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Socio-Cultural Influences on Stunting Children Aged 24-59 Months: A Cross-Sectional Study in the Bugis Community of Indonesia

Haniarti Haniarti[1*], Sabriani Sabriani[2], Nurlinda Nurlinda[3], Fitriani Umar[4]
[1]Department of Nutrition, Faculty of Health Sciences, Universitas Muhammadiyah Parepare
[2]Department of Public Health, Faculty of Health Sciences, Universitas Muhammadiyah Parepare
[3]Department of Nutrition, Faculty of Health Sciences, Universitas Muhammadiyah Parepare
[4]Department of Nutrition, Faculty of Health Sciences, Universitas Muhammadiyah Parepare

***Corresponding Author**: E-mail: haniarti29@gmail.com

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ABSTRACT

Introduction: Stunting remains a persistent public health challenge in Indonesia, particularly among traditional communities such as the Bugis in Belawae Village. This study investigates the influence of socio-cultural practices on the prevalence of stunting in children under five, focusing on maternal behaviors during pregnancy, breastfeeding, and toddlerhood. The objective is to identify culturally embedded factors that contribute to undernutrition and hinder optimal child development.
Method: Employing a cross-sectional design, the study collected data from 112 mothers using structured questionnaires and anthropometric measurements of their children. Socio-cultural practices, such as food taboos, avoidance of colostrum, and early complementary feeding, were examined. Data were analyzed using descriptive statistics and chi-square tests to determine associations between cultural practices and stunting.
Results: Findings reveal significant associations between stunting and cultural practices at all developmental stages. Notably, the overall stunting prevalence was 33.9%. the avoidance of nutrient-rich foods during pregnancy and breastfeeding, discarding colostrum, and premature introduction of solid foods were common. These behaviors, shaped by traditional beliefs, contributed to inadequate nutrition during the child's first 1000 days-a critical window for growth and development. The study also found that maternal education, socioeconomic status, and gender perceptions intersect with cultural norms, influencing feeding decisions and health outcomes. These results align with broader evidence highlighting the role of cultural context in determining child nutrition.
Conclusion: This research contributes to the understanding of how culturally driven behaviors affect stunting, emphasizing the need for context-sensitive interventions. Strategies to reduce stunting must integrate cultural competence, promote community engagement, and support respectful behavioral change. Addressing stunting effectively requires public health approaches that balance scientific recommendations with cultural values.

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INTRODUCTION

Stunting remains one of the most persistent forms of childhood undernutrition globally, affecting millions of children under the age of five. Its consequences are far-reaching, contributing to impaired physical and cognitive development, increased vulnerability to disease, reduced productivity in adulthood, and intergenerational cycles of poverty. According to the latest WHO global nutrition report, stunting continues to affect 150,2 million children under 5 years globally, with a prevalence of 23,2 %, reinforcing its status as a major public health issue (1). Around 22% of children are stunted, with Southeast Asia experiencing some of the highest prevalence rates (2). Indonesia, a lower-middle-income country, is particularly affected, with a national stunting prevalence of 36.4%, ranking third among Asian countries following Timor Leste and India (3). Myanmar, another Southeast Asian nation, records a prevalence of approximately 28%, while South Asian countries such as Nepal report rates as high as 34% (4). These figures illustrate that stunting remains a pressing public health concern in the region, demanding targeted, context-specific interventions to mitigate its impact (5).

One of the primary reasons for the persistence of stunting, despite wide-ranging nutritional programs, lies in the limited consideration of socio-cultural determinants that influence maternal and child nutrition. Cultural beliefs, norms, and traditions significantly shape food intake, health-seeking behavior, and caregiving practices. In many traditional communities, including those in Indonesia, these cultural factors do not always align with biomedical nutritional standards. For example, in Canada, culturally relevant nutrition programs for indigenous populations have demonstrated improved effectiveness by respecting culinary traditions and belief systems (6). Similarly, among the Bugis community in South Sulawesi, deeply rooted beliefs regarding pregnancy, breastfeeding, and complementary feeding play a central role in shaping dietary behaviors that affect child health and development (7). The Tolotang community believes in taboos or pammali regarding baby care, such as the prohibition of taking a baby out of the house before 40 days due to beliefs about ghosts. However, all mothers recognize the importance of breastfeeding and provide exclusive breastfeeding and colostrum to their babies (8).

The persistence of stunting in certain populations, despite improvements in healthcare infrastructure and maternal education, signals the influence of embedded socio-cultural factors that often go unaddressed. Traditional food taboos, for instance, may prevent pregnant women from consuming protein-rich foods like seafood, despite their high nutritional value. Misconceptions about breastfeeding, such as discarding colostrum or prematurely introducing solid foods, are also widespread and detrimental to infant nutrition. These behaviors are often reinforced by generational knowledge systems and respected community norms. Studies reveal that maternal education, health literacy, and cultural beliefs are strongly correlated with nutritional outcomes in children (9,10). Generalized health programs, which fail to address these unique sociocultural dimensions, often fall short in achieving sustainable reductions in stunting.

Efforts to combat stunting have typically focused on providing food supplements, enhancing antenatal care, and promoting exclusive breastfeeding. While these measures are necessary, they are insufficient without simultaneously addressing the cultural contexts that determine whether such interventions are accepted and adopted. A significant body of research indicates that interventions designed with cultural sensitivity—those that acknowledge and incorporate local beliefs and traditions—can yield more impactful and sustainable results. Culturally embedded interventions have been particularly successful when they include participatory approaches, community dialogue, and the involvement of traditional leaders and caregivers (11).

Specific strategies that have proven effective in addressing stunting within cultural contexts include tailoring nutritional education to reflect local customs and food preferences. For example, in Bogor, Indonesia, programs that integrated traditional foods into nutritional plans and involved local mothers in designing feeding modules led to notable improvements in child growth outcomes (2). International comparisons further highlight that ethnically tailored strategies work across diverse settings. In Canada, Gillies et al. (2020) demonstrated that incorporating indigenous perspectives into health services significantly increased program efficacy (12). In turn, these findings advocate for a more localized and anthropologically-informed approach to stunting prevention.

Comparative studies across ethnic groups reinforce the importance of understanding community-specific practices. Among the Bugis, pregnancy is often surrounded by rituals and food taboos believed to ensure safe delivery but may limit nutrient intake. During breastfeeding, beliefs about "bad" or "hot" foods can affect milk production and infant feeding practices. Similarly, the timing and type of complementary foods are influenced by familial advice,

myths, and customs, leading to early weaning or unsuitable feeding. Such practices differ markedly from other Indonesian ethnicities, who may emphasize different foods or rituals, and thus highlight the need for nuanced, ethnically sensitive strategies (7,13).

Theoretical models provide a framework to examine these complex influences. The Social-Ecological Model, for example, considers the interplay between individual, interpersonal, community, and societal factors that shape behavior, while the Health Belief Model focuses on perceived threats, benefits, and barriers to health action (14,15). Applying such models allows for an integrated understanding of how cultural norms, personal beliefs, and structural conditions interact to influence maternal and child health. These frameworks can guide the design of holistic interventions that move beyond individual-level education to broader community engagement.

Despite growing recognition of the importance of culture in health outcomes, there remains a significant gap in empirical studies that explicitly examine the pathways through which socio-cultural determinants influence stunting. While several qualitative investigations exist, few studies have quantitatively assessed the direct relationship between specific cultural practices and child growth indicators. Among the Bugis community in Belawae Village, there is limited published data that links traditional practices during pregnancy, breastfeeding, and toddlerhood with stunting prevalence. This gap underscores the need for research that bridges anthropological insight with epidemiological evidence to inform policy and practice.

This study aims to address this gap by exploring the influence of socio-cultural determinants on stunting among toddlers in Belawae Village, with a focus on the Bugis ethnic group. By identifying prevalent cultural practices during pregnancy, breastfeeding, and early childhood, and assessing their relationship with stunting outcomes, the study seeks to contribute to a more nuanced understanding of the root causes of undernutrition. The novelty of this research lies in its combination of cultural inquiry and quantitative analysis, guided by theoretical models that emphasize multi-level determinants. The study's findings are expected to inform culturally responsive public health strategies that can be implemented both locally and in similar traditional settings globally. The scope of this study is limited to Belawae Village in South Sulawesi and focuses on mothers of children aged 24 to 59 months. Through this localized, yet methodologically rigorous approach, the research intends to offer actionable insights into addressing stunting in culturally rich communities.

METHODOLOGY

Study Design

This research adopted a cross-sectional study design, which is widely recognized for its applicability in public health research where associations between variables at a single point in time are examined. Cross-sectional designs are particularly effective in identifying socio-cultural determinants of health due to their ability to provide a "snapshot" of the existing relationships between beliefs, behaviors, and health outcomes such as stunting (16). In this study, the design allowed researchers to assess the influence of socio-cultural practices during pregnancy, breastfeeding, and toddlerhood on stunting among children aged 24–59 months. The methodology is suitable given its efficiency in terms of time and resources and its capacity to explore potential correlations within a population-based sample. Nevertheless, it is important to acknowledge the inherent limitations of cross-sectional studies, notably the inability to infer causality due to the simultaneous measurement of exposure and outcomes (17). Furthermore, the design is susceptible to biases such as recall bias and selection bias, which may affect internal validity (18).

Study Setting and Population

The study was conducted in April 2022 in Belawae Village, located in Pitu Riase District, Sidenreng Rappang Regency, South Sulawesi Province, Indonesia. The village was selected purposively based on its status as a stunting focus area ("lokus stunting") with the highest prevalence in the district, reaching 14.81% according to local health data. The target population comprised mothers of children aged 24–59 months who resided in the village. Inclusion criteria included permanent residency in Belawae Village, having a biological child within the specified age range, and willingness to participate. Exclusion criteria included incomplete data or children with known chronic health conditions unrelated to nutrition.

The use of a purposive sampling strategy, while effective for a deep contextual analysis within Belawae Village, limits the external validity of our findings. The results may not be generalizable to all Bugis communities or

other populations, as cultural practices and stunting determinants can vary significantly across different locales. This focused approach was chosen to provide a detailed case study rather than a broad-based epidemiological survey

Sample Size and Sampling Technique

The total number of children aged 24–59 months in Belawae Village was 112. Given the manageable population size, a total sampling technique was employed, thereby involving all eligible mother–child pairs in the study. Total sampling minimizes selection bias and ensures comprehensive representation, particularly in small communities where cultural practices are relatively homogenous.

Variables and Operational Definitions

The primary outcome variable in this study was stunting, defined according to the WHO Child Growth Standards as height-for-age less than -2 standard deviations (SD) below the median (19). The independent variables included socio-cultural practices during three life stages: pregnancy, breastfeeding, and toddlerhood. These were operationalized as follows: 1) Pregnancy-related cultural practices**:** Food taboos, rituals (e.g., ma'cera wettang), and avoidance of antenatal care. 2) Breastfeeding-related practices**:** Discarding colostrum, early introduction of formula or complementary food, and restrictions on maternal diet. 3) Toddlerhood practices**:** Prelacteal feeding, early weaning, and limitations on the diversity of complementary foods.

Instrumentation and Data Collection

Data collection involved a combination of structured questionnaires and anthropometric measurements. The questionnaires were developed based on validated tools used in similar contexts, including adaptations from the Demographic and Health Surveys (DHS) and the Maternal and Child Health Handbook, which have been extensively employed to assess cultural perceptions, dietary behavior, and maternal health practices (17). Dietary restrictions and beliefs were explored using a semi-structured section adapted from the Food Frequency Questionnaire (FFQ).

Face-to-face interviews were conducted by trained enumerators at the local Posyandu (integrated health post) and supplemented with home visits for non-attending respondents. The interviews captured socio-cultural practices and maternal demographics. Anthropometric data were collected by measuring children's height using a standardized microtoise, consistent with WHO protocols (19). To ensure reliability and reduce measurement error, height was recorded to the nearest 0.1 cm with the child standing upright without footwear.

Data Quality Control

Several measures were taken to maintain data quality. Enumerators underwent a two-days intensive training session on questionnaire administration and anthropometric techniques. The training also included a module on cultural sensitivity, focusing on how to respectfully ask questions about traditional practices and beliefs without judgment to minimize social desirability bias. All instruments were pre-tested in a neighboring village with similar socio-cultural characteristics. The results of the pre-test were used to refine the wording and sequencing of questions. Daily supervision and double-checking of completed forms ensured completeness and consistency. Measurement instruments were calibrated prior to data collection each day.

Data Management and Analysis

Data entry and statistical analysis were performed using SPSS version 24. The WHO Anthro software was used to calculate z-scores for height-for-age. Descriptive statistics, including frequencies and percentages, were computed to characterize the sample. Bivariate analyses were conducted using chi-square tests to examine the association between socio-cultural practices and stunting outcomes. A p-value of less than 0.05 was considered statistically significant. While multivariate analysis was not performed due to sample size limitations, bivariate analysis provided preliminary insights into potential determinants of stunting in the population.

Ethical Considerations

Ethical approval for the study was obtained from the Research Ethics Committee of the Faculty of Health Sciences, Universitas Muhammadiyah Parepare. Informed consent was obtained from all participating mothers after

providing a detailed explanation of the study's purpose, procedures, potential risks, and benefits. Participants were assured of confidentiality, voluntary participation, and the right to withdraw at any time without consequence. Data were anonymized and securely stored to protect respondent privacy.

Limitations of the Study

The use of a cross-sectional design limits causal inference, as it is impossible to determine the temporal sequence between exposure and outcome (17). The reliance on self-reported data introduces the possibility of recall bias, especially regarding dietary practices during pregnancy and early feeding decisions (20). Moreover, although the study focused on a single ethnic group to enhance cultural specificity, this limits the generalizability of findings to broader populations. Nevertheless, the study offers valuable context-specific insights that can inform localized intervention strategies.

While the bivariate analysis revealed significant associations, potential confounding variables such as household income, parental employment, and access to sanitation facilities were not adjusted for. The exclusion of multivariate modeling prevents us from isolating the independent effect of specific cultural practices and identifying potential effect modifiers or interaction terms. This limitation is a key area for future research with larger sample sizes.

In conclusion, the methodological approach employed in this study reflects a deliberate balance between cultural sensitivity, empirical rigor, and feasibility. By aligning measurement tools and analytical strategies with international standards and local realities, the research aims to produce reliable findings that can inform policy and community-level interventions targeting stunting within socio-culturally rich populations like the Bugis in South Sulawesi.

RESULTS

Sociodemographic Characteristics of Respondents

The study involved 112 mothers with toddlers aged 24–59 months residing in Belawae Village. Table 1 presents the distribution of demographic characteristics among the respondents. The majority of mothers (52.7%) were between 21 and 30 years of age, aligning with findings that younger mothers may face challenges in providing optimal childcare due to limited experience and nutritional knowledge (21). Approximately 44.6% of mothers had completed senior high school, while 50% attained secondary education or less. Prior studies have established that lower maternal education levels correlate strongly with a higher risk of childhood stunting, largely due to limited nutritional awareness and health-seeking behavior (22)(23).

Employment status revealed that 90.2% of mothers were housewives. Although unemployed mothers may have more time for child care, research suggests that employment often enhances access to financial resources needed for nutritious food and health services (24). Among children, boys constituted a slightly higher proportion (55.4%), and the most common age group was 24–35 months (40.2%). This aligns with evidence indicating that male children are biologically more vulnerable to malnutrition and are often overrepresented among stunted populations in Southeast Asia (25).

Table 1. Characteristics of Respondents

Characteristic	Category	n	%
Mother's Age	<21	9	8.0
	21–30	59	52.7
	31–40	32	28.6
	>40	12	10.7
Education	Elementary	28	25.0
	Junior High	29	25.9
	Senior High	50	44.6
	College	5	4.5

Characteristic	Category	n	%
Occupation	Housewife	101	90.2
	Others	11	9.8
Child's Age (months)	24–35	45	40.2
	36–47	38	33.9
	48–59	29	25.9
Gender	Male	62	55.4
	Female	50	44.6
Height (cm)	<75	4	3.6
	75–84	20	17.9
	85–94	48	42.9
	95–104	38	33.9
	>104	2	1.8

Stunting Prevalence and General Findings

As shown in Figure 1, the overall stunting prevalence among children in Belawae Village was 33.9%, consistent with national figures and in line with estimates for Bugis communities, which have been reported to experience elevated rates due to unique socio-cultural contexts (26,27).

Figure 1 also reveals that 58% of mothers still adhered to traditional pregnancy-related practices, while 41.1% followed breastfeeding practices shaped by socio-cultural norms. Additionally, 36.6% practiced culturally influenced toddler care practices. These figures underscore the entrenched nature of traditional beliefs that may influence child nutrition outcomes.

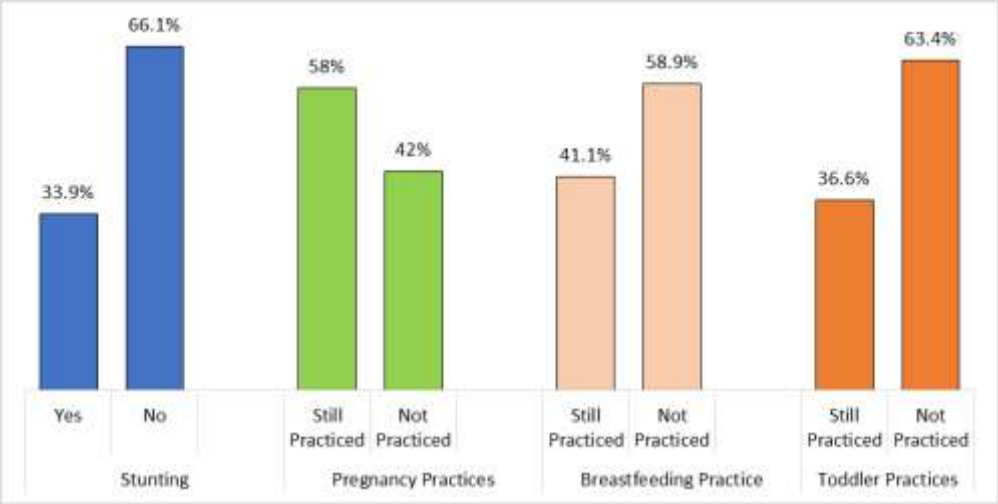

Figure 1. Distribution of Main Variables

Socio-Cultural Practices by Life Stage

The detailed distribution of socio-cultural practices by life stage is presented in Table 2. During pregnancy, key practices included avoidance of certain foods—such as seafood, durian, and tape—which are nutrient-dense but culturally labeled as "panas" or risky. About 63.4% of mothers avoided freshwater fish, while 67.8% avoided "hot foods." These food taboos have been noted in previous research as detrimental to maternal nutrient intake during a critical development period (28).

During breastfeeding, practices such as discarding colostrum (44.6%) and non-exclusive breastfeeding (45.5%) were common. These align with traditional beliefs that colostrum is harmful or "dirty," a misconception that significantly undermines neonatal immunity and growth (29,30). Furthermore, only 28.6% of mothers continued breastfeeding until the child turned two years old, highlighting a gap in the practice of recommended feeding guidelines.

Among toddler-related practices, early introduction of solid food was widespread. Nearly half (47.3%) practiced prelacteal feeding, while 56.3% provided complementary food before six months of age. These practices contribute to poor nutrient absorption and increased risk of infection, especially in contexts with limited sanitation (31).

Table 2. Types of Socio-Cultural Practices

Socio-Cultural Domain	Practice Description	Yes (n/%)	No (n/%)	Total
Pregnancy	Antenatal care ≥4 times	81 (72.3%)	31 (27.7%)	112
	Ma'cera wettang ritual*	41 (36.6%)	71 (63.4%)	112
	Coconut oil in 3rd trimester	68 (60.7%)	44 (39.3%)	112
	Young coconut water	79 (70.5%)	33 (29.5%)	112
	Avoided 'hot foods'	77 (68.75%)	35 (31.25%)	112
	Avoided seafood	60 (53.6%)	52 (46.4%)	112
	Avoided freshwater fish	71 (63.4%)	41 (36.6%)	112
Breastfeeding	Early initiation of breastfeeding	70 (62.5%)	42 (37.5%)	112
	Colostrum feeding	62 (55.4%)	50 (44.6%)	112
	Exclusive breastfeeding	61 (54.5%)	51 (45.5%)	112
	Breastfeeding until 2 years	32 (28.6%)	80 (71.4%)	112
	Avoid seafood (breastmilk concern)	67 (59.8%)	45 (40.2%)	112
	Avoid acidic/spicy food	59 (52.7%)	53 (47.3%)	112
	Avoid moringa leaves	24 (21.4%)	88 (78.6%)	112
	Use honey/date extract	89 (79.5%)	23 (20.5%)	112
Toddlerhood	Prelacteal feeding	53 (47.3%)	59 (52.7%)	112
	Formula before 6 months	56 (50.0%)	56 (50.0%)	112
	Complementary foods before 6 months	63 (56.3%)	49 (43.7%)	112
	Gradual complementary feeding by age	55 (49.1%)	57 (50.9%)	112
	Variety in complementary meals	61 (54.5%)	51 (45.5%)	112
	Avoid excessive marine fish (worm concern)	65 (58.0%)	47 (42.0%)	112

*Ma'cera wettang ritual: A traditional Bugis ritual performed during pregnancy, believed to purify the womb and ensure a safe delivery

Statistical Associations Between Practices and Stunting

The bivariate analysis conducted using chi-square tests revealed statistically significant associations between the incidence of stunting and socio-cultural practices during the stages of pregnancy, breastfeeding, and toddlerhood. As shown in Table 3, pregnancy-related practices were significantly associated with stunting outcomes, with 46.2% of children from mothers who adhered to these practices being stunted ($p = 0.001$). In the breastfeeding category, 56.5% of children whose mothers followed certain traditional breastfeeding-related practices were stunted ($p = 0.000$). Likewise, among those whose caregivers practiced culturally influenced toddler feeding behaviors, 42.3% of children were stunted ($p = 0.014$). These findings suggest that cultural practices at each life stage have a meaningful influence on the nutritional status and growth trajectories of children. The observed associations align with the

broader literature, which emphasizes the role of entrenched socio-cultural norms in shaping maternal behaviors and child health outcomes, particularly when such practices conflict with recommended health and nutrition guidelines (32–34).

Table 3. Bivariate Analysis of Socio-Cultural Practices and Stunting

Socio-Cultural Stage	Stunting (Yes)	Stunting (No)	Total	p-value
Pregnancy Practices	30 (46.2%)	35 (53.8%)	65	0.001
Breastfeeding	26 (56.5%)	20 (43.5%)	46	0.000
Toddlerhood	30 (42.3%)	41 (57.7%)	71	0.014

DISCUSSION

The findings of this study underscore the significant influence of socio-cultural practices on the prevalence of stunting among toddlers in the Bugis community of Belawae Village. These practices, embedded within deeply rooted beliefs and traditional norms, span critical phases of child development, including pregnancy, breastfeeding, and toddlerhood. In alignment with the literature, the first 1000 days of life are widely recognized as a critical window during which optimal nutrition and care are essential for ensuring healthy growth and development (35,36). In this context, cultural determinants can act as both enablers and barriers to appropriate nutritional behaviors, influencing long-term health outcomes. Understanding these culturally embedded behaviors is essential for developing interventions that resonate with the values and everyday experiences of the local community.

The data presented in this study revealed that a considerable proportion of mothers adhered to food taboos during pregnancy, avoided certain protein-rich foods during breastfeeding, and introduced solid foods prematurely during toddlerhood. Such practices align with previously documented behaviors across various low- and middle-income contexts, where maternal dietary restrictions, prelacteal feeding, and early complementary feeding are shaped by traditional beliefs (33,34). These patterns contribute to inadequate nutrient intake for both mothers and children, ultimately increasing the risk of stunting—a phenomenon confirmed by the significant associations found in the bivariate analysis. Moreover, the avoidance of nutritionally dense foods during critical periods of child development potentially undermines both physical and cognitive milestones, suggesting a broader long-term impact on individual and community-level health outcomes.

These findings are consistent with broader evidence that Highlight without maternal education, health-seeking behavior, and socio-economic status as key determinants of child nutritional outcomes. Educated mothers are more likely to reject harmful practices and adopt evidence-based feeding strategies (39), while cultural norms can hinder such transitions in less informed populations. For example, the high prevalence of colostrum discarding and the avoidance of nutrient-dense foods like seafood or moringa leaves—despite their nutritional benefits—reflects a dissonance between cultural beliefs and public health recommendations (30). These discrepancies point to the urgent need for effective health communication that bridges scientific knowledge and cultural narratives, fostering an environment where behavioral change is not perceived as a rejection of tradition but as an evolution informed by evidence.

The practice of discarding colostrum not only deprives infants of essential nutrients but also compromises their nascent immune systems, making them more susceptible to infections (40). Similarly, the avoidance of nutrient-rich foods during pregnancy can lead to maternal nutrient deficiencies, which in turn can result in neurodevelopmental deficits and impaired fetal growth, as documented in biomedical literature (41).

The interplay between socio-cultural beliefs and gender also emerged in the study. A slightly higher rate of stunting among male toddlers is in line with research suggesting that male children are biologically more vulnerable and may experience differential treatment based on cultural perception (42). In patriarchal societies, even when male children are preferred, they are not always provided with better nutrition, reflecting inconsistencies in gendered caregiving that require further exploration. Additionally, subtle gender biases may shape maternal decision-making around food allocation, healthcare access, and caregiving behaviors. These disparities must be considered when designing interventions to ensure equity in nutritional outcomes regardless of gender.

While our quantitative data hint at a gendered asymmetry in stunting rates, this finding requires further exploration. Our study's design does not allow for an in-depth ethnographic analysis of specific gendered feeding or caregiving practices within the Bugis community. This represents a significant avenue for future qualitative research to uncover the underlying motivations, beliefs, and power dynamics that shape these behaviors and contribute to differential health outcomes between male and female children

Importantly, the findings emphasize the need for culturally responsive public health strategies. Several successful interventions globally have leveraged local knowledge and engaged community stakeholders to transform harmful practices without undermining cultural identity. For instance, the use of culturally tailored food guides and peer education within indigenous communities has proven effective in modifying infant feeding behaviors (43,44). Moreover, involving local leaders as change agents fosters trust and reinforces the legitimacy of health promotion efforts (Mkhize & Sibanda, 2020). These strategies reinforce the principle that cultural transformation is most sustainable when initiated from within communities, emphasizing empowerment over prescription.

In line with these approaches, culturally competent healthcare delivery is crucial for addressing the barriers identified in this study. Healthcare workers must be trained to navigate cultural norms with sensitivity, enabling them to communicate effectively and co-create solutions that resonate with the lived realities of families (45,46). This can be achieved by integrating models such as the WHO's community health worker training frameworks, which emphasize participatory approaches and respectful dialogue. Such a strategy would equip health professionals to co-create solutions with local families, ensuring that interventions are not only effective but also culturally acceptable and sustainable. Interventions should incorporate local customs and values into nutritional education to enhance receptiveness and compliance. This approach not only respects cultural heritage but also improves health outcomes by aligning behavioral change strategies with community expectations. Moreover, culturally informed communication increases caregiver engagement, improves program uptake, and fosters continuity in health-promoting practices.

Nonetheless, ethical considerations must guide efforts to alter traditional practices. While the need to address harmful beliefs is urgent, the process must prioritize empowerment and collaboration rather than coercion. Community members should be actively involved in the identification of problems and the formulation of culturally appropriate responses (47). Public health programs should aim to preserve positive cultural values while encouraging modifications that enhance child health. As Gawlik et al. (2020) argue, ethical interventions require transparency, community ownership, and sensitivity to the complexities of cultural identity (48). The ethical challenge lies in balancing respect for cultural diversity with the moral imperative to prevent child suffering, emphasizing that health interventions must not only be effective but also just and inclusive.

Furthermore, this study reinforces the value of mixed-methods research in understanding the nuanced dynamics of culture and health. Quantitative associations between stunting and cultural practices are informative but must be interpreted alongside qualitative insights that reveal the meanings, motivations, and historical contexts behind these practices. Future studies may benefit from ethnographic or participatory approaches that provide deeper contextual understanding, thereby informing more tailored and context-sensitive interventions.

In conclusion, the socio-cultural context in which mothers raise their children exerts a profound influence on child nutrition and development. The prevalence of stunting among Bugis children reflects both the challenges and opportunities inherent in culturally shaped behaviors. As demonstrated in this study, interventions that are designed with cultural understanding and community participation offer a promising pathway to address stunting effectively and sustainably. These findings call for an integrated strategy that bridges tradition and science, thereby ensuring that cultural identity becomes a facilitator rather than a barrier to optimal child growth and development. Moving forward, public health practitioners, researchers, and policymakers must collaborate with communities to reimagine traditional practices in ways that honor heritage while promoting the health and well-being of future generations.

The absence of multivariate statistical modeling in this study limits a deeper interrogation of potential confounders. Future research should employ longitudinal study designs and multivariate analysis to more robustly explore the causal pathways between socio-cultural practices and stunting.

CONCLUSION

This study highlights the significant impact of socio-cultural practices on child nutrition and stunting in the Bugis community of Belawae Village, specifically among children aged 24-59 months. Traditional beliefs during pregnancy, breastfeeding, and toddlerhood—such as food taboos and early feeding practices—were found to be closely linked with stunting. These findings show that cultural norms are key factors influencing child health. The results reveal that maternal education, household income, and gender norms intersect with cultural practices to shape child nutrition. Children are more likely to be undernourished when caregivers follow traditional practices that conflict with modern nutritional guidelines. This underscores the importance of context-sensitive interventions.

By offering evidence from a less-studied population, this research contributes to a more nuanced understanding of how cultural norms affect health behaviors. It supports the integration of cultural competence in public health programs, ensuring that interventions are respectful and grounded in local realities. To be effective, stunting prevention strategies must go beyond medical solutions and include community engagement and culturally informed education. Health workers should be trained to communicate in ways that align with local values and practices.

Further research should investigate the origins and transmission of these cultural beliefs. Qualitative and longitudinal studies could enhance our understanding and inform more effective policies. In summary, reducing stunting in culturally diverse settings like Indonesia requires strategies that blend scientific insight with respect for tradition. Community-led, culturally sensitive approaches are essential to achieving lasting improvements in child health.

AUTHOR'S CONTRIBUTION STATEMENT

Haniarti conceptualized the research framework, led data collection and statistical analysis, and prepared the initial draft. Sabriani contributed to the methodological design, supervised fieldwork, and participated in critical revisions. Nurlinda and Fitriani Umar provided theoretical insights on cultural determinants, supported literature review, and coordinated manuscript editing. All authors reviewed and approved the final version of the manuscript.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest related to the publication of this study. No financial, personal, or professional affiliations exist that could have influenced the objectivity of the research findings.

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

The authors acknowledge the use of Grammarly for grammar checking and ChatGPT (OpenAI) for language refinement and clarity improvement during the manuscript preparation process. No content generation was fully delegated to AI; all intellectual contributions remain the responsibility of the authors.

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