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The Association between Nutrition Education Based on Local Wisdom with Family Nutrition Knowledge in West Lombok, Indonesia

Wulandari Dewi Susilawati[1*], Muhammad Nawawi[2], Musparlin Halid[3]
[1]Department of Medical Record and Health Information, Faculty of Health, Science, and Technology, Universitas Bima Internasional MFH, Mataram, Indonesia
[2]Department of Biology, Faculty of Health, Science, and Technology, Universitas Bima Internasional MFH, Mataram, Indonesia
[3]Department of Medical Record and Health Information, Faculty of Health, Science, and Technology, Universitas Bima Internasional MFH, Mataram, Indonesia

***Corresponding Author**: Email: dewiswulandari51@gmail.com

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ABSTRACT

Introduction: In West Lombok Regency, particularly in Rumak Village, Kediri, there are various traditional practices related to food and health that have been passed down from generation to generation. These practices reflect local understanding of nutrition and health, which can be used as a basis for designing educational approaches that are more relevant and acceptable to the community. The study aims to analyse factors related to the level of family nutrition knowledge through a local wisdom-based nutrition education approach.

Methods: This study used a cross-sectional design involving 263 family respondents selected proportionally in Rumak Village, West Lombok. Analysis was performed using Chi-square tests and logistic regression to determine the dominant factors associated with family nutrition knowledge.

Results: The study results indicate that of the 263 respondents, 60.5% had good nutritional knowledge. The analysis results show that there was a significant association between gender (p=0.004), highest level of education (p=0.012), employment (p=0.002), income (p=0.002), source of nutritional information (p=0.019), frequency of attending local nutrition education (p=0.031), suitability of materials to local culture (p=0.001), active family participation (p=0.029), and understanding of local nutrition messages (p=0.001) with family nutrition knowledge. Furthermore, family understanding of local nutrition messages (p=0.001) was the most dominant factor influencing family nutrition knowledge.

Conclusions: Nutrition education based on local wisdom has proven to play an important role in improving family nutrition knowledge. These findings indicate that nutrition education tailored to local culture and involving active family participation is an effective strategy for sustainably improving community nutrition knowledge.

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INTRODUCTION

Nutritional issues continue to pose a significant challenge for public health progress in Indonesia, including in West Lombok Regency (1). The persistently high rates of undernutrition and stunting among children reflect a discrepancy between existing policy frameworks and their practical impact at the household level (2). This situation suggests that current nutritional intervention programs, particularly those targeting school-aged children, have not yet fully accounted for contextual and socio-cultural factors shaping everyday dietary behaviors. Consequently, more in-depth analytical research is required to identify existing gaps and to develop approaches capable of connecting national nutrition policies with tangible, long-term improvements in family-based nutritional practices (3).

The Indonesian government, through various programs, including the Free Nutritious Meals Program (FNM), has demonstrated a strong commitment to addressing nutrition issues (4). This program targets elementary school-aged children with the aim of ensuring adequate and balanced nutrition intake (5). However, the effectiveness of this program is closely related to the level of knowledge (6), awareness and participation of families, especially parents, in supporting its implementation (7).

The lack of appropriate and ongoing education about the importance of balanced nutrition is one of the factors hindering the achievement of program objectives (8). Many families in rural areas still have limited understanding of nutritious foods, healthy eating patterns, and the importance of variety in food consumption (9). This is due to limited access to information and educational methods that are not contextualized to the culture and daily lives of the community (10).

Local wisdom is a cultural asset with potential for integration into nutrition education strategies (11). In West Lombok Regency, particularly in Rumak Village, Kediri District, there are various traditional practices related to food selection, such as Ares (food made from young banana stems), Pelecing (a dish made from local water spinach), Urap-urap (vegetable salad), family eating patterns (Begibung = eating together), as well as the meaning of food in the life cycle that has been passed down from generation to generation and reflects the Sasak people's views on nutrition and health (12). The values, symbols, and practices of local foods can be used as a basis for designing nutrition education approaches that are more culturally relevant, easily accepted, and capable of strengthening sustainable nutritional behavior change at the family and community levels (13).

One promising strategy is the development of a nutrition education model rooted in local wisdom. This approach prioritizes the integration of community traditions, cultural values, symbols, language, and customary practices in delivering nutrition-related information (14). A culturally based method of nutrition communication, which connects educational messages with local norms and daily practices, is not merely a conceptual framework but has also been empirically shown to be more effective in encouraging behavioral change compared to standardized or generic methods. By aligning new nutritional knowledge with familiar cultural references, this approach is expected to enhance comprehension and foster more lasting improvements in dietary behavior (15).

Education models grounded in local wisdom also offer opportunities to reinforce community cultural identity and enhance social cohesion among family members and within the wider community (16). Learning processes that incorporate local stories, the involvement of traditional figures, and participatory methods can build a stronger sense of belonging and collective responsibility in supporting initiatives aimed at improving nutritional conditions at the household level (17).

This educational model is not limited to the transfer of information, but also emphasizes the development of learning strategies and media that align with the specific characteristics of the local community (18). The incorporation of visual aids, local stories, traditional games, and joint cooking activities can serve as engaging and impactful learning instruments (19). Furthermore, the participation of various sectors in both the design and application of the model plays an essential role in ensuring its success (20).

The effectiveness of nutrition education can be seen through improvements in families' nutritional knowledge and the adoption of healthier dietary behaviors (21). These outcomes are expected to contribute positively to the long-term implementation of the FNM program and to help lower the incidence of nutritional issues in West Lombok Regency. This research seeks to examine the association between locally based nutrition education and the level of family nutrition knowledge in Rumak Village, West Lombok Regency. The study was developed by identifying and integrating local traditions and practices within the Sasak community that have been shown to encourage healthier eating habits.

METHOD

Study Design

This research employed an observational approach using a cross-sectional design. The design was selected as it enabled the researchers to examine relationships between variables at a single period of time without providing any direct intervention to the participants. Such an approach was considered suitable for capturing the real conditions of family nutritional knowledge and identifying related factors derived from the application of local wisdom–based nutrition education within the community. In practical terms, the study aimed to address two primary questions: What are the characteristics of families and how is nutrition education based on local wisdom implemented in West Lombok? And is there a significant relationship between sociodemographic factors and components of nutrition education based on local wisdom and the level of family nutrition knowledge? Through this approach, researchers can identify factors that play an important role in improving family nutrition knowledge, while providing an empirical basis for the development of nutrition education programs that are relevant to the local cultural context of the West Lombok community. Therefore, the results of the study are expected to provide a comprehensive situational overview of the effectiveness of the local wisdom-based nutrition education model in supporting the improvement of community nutrition literacy in the study area.

Participants and Sampling

The population in this study consisted of all families with productive-age members (≥18 years) residing in Rumak Village, Kediri Subdistrict, West Lombok Regency, West Nusa Tenggara Province, Indonesia. The population was selected because families are the smallest unit in society that plays an important role in determining consumption patterns and eating behaviors that affect the nutritional status of household members. The study sample consisted of 263 families selected proportionally in Rumak Village who had participated in a local wisdom-based nutrition education program. The sample size was determined with a 5% margin of error and took into account the inclusion and exclusion criteria. The research sample was taken using sample size proportion through the OpenEpi Version 3 calculator, at: https://www.openepi.com/SampleSize/SSPropor.htm. Inclusion criteria included families who had resided in the study area for at least 1 year, had participated in local wisdom-based nutrition education activities at least once in the last 6 months, and were willing to be respondents by completing the questionnaire. Exclusion criteria included families who were not present during the data collection process or refused to participate in the study.

Variables

The age (ratio scale) of respondents was measured based on personal data in years, then the mean and standard deviation (SD) were calculated. Nutritional knowledge in the study was defined as the level of family understanding of basic nutritional concepts, local nutritional food sources, the benefits of nutrients, balanced meal portions, and healthy eating habits in accordance with the local culture in West Lombok. Respondents were given a score of 1 for correct answers and 0 for incorrect answers. Subsequently, the respondents' total scores were calculated and classified according to predetermined criteria. A score was categorized as "Good" if the respondent correctly answered at least 76% of the total items, indicating a strong comprehension of balanced nutrition concepts and the ability to implement them in everyday practices. Conversely, a score was labeled "Poor" when less than 76% of the questions were answered correctly, suggesting limited nutritional knowledge and a lack of consistent application of balanced nutrition principles.

Gender (nominal scale) refers to the biological classification of respondents as male or female, which may affect their roles, responsibilities, and access to nutrition-related information within the household. Educational attainment (ordinal scale) represents the highest level of formal education completed and reflects the respondent's capacity to receive and interpret nutritional information. This variable was divided into two groups: "High," for those who had completed at least senior high school or higher (including tertiary education), and "Low," for those whose education level was junior high school or equivalent.

Employment (ordinal scale) is the respondent's main activity in earning income, which can affect purchasing power and access to nutritious food. It is grouped into two categories, namely "Permanent Employee" if they have a job with a fixed income and regular working hours, and "Temporary Employee" if they work with an uncertain income or do not have a permanent job. Income (ordinal scale) is the average monthly family income that reflects the

economic capacity to meet the family's food and nutritional needs. It is grouped based on the West Lombok regional minimum wage (RMW) into "≥RMW" if the family income is greater than the regional minimum wage and "<RMW" = family income below the regional minimum wage.

Other sources of nutritional information (nominal scale) are media or parties that provide knowledge about nutrition and healthy eating habits to families. They are grouped based on the main source from which respondents obtain nutritional information, namely "Social Media" if respondents obtain nutritional information through digital media (WhatsApp, Instagram, Facebook, YouTube, etc.) and "Health Cadres" if respondents obtain information through posyandu cadres, community health centers, or local health workers.

The frequency of participating in local nutrition education (ordinal scale) is the level of respondent involvement in nutrition counseling or training activities that use a local cultural approach. Respondents are classified as "High" if they have participated in educational activities ≥3 times in the last 6 months and "Low" if they have participated in educational activities <3 times in the last 6 months. The suitability of the material to the local culture (ordinal scale) describes the extent to which the content and delivery of nutrition education is in line with the values, customs, and traditional practices of the local community. It was grouped into two categories: "Appropriate" if the educational material reflected or was in line with cultural values, eating habits, and local traditions, and "Inappropriate" if the educational material did not fit the local cultural context.

Active family participation (ordinal scale) is the level of family involvement in nutrition education activities, whether in the form of attendance, discussion, or direct practice. It is classified as "High" if the family is actively involved in educational activities (attends regularly, interacts, and applies nutritional messages) and "Low" if the family only attends occasionally or is not active in the activities.

Family understanding of local nutrition messages (ordinal scale) is the extent to which families are able to understand, remember, and apply nutrition education messages conveyed through a local cultural approach. It is grouped into two categories, namely "High" if respondents are able to explain the content of local nutrition messages and apply them in daily practice, and "Low" if respondents are unable to explain or have not applied local nutrition messages in their daily lives.

Data Collection

Data were gathered using a structured questionnaire that had previously been tested for reliability. The instrument was composed of three main parts: respondent characteristics, including age, gender, education level, occupation, and income; components of nutrition education based on local wisdom, which covered participation frequency, relevance of materials to local culture, family involvement, and comprehension of nutrition messages; and family nutrition knowledge, assessed through a set of questions related to balanced diets, local food sources, appropriate portion sizes, and the roles of macro- and micronutrients.

Referring to Pallant (2020), a measurement tool is considered reliable when it achieves a Cronbach's Alpha value greater than 70% (22). The reliability testing of this questionnaire produced a Cronbach's Alpha score of 0.818 or 82%, indicating good internal consistency. Data collection was carried out through face-to-face interviews conducted by trained enumerators to reduce misinterpretation and enhance the accuracy of responses. Additionally, on-site observations were performed to support the validity of the socio-cultural context in applying locally based nutrition education.

Data Analysis

The data obtained were processed and analyzed using SPSS version 26. The analysis was carried out through several steps, beginning with descriptive analysis, followed by bivariate analysis using the Chi-square (χ^2) test to examine the association between respondent characteristics and components of locally based nutrition education with family nutrition knowledge. A p-value of less than 0.05 was used as the threshold for statistical significance. Furthermore, multivariate analysis was conducted using multiple logistic regression to identify the variables with the strongest influence on family nutrition knowledge. The findings were presented in terms of Adjusted Odds Ratios (AOR) along with 95% Confidence Intervals (CI).

Ethical Clearance

The study has obtained ethical approval from the Health Research and Academic Integrity Ethics Committee, Bima International University MFH with number: 201/KEPK-IA/VI/2025. The entire research process was conducted in accordance with research ethics principles. Each respondent was given informed consent, which included an explanation of the purpose, benefits, and confidentiality of the data before signing the consent form. Anonymity, meaning that the identities of respondents were not included in the questionnaire or research report. Confidentiality, meaning that all information provided by respondents was kept confidential and used only for academic purposes. Justice and beneficence, meaning that the research was conducted with respect for justice, the rights of participants, and a focus on benefits for improving public health.

RESULTS

Based on Table 1, it can be seen that of the 263 respondents, 60.5% had good nutritional knowledge. Thus, in general, the level of nutritional knowledge among families in the study area can be categorized as fairly good, but further efforts are still needed in the form of more intensive and contextual education programs to improve understanding among groups with low knowledge.

Table 1. Descriptive knowledge of family nutrition (n=263)

Nutrition Knowledge	Frequency	%
Good	159	60.5
Poor	104	39.5

The results of the study in Table 2 show a consistent pattern that nutritional knowledge levels are influenced by sociodemographic and economic factors, access to information, and involvement in education based on local wisdom. Men demonstrate a higher proportion of nutrition knowledge compared to women, indicating differences in access to and exposure to information, possibly through broader social activities and media. Better nutrition knowledge is also significantly associated with higher education levels, permanent employment status, and income above the minimum wage, confirming the role of education and economic stability in increasing individuals' capacity to access and understand nutrition information. In addition, sources of information play an important role, with social media appearing to be more effective than health cadres in improving nutritional knowledge.

On the other hand, educational process factors show that the frequency of participation in local wisdom-based nutritional education activities, the suitability of materials to the local culture, the level of active family participation, and understanding of culturally contextualized nutritional messages are all significantly related to better nutritional knowledge (Table 2). These findings confirm that a participatory, contextual, and culturally sensitive approach to nutrition education plays a key role in improving family nutrition literacy.

Table 2. Bivariate analysis of the association between nutrition education based on local wisdom and family nutrition knowledge (n=263)

Variables	Nutrition Knowledge		Total n (%)	χ^2	p-value
	Good n (%)	Poor n (%)			
Age (Mean±SD)	30.38±2.231			-0.001	0.993*
Gender					
Male	115 (72.3)	27 (26.0)	142 (54.0)	54.413	<0.001**
Female	44 (27.7)	77 (74.0)	121 (46.0)		
Highest Level of Education					
High	126 (79.2)	36 (34.6)	162 (61.6)	52.942	<0.001**
Low	33 (20.8)	68 (65.4)	101 (38.4)		
Employment					
Permanent Employees	103 (64.8)	27 (26)	130 (49.4)	37.902	<0.001**
Temporary Employees	56 (35.2)	77 (74)	133 (50.6)		

Income					
≥RMW	127 (79.9)	35 (33.7)	162 (61.6)	56.783	<0.001**
<RMW	32 (20.1)	69 (66.3)	101 (38.4)		
Other Sources of Nutrition Information					
Social Media	114 (71.7)	34 (32.7)	148 (56.3)	38.876	<0.001**
Health Cadres	45 (28.3)	70 (67.3)	115 (43.7)		
Frequency of Attending Local Nutrition Education Programs					
High	122 (76.7)	31 (29.8)	153 (58.2)	56.892	<0.001**
Low	37 (23.3)	73 (70.2)	110 (41.8)		
Relevance of Materials to Local Culture					
Appropriate	121 (76.1)	35 (33.7)	156 (59.3)	46.943	<0.001**
Inappropriate	38 (23.9)	69 (66.3)	107 (40.7)		
Active Family Participation in Activities					
High	120 (75.5)	42 (40.4)	162 (61.6)	32.722	<0.001**
Low	39 (24.5)	62 (59.6)	101 (38.4)		
Family Understanding of Local Nutrition Messages					
High	118 (74.2)	29 (27.9)	147 (55.9)	54.742	<0.001**
Low	41 (25.8)	75 (72.1)	116 (44.1)		

*Spearman's rho
**Pearson Chi-Square

Table 3. Results of logistic regression analysis of the association between local wisdom-based nutrition education and family nutrition knowledge (n=263)

Variable	AOR	95% CI	p-value
Gender (ref: Female) Male	3.05	1.41–6.56	0.004
Highest Level of Education (ref: Low) High	2.66	1.24–5.70	0.012
Employment (ref: Temporary Employees) Permanent Employees	3.43	1.56–7.53	0.002
Income (ref: <RMW) ≥RMW	3.48	1.61–7.55	0.002
Other Sources of Nutrition Information (ref: Health Cadres) Social Media	2.58	1.17–5.70	0.019
Frequency of Attending Local Nutrition Education Programs (ref: Low) High	2.35	1.08–5.11	0.031
Relevance of Materials to Local Culture (ref: Inappropriate) Appropriate	3.56	1.66–7.66	0.001
Active Family Participation in Activities (ref: Low) High	2.46	1.10–5.50	0.029
Family Understanding of Local Nutrition Messages (ref: Low) High	3.75	1.76–8.02	0.001

AOR: Adjusted Odds Ratio; 95% CI: 95% Confidence Interval

The results of multivariate analysis in Table 3 show that there are nine variables that are significantly related to the level of family nutrition knowledge ($p<0.05$). The AOR value shows the likelihood of a family having good nutrition knowledge based on each factor. There is a significant association between gender and family nutrition knowledge (AOR = 3.05; 95% CI: 1.41–6.56; p = 0.004). This indicates that differences in roles or access to information based on gender are strongly associated with the level of nutrition knowledge, with one group (generally men) having better knowledge. Male respondents are 3.05 times more likely to have good nutritional knowledge than females. This may be because men more often access information through social media and broader social activities.

Educational level is significantly associated with nutritional knowledge (AOR=2.66; 95% CI: 1.24–5.70; p=0.012). The higher a person's education, the better their ability to understand nutritional information and apply it in their daily lives. Respondents with a high level of education are 2.66 times more likely to have good nutritional knowledge than those with a low level of education. Education plays a role in improving the ability to understand nutritional information and apply it in daily life.

Employment status was also significantly associated (AOR=3.43; 95% CI: 1.56–7.53; p=0.002). Permanent workers tended to have better nutrition knowledge than non-permanent workers, possibly due to greater economic stability and access to health information. Permanent workers are 3.43 times more likely to have good nutritional knowledge than non-permanent workers. Permanent employment tends to provide greater economic stability and access to health information.

Family income shows a significant association with nutritional knowledge (AOR=3.48; 95% CI: 1.61–7.55; p=0.002). Families with incomes above the RMW are better able to obtain nutritious food and participate in nutritional education activities, resulting in better knowledge. Families with incomes above RMW are 3.48 times more likely to have good nutritional knowledge. Income is related because families are able to obtain nutritious food and participate in educational activities.

Information sources have a significant association with nutritional knowledge (AOR=2.58; 95% CI: 1.17–5.70; p=0.019). Families who obtain information from social media or digital sources demonstrate better nutritional knowledge than those who rely on traditional sources such as health cadres. Families who obtain nutritional information from social media are 2.58 times more likely to have good nutritional knowledge than those who rely on traditional sources such as health cadres. This demonstrates the effectiveness of digital media in nutrition education.

The frequency of participating in local nutrition education has a significant association with nutrition knowledge (AOR=2.35; 95% CI: 1.08–5.11; p=0.031). The more often families participate in educational activities, the higher their level of knowledge. Families who frequently participate in local nutrition education activities are 2.35 times more likely to have good nutrition knowledge. Repeated participation reinforces understanding of nutrition concepts conveyed through a cultural approach.

There is a significant association between the suitability of educational materials and local culture and nutritional knowledge (AOR=3.56; 95% CI: 1.66–7.66; p=0.001). Families who feel that educational materials are relevant to local values and traditions find it easier to understand and internalize nutritional messages. Families who assess educational materials as being appropriate to local culture are 3.56 times more likely to have good nutritional knowledge. Cultural relevance increases the acceptance and understanding of the nutritional messages conveyed.

Active family participation in nutrition education activities was also significantly associated (AOR=2.46; 95% CI: 1.10–5.50; p=0.029). Direct involvement in activities strengthened understanding and application of nutrition messages in daily life. Families who actively participate in educational activities are 2.46 times more likely to have good nutrition knowledge. Active involvement allows for more effective direct interaction and contextual learning.

The variable of family understanding of local nutrition messages has a very strong association with nutrition knowledge (AOR=3.75; 95% CI: 1.76–8.02; p=0.001). Families who understand nutrition messages delivered through a local cultural approach have a much better level of knowledge. This factor is the most dominant predictor in the model. Families with a high understanding of local nutrition messages are 3.75 times more likely to have good nutrition knowledge. This confirms that the integration of local cultural values is very effective in strengthening family nutrition literacy.

DISCUSSION

The results of the study show that there is a significant association between gender (p=0.004) and the level of family nutrition knowledge in West Lombok. The study findings indicate that gender differences are related to access to and understanding of nutritional information, which in the context of the local Sasak culture in West Lombok is reflected in the distinctive division of social roles. Men are more often involved in social and community activities such as traditional meetings, religious activities, and village deliberations, which are strategic channels for delivering nutrition education based on local culture, while women play a central role in household food management, from

ingredient selection and processing to food distribution within the family, making them key actors in the implementation of daily nutritional practices.

The study conducted is in line with the results of a study by Alotaibi et al. (2023), which reported that gender differences can affect perceptions and responses to nutrition education interventions (23). In societies with strong culture-based social roles, men often have greater access to information due to their involvement in public activities. However, women remain the primary decision-makers in family consumption patterns, so nutrition education must target both groups equally. Therefore, the implication is that the design and implementation of nutrition education cannot be partial or focused on only one gender group, but must be designed to be inclusive and balanced.

The results of this study also show a significant association between the highest level of education (p=0.012) and family nutrition knowledge. Respondents with higher education levels tend to have better nutrition knowledge. This is logical because education improves cognitive abilities, health literacy, and the ability to understand nutrition messages conveyed in various forms, whether through social media or community-based activities. The study's findings are supported by a study by Scalvedi et al. (2021) in Rome, which found that education has a positive correlation with nutrition knowledge and practices (24). Highly educated individuals are more likely to understand the concept of a balanced diet and are more critical of invalid information. Education also strengthens families' ability to make rational decisions regarding food choices and daily consumption patterns (25).

The employment factor (p=0.002) was also shown to have a significant relationship with nutritional knowledge. Households with secure and stable jobs demonstrated higher levels of nutritional understanding compared to those with irregular or unstable employment. Stable work conditions are generally linked to better financial security and broader access to sources of nutritional information, either through the workplace or wider social interactions. These findings align with the study by Lu et al. (2021), which reported that employment status is closely associated with family well-being and opportunities to engage in nutrition education programs (26). Individuals with permanent jobs tend to have more time and resources to consider food quality, whereas informal or freelance workers are more likely to prioritize fulfilling basic daily needs.

In a similar pattern, the study also identified a significant association between family income (p=0.002) and nutritional knowledge. Families whose income exceeded the regional minimum wage generally exhibited better nutritional awareness, as they possess greater financial capacity to purchase healthy foods, take part in educational activities, and access health-related information from various media sources. These results are consistent with the findings of Mohebbi et al. (2021) in Iran, which emphasized income as a key factor influencing family dietary behavior (27). Households with higher income levels not only have stronger purchasing power for nutritious food, but are also more frequently exposed to nutritional information through digital platforms and health services (28).

Besides sociodemographic characteristics, the study also identified a significant relationship between sources of nutrition information (p=0.019) and family nutritional knowledge. Households that accessed information through social media demonstrated higher levels of nutritional understanding compared to those who mainly depended on health cadres. This finding illustrates the shift in health communication trends in the digital era. The results are consistent with the study by Ong et al. (2021), which highlighted social media as an effective channel for distributing nutrition-related information within communities (29). Nutrition messages presented in visual formats and delivered using local language tend to attract greater attention and facilitate faster comprehension, particularly among individuals in the productive age group (30).

The frequency of participation in local nutrition education (p=0.031) was also found to be significantly associated with nutritional knowledge. Families who were more actively involved in nutrition education activities generally possessed better levels of knowledge. This suggests that repeated and continuous engagement in educational programs plays a crucial role in enhancing community nutrition literacy. These findings are supported by the research of Teweldemedhin et al. (2021) in Asmara, Eritrea, which reported that regular nutrition counseling positively influences family knowledge and dietary practices (31). Ongoing educational exposure enables families to better absorb and apply the nutritional information provided.

The most prominent finding of this research was the very strong relationship between the relevance of educational materials to local culture (p = 0.001) and the level of family nutrition knowledge. Households that perceived the learning materials as aligned with local wisdom tended to better comprehend and more readily accept the nutrition messages delivered. This result highlights the critical role of cultural relevance in the effectiveness of

nutrition education initiatives. The findings are consistent with the study by Jardí et al. (2021), which reported that culturally based interventions are more successful than standard approaches because individuals feel acknowledged and emotionally connected to familiar values (32). In the setting of West Lombok, incorporating traditional foods such as eggplant beberuk, moringa leaves, or pindang fish makes the educational content more meaningful, relatable, and easier for the community to adopt.

In addition, active family participation in educational activities (p=0.029) was significantly associated with nutritional knowledge. Families who were directly involved in activities such as group discussions, local healthy cooking competitions, or nutrition training showed a significant increase in knowledge. These findings were reinforced by research by Moitra et al. (2021), which explained that active participation strengthens knowledge transfer and builds a sense of ownership of the program (33). By directly involving families, nutrition messages become more meaningful and easier to apply in everyday life (26).

The variable of family understanding of local nutrition messages (p=0.001) was one of the factors most closely related to nutrition knowledge. Families who understood the meaning and purpose of nutrition messages conveyed through the local cultural context were quicker to adopt healthy eating behaviors in their daily lives. These results are consistent with the findings of Kuhnlein and Chotiboriboon (2022), which confirm that context-based understanding increases the effectiveness of health education (34). Nutrition messages linked to traditional values, such as mutual cooperation, simplicity, and respect for nature, are more readily accepted by rural communities.

When viewed as a whole, all variables in the study have a significant relationship with nutritional knowledge, indicating that a local wisdom-based education model is effective in improving family nutritional literacy. This approach emphasizes the importance of adapting educational methods to the socio-cultural characteristics of the local community. This culture-based approach is in line with the Health Belief Model theory, which states that changes in health behavior are related to individuals' perceptions of the benefits and relevance of messages to their lives (35). When nutrition messages are linked to local culture, individuals feel more connected and motivated to behave healthily. In West Lombok Regency, particularly in Rumak Village, Kediri District, there are various traditional practices related to food selection, such as Ares (food made from young banana stems), Pelecing (a dish made from local water spinach), Urap-urap (vegetable salad), family eating patterns (Begibung = eating together), as well as the meaning of food in the life cycle that has been passed down from generation to generation and reflects the Sasak people's views on nutrition and health.

The study also confirmed that nutrition education requires not only scientific material, but also consideration of social, economic, and cultural aspects. Integrating nutrition content with local values increases the effectiveness of communication and the sustainability of programs. Comparable findings were also reported by Chukwu and Dogbe (2022) in Enugu State, Igboland, showing that nutrition interventions grounded in traditional culture were more effective in accelerating improvements in knowledge and healthy dietary behaviors than conventional top-down educational models (36). A participatory strategy encourages communities to become more engaged and innovative in applying nutrition-related messages.

These findings carry important practical implications for local authorities and health professionals, particularly in highlighting the need to reinforce community-driven and culturally oriented nutrition education initiatives. Partnerships involving nutrition experts, health personnel, traditional figures, and social media platforms can serve as a powerful approach to broaden the reach and effectiveness of educational efforts. Moreover, the results suggest the necessity of capacity-building programs for health workers so they can communicate nutrition information through culturally sensitive methods. The incorporation of local languages, traditional food examples, and cultural symbols is likely to enhance public awareness and understanding of the value of balanced nutrition.

Overall, the study confirms that nutrition education based on local wisdom is not only relevant but also highly effective in improving families' nutritional knowledge. The suitability of the material to the local culture, active family participation, and understanding of nutritional messages are key factors for success. Thus, this approach needs to be expanded to other regions, adapting to each cultural context in order to achieve sustainable community nutritional security.

Study Limitations

The study has several limitations that need to be considered when interpreting the results. First, the cross-sectional design can only describe the relationship between variables at a specific point in time, so it cannot confirm the causal relationship between nutrition education based on local wisdom (Sasak culture) and increased family nutrition knowledge, nor does it allow for longitudinal analysis of changes in nutrition knowledge or behavior. Second, the diversity of interpretations and practices of Sasak culture between regions and communities has the potential to cause cultural variability that is not fully captured in the research instruments, thereby limiting the generalization of the findings. In addition, data collection through self-administered questionnaires risks subjective bias and social desirability bias, where respondents tend to give answers that are considered socially or culturally appropriate. The implication of these limitations is the need for caution in interpreting the strength of the associations found, as well as the need for further research with longitudinal designs, qualitative approaches, or data triangulation to strengthen the validity and depth of understanding of the influence of nutrition education based on local culture.

Recommendations for Future Studies

Future research is encouraged to apply longitudinal or quasi-experimental approaches with more detailed descriptions of how cultural components are integrated, including the use of local languages, traditional symbols, the involvement of community leaders, and customary food practices within nutrition education materials and media. This would allow changes in families' nutritional knowledge, attitudes, and behaviors to be assessed in a more comprehensive and sustainable manner. To maintain the consistency of interventions across different social settings and regions, it is important to establish a flexible standard framework in the form of core guidelines for culture-based nutrition education that can be adapted to local contexts without compromising the fundamental principles of the program. Furthermore, widening the geographical coverage of future studies is essential to capture cultural diversity across regions and to evaluate the effectiveness of local wisdom–oriented approaches in various social environments.

Future studies are also recommended to develop technology-integrated nutrition intervention models that involve various parties, such as health cadres, traditional leaders, educational institutions, and local digital media. This cross-sectoral involvement is important to strengthen program continuity and increase the long-term impact on family consumption behavior. In addition, it is necessary to develop locally-based nutritional knowledge and understanding measurement tools that are more sensitive to cultural contexts so that research results are more accurate and representative. Thus, future findings are expected to form the basis for the development of national nutrition education policies and programs that are adaptive to local wisdom and community needs.

CONCLUSION

The study results confirm that sociodemographic factors (gender, education, occupation, income) and components of nutrition education based on local wisdom (sources of information, frequency, relevance of material, participation, and understanding) all play an important role in determining the level of family nutrition knowledge in West Lombok. These findings indicate that nutrition education tailored to local culture and involving active family participation is an effective strategy for sustainably improving community nutrition knowledge.

AUTHOR CONTRIBUTION STATEMENT

WDS, MN, and MH: Conception and designing of work, data acquisition and analysis, along with manuscript writing, and revision. WDS and MH: Conception of work, data analysis, and data acquisition. All authors critically reviewed the manuscript and gave final approval of the manuscript.

CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

Using Grammarly for Punctuation and Grammar Correction in manuscript.

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