun and Clarke.¹⁸ The process involved familiarization with the data, initial coding, theme generation, reviewing themes, defining and naming themes, and writing up. From these guidelines, the data transcriptions were read several times, and the primary concepts or ideas made the researcher familiar with the data. After that, the researcher coded the interesting items from the data and inserted them into the appropriate themes. The themes and subthemes were specified, compared to the data, and a thematic map was established. The last step continued the analysis until the researcher had identified every theme and could explain the complete story.

The research team consisted of public health researchers, including members who have worked for ten years in ethnic minority communities in North Thailand and one researcher who shares the same ethnic background as some of the participants. To reduce the risk of cultural misinterpretation, the team engaged in reflective discussions, drew on their contextual knowledge and field notes, and consulted key local informants when clarifications were needed. Data collection

and analysis proceeded iteratively, and recruitment stopped when no new codes or themes emerged (data saturation) after the eighth focus group discussion; one additional focus group was conducted to confirm saturation. Preliminary themes were summarized and discussed informally with several participants and child development center heads as a form of member checking, and their feedback was used to refine the wording and emphasis of the themes.

Demographic characteristics of the participants are shown in Table 1. Thirty participants (1 male, 29 female), comprising teachers and caretakers took part in this study. Their ages were between 24 and 42 years old at the time of the study. Half of them were Buddhists and Christians, eighteen had a bachelor's degree and twelve had a high school certificate.

RESULTS

Table 1. Demographic Characteristics of Participants (n=30)

Characteristic	n	%
Sex		
Male	1	3.3
Female	29	96.7
Age (years)		
20-30	9	30.0
31-40	16	53.3
41- 50	5	16.7
<i>Mean = 34.4, Median age = 35.5, Min = 24, Max = 42</i>		
Marital status		
Single	0	0.0
Married	30	100
Religion		
Buddhist	15	50.0
Christian	15	50.0
Education		
High school	12	40.0
Bachelor's degree	18	60.0
Occupation		
Teacher	18	60.0
Caretaker	12	40.0
Duration of working (years)		
≤5	4	13.3
6-10	10	33.3
>10	16	53.4
Ethnic group		
Yes	30	100
No	0	0.0

The qualitative findings revealed two major themes which included food

consumption behaviors and factors influencing consumption behaviors.

Theme 1: Food Consumption Behaviors

Children's food consumption behaviors were characterized by four subthemes: reliance on snacks, milk as a primary food, consumption of all food provided by the centers, and selective eating. These behaviors reflect both nutritional challenges and adaptive responses shaped by cultural norms, family practices, and the childcare environment.

Subtheme 1: Reliance on snacks.

Participants consistently reported that children consumed snacks in greater quantities than the meal, often displacing lunch. This behavior was reinforced by parents who supplied snacks or purchased them at local shops before school.

"One of my concerns is that they always eat snacks and refuse to have lunch. Most students bring their snacks from home, or some parents buy them from the retail store before school." (P3)

"They prefer snacks, especially Lay's Crisps and Paprika's Potato Snack, to the main meal, I used to forbid it, but they still refuse our lunch, so I concede because I do not want them to starve." (P 17)

"If they don't eat snacks, they won't eat anything for lunch, so I must allow them to have these snack foods." It is better than letting their stomachs be empty." (P 25)

Subtheme 2: Milk as primary food

Milk is an important part of a preschooler's diet and provides valuable nutrients. However, findings revealed that some children consumed milk as their primary source of food. All children in this study drank UHT milk. Participants reported concerns about this pattern, noting that excessive milk consumption often replaces proper meals.

"Some students drink a lot of milk and refuse to eat lunch, which I think is not good for their health. They drink UHT milk of different brands. Some parents provide this milk for them at the center because they

know their children will not eat lunch." (P 1)

"Three of the students eat very little of the food we provide because they always drink milk. I asked their parents about their behavior at home, and all of them confirmed that their children consume milk as their primary meal." (P 11)

"I think they have developed this habit at home. Some parents let their children drink a lot of milk because they believe that milk is the best food. I explained that children need other nutrients, but my students still drink milk as their main meal." (P 28)

Subtheme 3: Consuming all food provided by the centers

In contrast, some children, particularly those from remote households, ate all meals served at the center and often asked for an additional serving. Participants perceived that limited food availability at home might contribute to this pattern.

"Most of our students eat everything we cook and always ask for more" (P9)

"Luckily, most of them eat everything we cook. On our menu, they love green curry the most. They can eat spicy food and all vegetables, which most preschool children cannot. Those who eat everything usually live far from the village, where parents cook only traditional foods." (P24)

Subtheme 4: Selective eating

Selective eating behaviors, including avoidance of certain vegetables, a preference for softer-textured foods, or refusal of unfamiliar items.

"Some children did not eat green aubergine (brinjal) in green curry, they ate only the meat in the soup. They told me they disliked the bitterness of the green brinjal. I tried to tell them it's not bitter this time,

but they did not believe me and selected only the meat.” (P 5)

“Four of my students chose only noodles and refused meatballs. It was strange for me because most children preferred meatballs and asked for more. They also preferred noodles to rice because noodles are softer and easier to chew.” (P10)

Theme 2: Factors influencing consumption behaviors

Subtheme 1: Cultural influences

The participants stated that the children’s food preferences were strongly shaped by their ethnic and cultural backgrounds. Distinct culinary traditions determined what children were accustomed to eating at home and what they accepted at the child development center.

“Their behavior depends on the group that they come from. Most of my students are Lahu, so they eat a large amount of rice with only a small quantity of side dishes. Lahu usually eat a lot of rice, and the children adopt this behavior from their parents.” (P28)

“My Akha students can eat spicy food and prefer spicier food than other students. This is because they are used to the traditional dishes that always contain chili at home.” (P19)

“Yunnan Chinese students always refuse vegetables and ask for snacks instead of the main food. These students grow up near the market, and their preferred dishes mostly consist of meat.” (P5)

Subtheme 2: Socioeconomic conditions

Socioeconomic factors, including poverty, parental education, and food availability were identified as key influences on children’s food consumption behavior. Participants observed that children from poorer families tended to value every meal, while those from wealthier households were more selective.

Some of the participants explained this as follows:

“The children who come from poor families usually finish all the food in front of them, while those from rich families often select only certain items, such as the meatballs in noodles, and leave the rest. More income, more food choices (P12).”

“Parents cannot force their children to eat healthy foods because they don’t know what kind of food is good for their health. They only think as long as the children eat something, it’s good enough and better than nothing. I have no doubt about this because many parents are my friends, and they did not attend school (P2).”

Subtheme 3: Media and advertising.

Media exposure, especially to advertisements, can shape children's food preferences by promoting certain brands, products, and types of food. Pre-school children have developed preferences for processed foods or products that are heavily marketed through media channels such as television and YouTube.

“Advertisements often promote sugary snacks and fast food. Children know about French fries from television and the advertisement boards when they go to the city with their parents, and they love them. The same is true for unhealthy snacks such as Potae, Lay’s and Paprika, which they often buy before coming to the center (P5).”

“Nowadays, children can access snacks very easily. They see them on television, which increases their desire for these foods. This leads to unhealthy eating behavior (P18).”

“YouTube is one of the media that makes children request specific foods or brands they have seen advertised. They especially like snacks popularized through channels, such as the NooYimNooYam channel, a popular Thai children’s channel featuring child influencers whose eating activities often shape young viewers’ preferences (P27).”

DISCUSSION

This study explored food consumption behaviors among pre-school children from ethnic minority groups in child development centers in Chiang Rai, Thailand. Two overarching themes emerged: food consumption behaviors and factors influencing consumption behavior. The first theme to be discussed is food consumption behaviors. The general food consumption behaviors of these children revealed a variety of habits, including reliance on snacks, with milk as a primary food, consumption of all food provided by the centers and selective eating. In this study, it was found that reliance on snacks was common among pre-school children. These findings are consistent with prior studies conducted in diverse global settings such as Canada, South Africa, and Peru^{19,20,21}, indicating that snack consumption and meal replacement behaviors are common challenges in early childhood nutrition.²² However, our study adds cultural and contextual depth by providing concrete examples of differences across ethnic groups, for instance, Akha children's acceptance of spicy dishes, Lahu children's preference for large amounts of rice, and Yunnan Chinese children's tendency to refuse vegetables while preferring meat-based foods and snacks. These distinctions highlight the heterogeneity within ethnic minority populations and extend existing literature that often treats such groups as culturally uniform. The observed behaviors can also be interpreted through the lens of established behavioral health theories. According to Social Cognitive Theory,²³ children learn eating behaviors through observation and reinforcement. In this study, reliance on snacks and a preference for milk appear to be influenced

by parental modeling and media exposure, where parents provide snacks or milk as a convenient substitute for meals.

These findings can be partly explained by the Health Belief Model (HBM). Some parents appeared to underestimate the long-term risks of unhealthy eating in early childhood, suggesting a low level of perceived severity and susceptibility, while perceiving strong barriers such as cost, convenience, and children's preferences. Limited nutrition knowledge and few clear cues on how to access health services and schools may further reduce the motivation to change. This is consistent with findings from Wungrath et al.²⁴, who reported that low-income parents in North Thailand often prioritize affordability and convenience over nutritional value due to limited knowledge and economic constraints.²⁴ When parents received information and support from teachers or health professionals, they seemed more aware of the benefits of healthy diets and more confident in providing healthier foods, reflecting increased perceived benefits and self-efficacy. However, the HBM alone does not fully capture wider structural and environmental influences. Teachers and caretakers also described several practical barriers faced by parents. Some families have financial constraints and rely on cheap, energy-dense foods, and many parents have limited time for food preparation because of work. Cultural beliefs and family norms may encourage the frequent use of sweets and snacks as expressions of care. In addition, children's exposure to marketing and media advertising of unhealthy foods can shape their preferences and place extra pressure on parents. Finally, the I-PACE model²⁵ supports the interpretation of media-driven snack consumption, where repeated exposure to visual cues (e.g., advertisements, YouTube content) leads to

cue-induced craving and behavioral reinforcement. These frameworks together highlight how individual cognition, cultural norms, and environmental stimuli interact to shape children's food behaviors.

Regarding the factors that influence food consumption behavior in these children, this study revealed that cultural influences strongly affect food selection, as children tend to follow the traditional eating patterns of their ethnic groups. For example, Akha children's acceptance of spicy food reflects intergenerational modeling within families. This aligns with prior evidence showing that culture profoundly affects dietary preferences among young children.^{26,27,28,29} Socioeconomic disparities were also crucial, determining food availability and parental education levels, consistent with prior research linking income inequality to food selectivity.^{30,31,32} Media exposure emerged as another dominant influence, with advertising shaping children's preference for high-sugar and high-fat snacks.^{33,34,35,36} These findings suggest that behavioral health interventions should address multiple determinants simultaneously, emphasizing parental engagement, socioeconomic empowerment, and media literacy. Although snack consumption, cultural influence, and socioeconomic status are recognized determinants globally, this study contributes new insights by contextualizing these factors within Thailand's multi-ethnic highland communities. The integration of cultural traditions, local economic realities, and modern media influences presents a unique behavioral ecology. This culturally grounded understanding contributes to the literature by illustrating how behavioral health frameworks can be adapted to non-Western, rural, and multi-ethnic contexts.

The findings underscore the importance of culturally sensitive, behaviorally informed nutrition education programs in child development centers. Incorporating behavioral theories such as Social Cognitive Theory can guide

interventions that use modeling, reinforcement, and feedback to promote healthy eating. Additionally, integrating media literacy into early childhood education can help mitigate the influence of unhealthy food advertising. Policies restricting the marketing of high-sugar snacks to children, combined with community-based nutrition campaigns, could significantly enhance public health outcomes in similar low- and middle-income settings. While the study focuses on ethnic minority groups in North Thailand, the identified patterns of snack dependency, media influence, and socioeconomic disparities mirror trends in many developing regions. The implications extend beyond the Thai context, highlighting the need for global behavioral health initiatives that incorporate cultural and economic dimensions into nutrition promotion. International collaboration in culturally tailored health education could lead to more effective, sustainable improvements in preschool nutrition and lifelong dietary habits.

LIMITATIONS

This study has some limitations. The findings are based on focus group discussions with teachers and caretakers from nine child development centers in a single subdistrict and selected ethnic minority groups, which may limit the transferability of the results to other settings. As with all focus group research, group dynamics may have influenced how openly participants expressed their views, and the data reflect adults' perceptions rather than children's own voices. Despite these limitations, the study provides context-specific insights that can inform policies and interventions to improve preschool children's food consumption behaviors in ethnic minority communities.

CONCLUSION

The findings of this study highlight the need for coordinated actions at multiple levels to promote healthy food consumption among pre-school children from ethnic minority groups in child development centers. At the policy level, the Therd Thai Subdistrict Administrative Organization and Chiang Rai Provincial Public Health Office should strengthen and enforce nutrition policies for child development centers, including clear guidelines on the provision of balanced meals based on the five food groups, limits on sugar-sweetened beverages and energy-dense, nutrient-poor snacks, and the encouragement of locally available, culturally appropriate foods. These policies should be integrated into the routine monitoring and supervision of child development centers. At the institutional level, heads of child development centers and local education authorities should support regular capacity-building initiatives for teachers and caretakers on child nutrition, healthy menu planning, and positive feeding practices, using practical training and supportive supervision. Simple tools and supportive materials, for example, posters and storybooks, should be provided to help teachers incorporate nutrition education into daily classroom activities. In addition, collaboration between child development centers and primary health care units should be strengthened to organize periodic nutrition promotion activities for children and parents, such as growth monitoring, healthy cooking demonstrations, and counselling on snack choices. At the family and community level, local health staff and village health volunteers should play a key role in communicating with parents and caretakers about the importance of limiting unhealthy snacks and sugary drinks, encouraging

family meals that include a variety of nutrient-dense foods, and preserving healthy traditional food practices within each ethnic group. Community leaders and religious leaders should also support health promotion campaigns and role-model healthy eating behaviors.

RECOMMENDATIONS

Based on the limitations of this qualitative study, several implications for future research are proposed as follows:

1. Include a broader range of stakeholders.

Future studies should incorporate perspectives from parents, grandparents, community leaders, and caregivers from diverse settings to obtain a more comprehensive understanding of children's food environments beyond the child development center context.

2. Integrate qualitative and quantitative methods.

Because this study relied on participants' reports rather than direct observation or dietary assessment, future research should combine qualitative insights with quantitative measures to assess children's dietary intake and examine its association with nutrition status.

3. Conduct longitudinal and intervention studies.

Future research should evaluate the long-term effectiveness of school- and community-based nutrition promotion programs in improving food consumption behaviors and reducing both undernutrition and overweight among preschool children in ethnic minority communities.

AUTHOR CONTRIBUTIONS

SK: Conceptualization, Methodology, Formal analysis, Project administration, Funding acquisition, Supervision, Writing -

Original Draft and Writing - Review & Editing. TR: Conceptualization, Methodology, Formal analysis, Writing - Original Draft and Writing and review and editing. CS: Formal analysis, Data curation and Writing - Review & Editing. KK: Data curation and Writing - Review & Editing.

ETHICAL CONSIDERATIONS

This study was approved by the Human Research Ethics Committee of the Chiang Rai Provincial Public Health Office, Thailand (protocol number CRPPHO 14/2566; approval date: 1 March 2023).

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CONFLICT OF INTEREST

The authors declare that there was no conflict of interest in this study.

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