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Integrating Local Culture into Parental Nutrition Education: Evidence from an Ethnoparenting Based Intervention in West Java

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Abstract

The consumption of unhealthy snacks among young children is increasing, while parents' knowledge of children's nutritional needs remains limited. This study aimed to evaluate the impact of ethnoparenting-based training on improving parents' knowledge of early childhood nutrition in Karangsari Village, West Java. The focus of the training was to develop an innovative nutritious snack, Manca, made from local ingredients, namely Manyung fish bone meal and Leunca vegetables, both rich in calcium and phosphorus. This research employed a pre-experimental design with pre-test and post-test procedures. The sample consisted of 30 parents of children aged 2 to 6 years, selected through purposive sampling. Data were analyzed using the Shapiro-Wilk test, Levene test, and paired t-test. The results indicated a significant improvement in parents' knowledge, with the mean post-test score increasing by 37 points from 48 to 85. The findings align with Bandura's Social Learning Theory and Bronfenbrenner's Ecological Systems Theory, emphasizing the role of parental modeling and cultural context in shaping nutritional practices. The ethnoparenting-based training proved effective in enhancing parents' awareness of balanced nutrition for young children. This study highlights the importance of culturally grounded approaches in health and education programs for parents. The findings imply the need to integrate ethnoparenting-based training into early childhood care and education (ECCE) policies globally, particularly in multicultural contexts where parental knowledge of nutrition varies widely. By promoting culturally sensitive nutrition behaviors among parents, this study contributes to the global discourse on improving child health outcomes amid rising cases of undernutrition and overnutrition. Furthermore, incorporating local practices into educational interventions may serve as a model for sustainable and culturally responsive public health initiatives worldwide.

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Introduction

The golden age is a critical period when early childhood experiences rapid physical, emotional, and cognitive development, thus requiring special attention to nutritional intake (Schwarzenberg et al., 2018). Inadequate nutrition during this stage has long-term impacts on children's cognitive, social, and emotional development, and even their learning capacity in adulthood (Georgieff, 2023). In line with this, the Ministry of Health of the Republic Indonesia which states that appropriate nutritional intake can play some important role in supporting growth also prevent future health problems in children (Kang et al., 2018). Data shows that 96% of children prefer ready-to-eat food and 81.48% favor sweets (Khoe et al., 2022; Kurniawaty, 2022). Several diseases that may result from consuming foods that are low in nutrients and high in sugar are metabolic disorders, obesity and other health problems (Hasibuan et al., 2019; Kurniawaty, 2022). In Indonesia, 30% of children under five years old experience stunting, indicating chronic malnutrition that causes long-term developmental problems (Anggraini & Romadona, 2020; Sari et al., 2023). Then, the prevalence of malnutrition and micronutrient deficiencies is also very high (De Silva & Sumarto, 2018; Nofitasari et al., 2022). The increase in

obesity rates has created a double burden of malnutrition that occurs simultaneously and complicates the health conditions of Indonesian children (Riyadi et al., 2019).

One key factor underlying this situation is limited nutritional knowledge and awareness among parents (Amirah & Rifqi, 2019). Parents play a central role in selecting and providing healthy food, and they serve as role models for their children (Adriany & Tesar, 2023; Hasibuan et al., 2019). However, research indicate that many parents lack sufficient understanding of balanced nutrition also its developmental impact (Schneider et al., 2018). Strengthening parental knowledge on childhood nutrition is essential in reducing health problems and malnutrition, enabling families to make informed choices that promote healthier eating habits (Fathonah et al., 2019; Rahayu et al., 2019). Previous research illustrates that educational interventions and involving parents can improve nutritional practices and good nutritional knowledge (Najahah et al., 2021). Apart from that, parents' behavior regarding nutritional and food needs directly influences children's eating behavior because children always imitate their parents' food choices (Adriany & Tesar, 2023; Liu et al., 2018). Several studies illustrate that parents who have good knowledge of their children's nutritional needs are more likely to provide healthy foods and limit unhealthy snacks because this can prevent obesity and promote health (Kurniawaty, 2022; Sukmawati et al., 2023).

Beyond individual knowledge, parenting practices are deeply influenced by cultural beliefs and values. Ethnoparenting, defined as parenting shaped by traditions and cultural contexts, plays a crucial role in how families provide nutrition and care (Fitroningtyas, 2021; Yulindrasari & Djoehaeni, 2019). Guided by the Developmental Niche Theory, which highlights three core subsystems that shape a child's development: (1) physical and social settings, (2) customs of childcare, and (3) psychology of caregivers (Harkness & Super, 1994). These are all embedded in cultural systems. The Developmental Niche Theory is therefore the basis for this study, guiding the observation of how parenting practices are influenced by proximal environmental factors and broader cultural values. This model emphasizes that the development of children is not only affected by biology, for it also depends on the values and practices their care givers follow in a given cultural context. The theory highlights the significant impact of cultural context on nutrition practices parents engage in, which is especially relevant to understanding how ethnoparenting-based training (training that incorporates local cultural practices) may lead to improved nutritional knowledge and behaviors (Harkness & Super, 1994).

Research shows that parenting patterns in vary across ethnic groups in Indonesia, influencing the way parents meet nutritional needs (Satrianingrum & Setyawati, 2021). A culture-based approach can increase parents' awareness and knowledge of children's nutritional needs, thereby making this training more acceptable and relevant in their specific context (Fitroningtyas, 2021; Rahayu et al., 2019). This approach can also facilitate great involvement from parents because it respects existing cultural backgrounds and promotes good and healthy nutritional practices (Adriany & Tesar, 2023; Yulindrasari & Djoehaeni, 2019). Through a localized infusion of cultural values and feeding practices, the ethnoparenting-grounded training model that we propose will have the potential to enhance parent nutrition behaviors, adding to an understanding of globally valuable culturally sensitive interventions.

Apart from the cultural significance, this study is theoretically based on social learning theory (Bandura, 1977) which emphasizes modeling behavior as well as the role of observation in learning. From Bandura perspective, children take their parents as role models and learn by watching the parent's actions, attitudes and emotional reactions. The proposed study will examine how ethnoparenting-based interventions that rely on parental modeling impact children's eating behaviors. Integration of these 2 theories, Developmental Niche Theory and Social Learning Theory may offer a stronger model for exploring the collective impact of cultural practices and parental modeling on child nutrition and health outcomes.

Karangsari Village in West Java, it has socio-economic and demographic conditions that provide unique opportunities and challenges in increasing parents' knowledge of early childhood nutrition. Villages that have diverse populations and levels of education with varying

economic resources influence families' access to nutritious food and nutritional needs (Adriany & Tesar, 2023; Love, 2021). Specific problems regarding diet and knowledge of children's nutritional needs among parents in this community are dependence on cheap and less nutritious processed products and limited fresh products (Anggraini & Romadona, 2020; Fathonah et al., 2019). At the same time, traditional snack products such as *Manca Snack* represent both a cultural opportunity and a dietary risk. Leveraging such local practices in nutrition education provides an entry point for interventions that respect community values while improving health behaviors (Emiroğlu et al., 2022).

While prior studies have explored nutrition education, few have investigated the effectiveness of culturally tailored training grounded in ethnoparenting for parents of young children in Indonesia (Ashar et al., 2021). This study addresses that gap by evaluating an ethnoparenting-based nutrition training program in Karangsari Village. The aim to examine whether this approach can enhance parents' knowledge regarding the nutritional needs of early childhood in making healthy food choices for children (Adriany & Tesar, 2023; Rahayu et al., 2019). It is hoped that the benefits of this research will not only be for individual families, but this knowledge from parents can ultimately provide encouragement for healthier future generations (Adriany & Tesar, 2023; Love, 2021). The findings are expected to contribute to both local community welfare and broader strategies for improving early childhood nutrition and health. Additionally, the significance of this study extends beyond rural, it provides a model for food-based health promotion incorporating culturally relevant nutrition education within diverse global communities and supports sustainable culturally appropriate public health approaches internationally.

Methods

Research Design

This research method employed a pre-experimental one-group pretest–posttest design, which was selected to evaluate the effectiveness of ethnoparenting-based training in improving parents' knowledge of early childhood nutrition. This design is appropriate for measuring changes that occur before and after an intervention within the same group, allowing the researcher to identify the direct impact of the training on participants' knowledge. It was chosen due to practical considerations such as limited resources, time constraints, and the community-based nature of the study, which made the inclusion of a control group less feasible. Therefore, this design effectively captures short-term outcomes of an educational intervention, particularly in community settings where culturally grounded participation and immediate behavioral assessment are prioritized.

Research's Subject

The subjects in this study were 30 parents who had children aged 2-6 years. This subject selection used purposive sampling techniques to ensure that existing participants meet the established criteria. The inclusion criteria were parents with children aged 2-6 years, living in Karangsari Village, and willing to participate in the training program. The exclusion criteria included parents who were not residing in Karangsari Village or parents whose children had severe medical conditions that required specialized nutrition. Previous research has shown that the knowledge that parents have regarding children's nutritional needs has a great influence on children's eating patterns and parents who have better knowledge tend to provide healthier food to children (Gibson et al., 2020).

Intervention

This intervention used ethnoparenting-based training with the purpose of improving parents' knowledge with the negative impacts excessive snacks and the importance of a balanced diet. To facilitate understanding of the training, local cultural values are used (Dallacker et al., 2018). This training was carried out at a gathering place (cottage) for residents of Karangsari village which is often used when residents carry out the *ered net* tradition in March 2024. The

ered tradition is one of the traditions of the Pangandaran people, especially Karangsari Village, in catching fish using nets that fishermen spread out to the middle of the sea and then pull them out with mutual cooperation, so that they can be spread at one time so that sometimes they get 2 quintals of fish (Prayitno et al., 2023).

The Intervention consisted of two 2-hour sessions, combining theoretical and practical activities. Below is the detailed description of the intervention components:

Table 1. Ethnoparenting-Based Training Intervention Components

Component	Description
Poster Guide	The poster was validated by three experts: one nutrition experts and two early childhood education specialist. It contained practical guidance on: 1. Basic nutrition, 2. Children's nutritional problems, 3. The impact of unhealthy snacks.
Content Validation Procedure	The poster was validated by three experts in the fields of nutrition and early childhood education. The experts evaluated the poster based on relevance, clarity, and cultural appropriateness. 1. Relevance: How well the content addressed the nutritional needs of the target group. 2. Clarity: How easy the information was for parents to understand. 3. Cultural Appropriateness: How well the content reflected local cultural practices and values.
Validation Results	The content validation results were analyzed using Aiken's V to measure the level of agreement among validators. The results showed a high level of agreement with an Aiken's V coefficient of 0.90, indicating that the poster was highly relevant, clear, and culturally appropriate for the target audience.
Trainer Preparation	Facilitators underwent a one-day briefing on the training materials and participatory teaching methods to ensure consistent delivery.
Practical Session	Parents participated in making healthy snacks, Manyung Fishbone and Leunca "Manca Snack" from the two main raw materials: Manyung fish bone meal and Leunca vegetables.
Questionnaire	Parents' knowledge regarding nutritional needs and healthy snacks was measured using a questionnaire with a 20 items. The questionnaire included items on 1. Balanced diet principles 2. Identification of unhealthy snacks 3. The role of culture in feeding practices, rated using a 5 points Likert scale. The questionnaire was adapted from previous studies on parental nutrition knowledge (Fathonah et al., 2019; Rahayu et al., 2019). Example items include: 1. "How often should children consume fruits and vegetables daily?" 2. "Which of the following is an example of an unhealthy snack?" Reliability was tested using Cronbach's Alpha, resulting in a value of 0.85, indicating good internal consistency. Content validity was tested by experts, and construct validity was assessed through factor analysis to ensure the scale measured the intended constructs of nutrition knowledge and behavior.

The research protocol was verified and ratified by Research Ethical Committee, Fakultas Ilmu Pendidikan, Universitas Pendidikan Indonesia, with number reference B-713/UN40.A1.1/TD.03/2024. All participants gave written informed consent before participation. Informed consent was obtained by providing subject's with a simple, clear explanation of what they were being asked to do and any risks that might be involved. Consent

was written, and participants were told they could discontinue participation at any time with no penalties.

Confidentiality of data was observed in all aspects of the study. All information that was gathered from the individual participants were bly dated in the password-locked file and coded to maintain anonymity. Data were only available to staff who had permission, and all identifying information was deleted prior to analysis in order that confidentiality could be withheld. This research went through organized steps shown in Figure 1. Figure 1 illustrates workflow of this study.

The sample of 30 subjects was determined according to rule of thumb (Cohen, 1992), with at least 30 subjects for pretest-posttest designs achieving the required statistical power. The sample size was determined to be able to detect clinically relevant changes in outcome variables (eg, increase in parental knowledge of nutrition). Bigger sample sizes would offer more generalizable outcomes, but were restricted by logistics and resources.

The research process followed a structured sequence as illustrated in Figure 1. It began with identifying key issues related to early childhood nutrition, particularly the low level of parental awareness regarding balanced diets and the negative effects of unhealthy snacks. A comprehensive literature review was then conducted to establish the theoretical and empirical foundation for the intervention, focusing on studies concerning parental nutrition knowledge, ethnoparenting, and culturally adapted educational programs. Based on this review, training modules were developed and tailored to local cultural values to ensure that the intervention would be both relevant and effective within the specific sociocultural context of Karangsari Village. After the training materials were developed, reliability and validity tests were carried out on the research instruments (questionnaires) to ensure their accuracy in measuring parents' knowledge and behaviors related to child nutrition.

Subsequently, the intervention was implemented in Karangsari Village through a series of training sessions for parents, aimed at improving their understanding of child nutrition and introducing healthier snack alternatives. Data were collected through pretest and posttest questionnaires that assessed participants' knowledge before and after the intervention, focusing on the principles of a balanced diet, identification of unhealthy snacks, and the cultural aspects of feeding practices. The collected data were then statistically analyzed to evaluate the effectiveness of the intervention in enhancing parental knowledge and modifying behaviors regarding children's dietary habits. The results of this analysis provided a strong foundation for interpreting how the ethnoparenting-based training successfully strengthened parents' awareness and practices in providing nutritious food for their children.

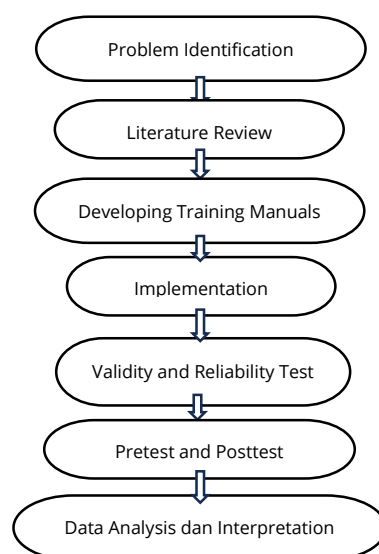


Figure 1. Research Flow

The process began with identification of problems and literature review to establish empirical basis and the theoretical. Next, training manuals were developed and adapted to local cultural values. The intervention was then implemented in Karangsari Village, followed by reliability and validity testing of the instruments. Data were collected through pretest and posttest questionnaires, and finally, the results were analyzed and interpreted statistically to evaluate the effectiveness of the intervention.

Data Analysis Techniques

To assess the impact of the ethnoparenting-based training on improving parents' knowledge of early childhood nutritional needs in Karangsari Village, a pre-experimental research design was employed using a pretest–posttest approach. The analysis process began with testing the normality of the data using the Shapiro–Wilk test, which is particularly appropriate for small sample sizes. This test was conducted to determine whether the data were normally distributed. Next, the homogeneity of variance between the pretest and posttest groups was examined using Levene's test. A significance value (sig.) greater than 0.05 indicated that the variances were homogeneous, meaning that both groups shared similar variance characteristics and met the assumption of equal variance required for parametric testing.

After these preliminary tests, a paired-samples t-test was conducted to compare the mean scores of parents' knowledge before and after the training intervention. This test determined whether there was a statistically significant improvement in parental knowledge as a result of the ethnoparenting-based training. Additionally, the effect size was calculated using Cohen's *d* to measure the magnitude of change between pretest and posttest scores. According to Cohen's criteria, a *d* value of 0.2 indicates a small effect, 0.5 a medium effect, and 0.8 a large effect. All statistical analyses were carried out using SPSS version 16.0 for Windows, with the significance level (α) set at 0.05. Therefore, results with $p < 0.05$ were considered statistically significant, confirming meaningful improvements in parents' knowledge following the training intervention.

Several limitations are inherent in this research design. First, the absence of a control group means that there is no comparison with a group that did not receive the intervention, making it difficult to rule out other factors that could have contributed to the observed changes. Second, the evaluation was short-term, focusing only on the immediate effects of the intervention and not on long-term outcomes. Lastly, the study relied on self-reported data, which may be subject to bias as parents may overstate their knowledge or behaviors. Despite these limitations, this design is appropriate given the context of the study, as it allows for an assessment of the effectiveness of the ethnoparenting-based training within the constraints of the community setting.

Result

The Implementation Process

The intervention was implemented in Karangsari Village using an ethnoparenting-based training approach aimed at improving parents' knowledge about the negative effects of excessive snack consumption and the importance of maintaining a balanced diet. The training took place in a community gathering place (cottage) that residents commonly use during the *ered net* tradition.



Figure 2. Manca Snack and Ethno parenting-based Training Session

As shown in Figure 2, the Manca Snack and ethnoparenting-based training sessions for parents in Karangsari Village were conducted over two sessions of two hours each. The sessions included both theoretical discussions guided by posters and hands-on practical activities. During the practical session, parents participated in preparing healthy snacks known as Manca Snack, made from Manyung fish bone meal and *Leunca* vegetables, which served as the two main ingredients.

The program was also supported by university students as part of their *Tri Dharma Perguruan Tinggi* responsibilities, encompassing education, community service, and research. Students play a vital role as creative and intellectual agents within society, functioning as agents of change, instruments of social control, and the nation's future generation (Mizutani et al., 2019; Syardiansah, 2019; Yudhistira et al., 2021). Despite the success of the training, several challenges were encountered, including limited resources and low participation from some parents (DiGirolamo et al., 2020).

Nevertheless, the intervention effectively increased parental awareness of healthy nutrition. Incorporating local traditions such as the *ered net* enhanced cultural relevance, making the sessions more relatable and engaging for participants. However, the resource limitations and low participation highlight the need for stronger community involvement and more collaborative strategies. Actively engaging community leaders and local opinion figures could foster a more supportive environment, ensuring greater sustainability and effectiveness of similar interventions in the future.

The Intervention Output

After the intervention was done, the instrument used was a questionnaire that had been tested for validity in the community. To better understand the context and participants of the intervention, the following Table 2 presents the demographic characteristics of the parents involved in the study from Karangsari Village. This information provides insight into parental roles, age distribution, educational background, and occupational status, which are relevant in assessing their baseline knowledge and responsiveness to the nutrition-focused training program.

Table 2. Characteristics of Participants (n = 30)

Respondent Characteristics	F	%
Parental Role		
Father	9	30.0
Mother	21	70.0
Age		
26–35 years	13	43.3
36–45 years	12	40.0
46–55 years	5	16.7
Education		
Elementary School/Equivalent	8	26.7
Junior High School/Equivalent	7	23.3

Respondent Characteristics	F	%
High School/Equivalent	11	36.7
D3/Bachelor's Degree	4	13.3
Occupation		
Laborer	5	16.7
Teacher/Honorary	3	10.0
Housewife	10	33.3
Self-Employed	2	6.7
Fisherman	7	23.3
Civil Servant	1	3.3
Employee/BUMN	2	6.7
Total	30	100.0

As shown in Table 2, the majority of respondents were mothers (70%, $n = 21$), most of whom were between 26 and 35 years old (43.3%, $n = 13$). The largest educational group held a high school diploma or its equivalent (36.7%, $n = 11$), and the most common occupation was housewife (33.3%, $n = 10$). These characteristics suggest that the intervention was particularly well-suited for mothers with a secondary education background, who tend to have greater engagement in household food decisions and may be more receptive to educational programs emphasizing nutrition and healthy family practices.

Prior to hypothesis testing, the dataset was examined for normality and homogeneity to ensure that the statistical assumptions were met. Using the Shapiro–Wilk test in SPSS version 16.0 for Windows, the results indicated that both the pretest ($p = 0.530$) and posttest ($p = 0.364$) values exceeded 0.05, confirming that the data were normally distributed. The homogeneity of variance was then tested using Levene's test, which assesses the equality of variances between groups. The results showed p -values of 0.367 for the pretest and 0.101 for the posttest, both above the 0.05 threshold, indicating that the assumption of homogeneity was satisfied. With the data confirmed as both normal and homogeneous, a paired-samples t -test was conducted using SPSS 16.0 to determine whether there was a statistically significant difference in parental nutrition knowledge before and after the ethnoparenting-based intervention. This analytical process ensured the rigor and reliability of the statistical conclusions drawn from the study.

The hypotheses in this research are as follows:

- a) Null Hypothesis ($H_0: \mu_1 = \mu_2$), there is no difference in increasing parents' knowledge about nutrition and healthy snacks before and after training.
- b) Hypothesis One ($H_1: \mu_1 \neq \mu_2$), there is a difference in increasing parents' knowledge about nutrition and healthy snacks before and after training.

Table 3. Pretest and Posttest Results (t-test)

Test Type	Mean	t-count	t-table	p-value
Pretest	48	9.670	2.04841	0.000
Posttest	85			

Based on Table 3, the mean pretest score was 48, while the mean posttest score was 85, indicating an increase of 37 points. The t -count value (9.670) was greater than the t -table value (2.04841) at the 5% significance level, and the p -value was less than 0.05. These results indicate a statistically significant improvement in parents' knowledge of nutrition and healthy snacks following the intervention.

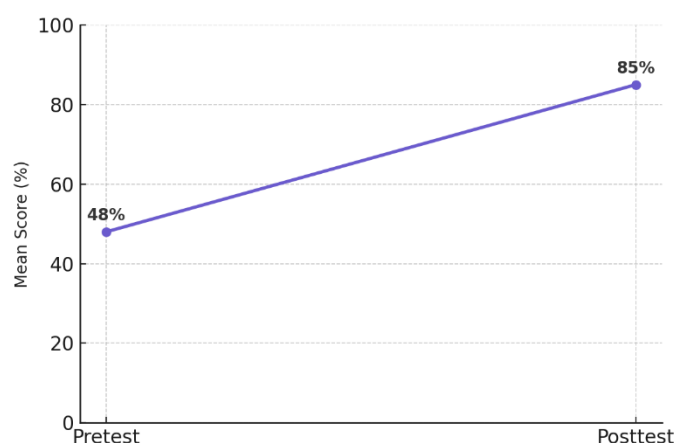


Figure 3. Pretest and Posttest Mean Scores Parents' Knowledge (n = 30)

Figure 3 illustrates the comparison of pretest and posttest mean scores of parents' knowledge about nutrition and healthy snacks. The bar chart shows a clear increase in parental knowledge after the ethnoparenting-based training (Pretest = 48%, Posttest = 85%). The 37-point improvement from pretest to posttest reflects not only statistical significance but also a meaningful enhancement in understanding. This substantial gain suggests that the ethnoparenting-based training, which integrated theoretical instruction with hands-on practice, effectively strengthened parents' comprehension and awareness of healthy nutrition practices.

These results align with the Social Learning Theory, which emphasizes the role of modeling and reinforcement in learning behaviors. The intervention provided parents with a model for making healthier snack choices and reinforced this behavior through practical engagement, leading to better nutrition knowledge. Additionally, the Ecological Systems Theory supports the idea that local cultural practices, like the *ered net* tradition, can shape parental behaviors and responses to interventions, making the training more effective by aligning with cultural values. In conclusion, the intervention was effective in improving parents' knowledge about nutrition and healthy snacks. The combination of theoretical education and practical experience helped reinforce learning. However, cultural relevance, such as integrating local traditions, played a key role in the success of the intervention. The limited resources and low participation rates highlight the need for stronger community engagement and more participatory strategies to ensure that future interventions can be sustained and have a long-lasting impact.

Discussion

The results of this study indicate the significant role of the mothers as primary caregivers in shaping children's nutritional practices. Most respondents (70%) were mothers who played a direct role in providing daily food for their children. This finding supports the notion that mothers, traditionally responsible for family food preparation, are central figures in determining children's eating habits (Yusrawati, Hasibuan., Ardiana, Batubara., Suryani, Suryani, 2019). In the context of Social Learning Theory (Bandura, 1977), mothers serve as models of healthy eating behavior for their children. Interventions that are culturally tailored, such as the ethnoparenting-based training, are particularly effective in influencing child feeding practices (Black & Aboud, 2011). Maternal behavior directly impacts children's dietary habits, particularly through modeling and the availability of food at home, which is a critical factor in establishing long-term healthy eating patterns (Wulczyn, 2009).

The age of the respondents, with most falling in the productive age range of 26–35 years (43.3%) and 36–45 years (40%), also plays a crucial role in child nutrition decisions. Parents in this age group are more open to new information and are more likely to embrace preventive actions when they perceive health benefits, as explained by the Health Belief Model

(Rosenstock, 1974). This aligns with previous studies indicating that middle-aged parents are more receptive to nutritional (Richards et al., 2006). These findings demonstrate that age is an important factor in influencing parental engagement with healthy feeding practices. The level of education also emerged as an important factor in the acceptance of training materials. A majority of the respondents had a high school education (36.7%), which underscores the importance of delivering nutrition training in a practical and simple manner. Parents with higher education levels tend to have better nutrition literacy and are more likely to understand and apply nutrition information (Amirah & Rifqi, 2019). Conversely, those with lower educational backgrounds often require tailored, accessible materials to grasp the nutritional concepts (Parker et al., 2012). From the perspective of Cultural Capital Theory, ethnoparenting-based training increases parents' cultural capital by providing them with culturally relevant knowledge (Bourdieu, 1986). Interactive, culturally grounded approaches are particularly effective for parents with limited formal education, as these approaches integrate familiar cultural practices with new information (Colby et al., 2010).

The study also found that most respondents were housewives (33.3%), suggesting they have more time to manage family meals. Housewives generally play a more active role in ensuring healthy food for their families compared to working mothers (Hasibuan et al., 2019). According to the Theory of Planned Behavior (Ajzen, 1991), housewives may have greater behavioral control and confidence in making food choices due to their time flexibility. This increased engagement in food preparation and meal planning, along with their closer supervision of children's routines, fosters healthier eating habits (Seltzer et al., 2014).

Regarding the effectiveness of ethnoparenting-based training in increasing nutritional knowledge, the study found a significant improvement. The mean posttest score increased by 37 points (from $M = 48$ to $M = 85$), with statistical results showing $t_{count} > t_{table}$ ($9.670 > 2.04841$) and a p -value < 0.05 , indicating a significant improvement in parents' knowledge of nutrition and healthy eating practices. The effectiveness of culture-based interventions is well-documented in the literature, showing that culturally relevant training increases parental awareness and improves comprehension and application of nutrition practices (Satrianingrum & Setyawati, 2021). These findings are consistent with Ecological Systems Theory (Bronfenbrenner, 2009), which posits that interventions embedded in the social and cultural environment are more impactful. By incorporating culturally designated caregivers into the training process, nutrition messages are further reinforced within family systems, making the intervention more sustainable and effective (Aubel, 2012).

This research also has important implications for early childhood education policy. The findings suggest that ethnoparenting-based training provides not only family-level benefits but also broader policy integration opportunities. Integrating culturally sensitive nutrition education into early childhood programs can enhance long-term health outcomes, such as preventing stunting (Ministry of Health, 2021). Community-based interventions that consider cultural values are proven to improve maternal and child nutrition outcomes (Victora et al., 2021), and international guidelines also stress the importance of incorporating cultural values into early childhood development programs (WHO, 2020). This study supports multi-sectoral strategies that integrate education, nutrition, and culture as a foundation for effective policy recommendations (Black et al., 2013).

In conclusion, the findings of this study contribute significantly to existing literature by demonstrating the effectiveness of ethnoparenting-based training in improving parental nutrition knowledge. This approach not only aligns with established behavioral and cultural theories but also offers practical insights for designing culturally relevant interventions in nutrition education. The study emphasizes the need for integrating cultural considerations into health promotion programs, particularly in diverse, multi-ethnic contexts.

Scope of the Study

This study is based on Child Development with a focus on analysing the influence of mothers' roles as primary caregivers on fulfilling children's nutrition needs, particularly through the

application of ethnoparenting-based training. Conducted in a specific community setting in Karangsari, the research targeted parents of young children, with an emphasis on the mother's role in shaping dietary behaviour. The scope was limited to assessing nutritional knowledge before and after training interventions, incorporating social learning and ecological systems theory as key conceptual frameworks. The research did not include in-depth dietary assessments of children or longitudinal follow-up to measure behavioural change over time. As such, the findings are context-specific and reflective of socio-cultural dynamics within the local population.

Contributions of the Research Findings

The findings of this study contribute meaningfully to the academic discourse and practical development of early childhood nutrition education. From a theoretical standpoint, the research deepens understanding of how parental knowledge and behavior can be shaped through culturally responsive educational approaches. By drawing on Social Learning Theory, the Health Belief Model, and the Ecological Systems Theory, the study demonstrates that learning is not only an individual process but also one embedded within cultural and social contexts. The inclusion of Bourdieu's concept of Cultural Capital strengthens this perspective, illustrating how cultural values and local traditions serve as assets that enhance the acceptance, relevance, and effectiveness of educational interventions within specific communities.

Beyond theoretical enrichment, the study provides practical and policy-oriented implications for improving early childhood nutrition. The proven effectiveness of ethnoparenting-based training highlights the potential for integrating culturally grounded strategies into broader health and education programs. This approach aligns with Indonesia's ongoing efforts to reduce malnutrition and stunting, underscoring the value of community-based initiatives that respect cultural diversity while promoting health equity. By bridging cultural relevance with scientific understanding, the findings offer a framework for sustainable interventions that can be adapted to various local contexts, ensuring that public health education becomes both inclusive and transformative.

The Limitations of the Research

While the study yielded meaningful results, there are some limitations that must be acknowledged. First, the research was conducted within a single village community, which may limit the generalizability of the findings to other regions with differing cultural, socio-economic, or educational contexts. Second, the evaluation focused on short-term knowledge gains immediately after the training sessions, without a longitudinal follow-up to assess whether changes in behavior were sustained or translated into improved child health outcomes. Third, the study concentrated solely on mothers as primary caregivers, potentially overlooking the broader influence of fathers and other family members in shaping children's nutritional habits. Lastly, the reliance on self-reported pretest and posttest questionnaires may introduce social desirability bias, limiting the accuracy of the data in capturing actual behavioral changes in parenting practices and food preparation.

Future research should consider longitudinal studies to assess the sustained impact of ethnoparenting-based interventions on children's actual dietary habits and health outcomes over time. Expanding the research to different regions or communities through comparative studies would help evaluate the adaptability and effectiveness of the training model across diverse cultural settings. Moreover, involving a broader range of stakeholders, including fathers, extended family members, and educators, can offer a more comprehensive understanding of the collective caregiving environment that influences child nutrition. Lastly, employing mixed methods approaches that integrate both quantitative and qualitative data would enrich the analysis by capturing not only measurable outcomes but also the nuanced cultural factors that shape health behaviors and educational acceptance.

Conclusion

This study demonstrated that ethnoparenting-based training, designed within the framework of local cultural values in Karangsari Village, effectively improved parents' knowledge of early childhood nutrition. The significant increase in post-training scores reflects how integrating scientific nutrition education with traditional practices such as the Manca Snack can bridge cultural familiarity and modern health understanding. The findings affirm the theoretical relevance of Social Learning Theory and Ecological Systems Theory, showing that parental modeling and cultural context jointly influence learning processes and nutritional behaviors. The ethnoparenting approach thus provides a culturally grounded framework that strengthens family participation in promoting healthy eating habits among young children.

In practical terms, this intervention highlights the importance of community-based and culturally responsive strategies in health and education programs. The involvement of local traditions such as the ired net practice and parental engagement activities enhanced the cultural relevance and acceptance of the training. Despite limited resources and participation, the intervention demonstrated measurable success in increasing parental awareness of balanced nutrition. Therefore, integrating ethnoparenting-based training into early childhood care and education (ECCE) initiatives can support national efforts to improve family health literacy and reduce malnutrition. This culturally contextualized model offers valuable insight for future programs seeking to combine education, health, and local wisdom in promoting sustainable child development.

Declarations

Author Contribution Statement

Authors 1 and 2 were responsible for developing, conducting, analyzing and collecting the data for manuscript, as well as writing the research. Authors 3 and 4 contributed to data analysis, instrument validation, and data entry. Author 5 contributed to translation and proofreading.

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Data Availability Statement

Data supporting the findings of this study are available from the corresponding author upon reasonable request. The underlying data can be accessed via Figshare at the following link: <https://doi.org/10.6084/m9.figshare.28767908>

Declaration of Interest Statement

The authors declare no conflict of interest.

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