



A Systematic Literature Review: Dietary and Cultural Shifts and Child Nutrition Status in Fishing Families

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ABSTRACT

The diet and culture of fishing families are important factors in determining the nutritional status of children. However, changes in the diet and culture of fishing families have occurred over time. The review was conducted by searching for research articles published in reputable scientific journals between 2013 and 2023. The results of the review showed that shifts in the diet and culture of fishing families have negatively impacted children's nutritional status. Dietary changes from seafood to processed foods have led to decreased intake of protein and essential minerals. Cultural changes, such as changes in the identity of family cuisine, which is closely related to the family's economy, affect the family's eating environment. Dietary and cultural changes in fishing families have a major impact on children's nutritional status.

INTRODUCTION

By 2022, the Food and Agriculture Organization (FAO) reports that more than 10% of the global population is highly dependent on fisheries and aquaculture for their livelihood. This dependence has a direct impact on the diets of these communities. However, recent data shows a gradual decline in seafood consumption within these communities. A study in 2021 highlighted a 15% decline in seafood consumption among fishing families compared to the previous decade. Fish is a rich source of essential nutrients such as protein, omega-3 fatty acids, vitamins (including vitamin D and B12), and minerals (such as iodine and zinc), which are crucial for children's growth and development, especially in their early years. However, changes in food culture and diet in fishing communities, such as a shift away from seafood consumption, can negatively impact children's nutritional status. Apart from being a source of nutrition, fish also has an important cultural value to fishing communities. Fish is often seen as a symbol of well-being and prosperity, and its consumption is deeply rooted in traditional practices and customs. At the same time, there is an increasing reliance on processed and imported foods due to a variety of factors, including overfishing, climate change, and economic pressures that limit access to fresh fish. Fish is not only a source of nutrition but also has cultural significance in fishing communities. Fish is often considered a symbol of well-being and prosperity, and its consumption is deeply rooted in traditional practices and customs. At the same time, there is an increasing reliance on processed and imported foods, caused by a variety of factors including overfishing, climate change, and economic pressures that limit access to fresh fish.

Dietary and cultural changes have been recognized as important factors affecting nutritional status, especially among children in certain communities, such as fishing families. The diet and food culture of fishing families has changed significantly over the past decade, as the shift from consumption of traditional foods such as fresh fish and seafood to less nutritious processed foods has become a worrying trend in many coastal communities.

Food culture and diet play an important role in shaping the nutritional status of children in fishing communities. These communities rely heavily on fish as a source of high-quality nutrients, which directly contributes to their nutritional security. In addition to direct nutritional contributions, fishing also affects the purchasing power of households in these communities. As stated by Kawarazuka and Béné, small-scale fisheries have two pathways that affect household nutritional security. The nutritional status of children in fishing communities faces challenges due to various factors, including climate change and unsustainable fishing practices. These factors can lead to changes in fish populations and the availability of certain species, which can negatively impact the nutritional status of children.

Changes in diet and food culture among fishing families are often attributed to factors such as globalization, climate change and economic shifts. This can include a shift from traditional foods to foods more influenced by global culture or reduced availability of local foods due to climate change. In

addition, socio-economic factors such as poverty and inequality also play an important role in accessing adequate nutrition. It is clear that changes in food culture and diet in fishing communities have led to an alarming decline in seafood consumption and increased reliance on processed and imported foods. These dietary changes have significant implications for the nutritional status of children in these communities, affecting their growth and development.

Therefore, it is very important to conduct this study considering the possible long-term impacts on the children of fishing families. At the local level, this study will help understand how food culture and dietary factors affect the nutritional status of children in fishing communities, and the results of this study are expected to provide insights for policy makers and health practitioners in developing effective intervention strategies to improve the nutritional status of children in coastal communities.

THEORETICAL REVIEW

Dietary and cultural changes have been recognized as important factors affecting nutritional status, especially among children in certain communities, such as fishing families. The diet and food culture of fishing families has changed significantly over the past decade, as the shift from consumption of traditional foods such as fresh fish and seafood to less nutritious processed foods has become a worrying trend in many coastal communities.

Table 1. Literature Review Results (n=15)

Author	Title	Methods	Main Findings
Hairil Akbar, Shermina Oruh, Syamsu A. Kamaruddin, and Andi Agustang	Exploring dietary restrictions among fishing families in Bulukumba District, South Sulawesi Province, Indonesia	phenomenological research method	Cultural beliefs and practices, such as food taboos, influence the eating habits and health of fisher families, thus impacting women's health and potentially affecting children's nutritional status. This study found that food taboos in fishing families often prevent women from consuming nutritious foods due to various cultural beliefs. These beliefs are about the perceived impact of certain foods on health and well-being.
Asma' Ali, Nurul Nabilah Wagimin, Noor Salihah Zakaria, Khairil Shazmin Kamarudin, Hayati Mohd Yusof	Dietary Quality and Cognitive Performance of Fisher Children in Selected Areas of Terengganu, Malaysia: A Cross-Sectional Study	Cross-sectional study	Lower household income, food insecurity, and inadequate nutrition education contribute to poor diet quality and cognitive performance among fisher children.

Badriah Aisyah Bahtiar, Asma' Ali, Hayati Mohd Yusof, Khairil Shazmin Kamarudin	Child Development and Nutritional Status of Toddlers: A Cross-Sectional Study in a Fishing Community in Terengganu, Malaysia	Cross- sectional study	–Low household income, limited access to good food resources, and poor food composition in the diet contribute to poor nutritional status and suspected developmental delays among fisher children.
John B.F. de Wit, F. Marijn Stok, Derek J. Smolenski, Denise D.T. de Ridder, Emely de Vet, Tania Gaspar, Fiona Johnson,	Food Culture in the Home Environment: Family Eating Practices and Values Can Support Healthy Eating and Self-Regulation in Young People in Four European Countries	Conceptual analysis and correlational study	Family eating practices and values influence young people's eating behaviors and self-regulation, with potential implications for addressing childhood overweight and obesity.
Pamela A. Marinda, Fred Chalula, Christopher Khayeka- Wandabwa, Keiron Audain, Shakuntala H. Thilsted	Dietary diversity and nutritional status of children aged 6-59 months from fishing and non-fishing communities in Zambia	Cross- sectional study	–Low dietary diversity among children in fishing communities, under WHO recommendations, is associated with poor nutritional status. Fishing communities show lower dietary diversity compared to non-fishing communities
Emily Gibson, Natasha Stacey, Terry C. H. Sunderland, Dedi S. Adhuri	Dietary diversity and fish consumption of mothers and children in fishing households in Komodo District, eastern Indonesia	Mixed- methods case study	Fish consumption contributes to food security and reduces micronutrient deficiencies, especially for women, infants and children. However, dietary diversity still falls below recommended micronutrient adequacy levels, raising concerns about nutritional quality.
Nur Shafikah Hashim, Asma' Ali, Khairil Shazmin Kamarudin, Hayati Mohd Yusof, Noor Salihah Zakaria, Norhasmah Sulaiman, and	The relationship between household food insecurity and academic achievement and nutritional status of fisherfolk school- age children in Terengganu, Malaysia"	Cross- sectional study	–Household food insecurity negatively impacts the academic performance and nutritional status of fisher school-age children, leading to poor cognitive functioning and lower interest in education.

Zalilah Mohd Shariff			
Gilly Hendrie, Gundeep Sohonpal, Kylie Lange, Rebecca Golley	Changes in the family food environment are associated with positive dietary changes in children	Longitudinal randomized controlled trial	Improvements in the family food environment led to positive dietary changes in children, highlighting the importance of the family environment in shaping children's eating habits.
Elizabeth Kamau-Mbuthia, Carolyn Lesorogol, Andrew Wamukota, Austin Humphries, Catherine Sarange, Ruth Mbeyu, Chris Cheupe, Joaquim Cheupe, Andrea	Sustainable aquatic food systems: A multisectoral analysis of the determinants of child nutrition in coastal Kenya	Surveys and multisectoral analysis	Fishing households exhibit higher rates of underweight in children compared to the national average, emphasizing the need to address child nutrition in fishing communities.
Chandrasekara Karunamuni Pushpika Sudarshini De Silva, De Silva Hiranthi, Indrapala Waldeniyage Kolitha Prasanna	Nutritional status of preschool children and related issues: Experiences of fishing communities in Sri Lanka	Cross-sectional study	Maternal education level was found to play an important role in the nutritional status of preschool children in fishing communities, indicating the influence of parental education on child nutrition.
Abdul Muhith, Nursalam, Lutfiana Wulandari	Economic Level and Family Culture Correlate with the Nutritional Status of Toddlers	Cross-sectional study	Economic and cultural factors were correlated with child nutritional status. The majority of respondents showed lower economic levels and negative cultural attitudes towards child nutrition.
N. Roberts, B. Mengge, B. Oaks, N. Sari, Irsan, A. Humphries	Fish consumption pathways and food security in Indonesian fishing communities	mixed-methods	Coastal developing countries exhibit diverse dependencies on fish, from subsistence to market-based. Local distribution and consumption pathways are often left out of perspective. This study found significant seasonal dependence in fish catch and consumption, with different species dominating in the calm and windy seasons.
Valeria Skafida	An elixir for family	longitudinal	Family meals are generally

	meals: exploring how different aspects of family meal occasions, eating habits, and food enjoyment relate to young children's diets	cohort survey	associated with positive nutritional outcomes, such as higher consumption of key nutrients, vegetables, fruit, protein and calcium-rich foods. Socio-demographic factors influence family eating habits.
Sujarwo, Afsah Indah Maulidah, Budi Setiawan	Factors affecting expenditure and income of small-scale fishing households: Evidence from Jember, Indonesia	Econometric s method	Factors such as the cost of fuel for fishing, husband's labor at sea, and the number of family members affect the income and expenditure of small-scale fisher households. Proper management of aquatic resources can reduce poverty. Food and non-food expenditures are influenced by various factors including household income, number of family members, expenditure on rice, number of school children, and customs.
Pipit Festi Wiliyanarti, Yuanita Wulandari, Dede Nasrullah	Behavior in meeting the nutritional needs of Indonesian children with stunting: Associations with culture, family support, and maternal knowledge	Cross-sectional study	Mothers who are educated and have good knowledge about nutrition can choose and provide better food to their children, especially regarding breastfeeding. This study also found that culture, family support, and maternal knowledge significantly influenced the behavior of meeting the nutritional needs of stunted children under five.

From the results of the literature review, it shows that the factors of shifting eating culture are influenced by factors of food diversity, dietary restrictions, eating habits, and economic factors that can affect the nutritional status of children and families. And the shift from seafood to processed food in the diet of fishing communities has significant implications for the nutritional status of children and families.

METHODOLOGY

The method in writing this article is systematic literature review (SLR). The literature review method used in this research is the PRISMA method. Article search, article extraction and article classification using the Watase Uake application. Article searches were conducted online using two (2) database sources, namely Scopus (Q1-Q4) and Semantic Scholar. The search covered worldwide research published between 2013 - 2023. The keyword combinations

used in the article search were "fishing family", "child nutritional status", "dietary shift", "behavioral shift", "cultural shift", and variations of these terms. The search was limited to articles published in English and included both qualitative and quantitative studies.

The screening stage assessed the quality and appropriateness of the articles generated from the identification process. Articles consisting of conference proceedings and literature reviews did not meet the criteria. In addition, the watase application automatically distinguishes articles that have duplicate citations. At this stage, the collected articles had to be accessible via the DOI address and then downloaded for inclusion in the Watase Uake report. Some articles were successfully downloaded, but some were not accessible. Since the Watase Uake application can only search for articles from the Scopus database, researchers had to manually add articles sourced from Semantic Scholar to the application.

RESULTS

After conducting an extensive search, as shown in figure 1, from the results of the article search from the Watase Application, 9 articles from the Scopus database were included in the review and an additional 6 articles from Semantic Scholar so that the total number of articles reviewed in this study is 15. We have identified twenty articles that are relevant to the topic. The following table presents the authors and titles of the articles, the research methods used, and the main findings of each study.

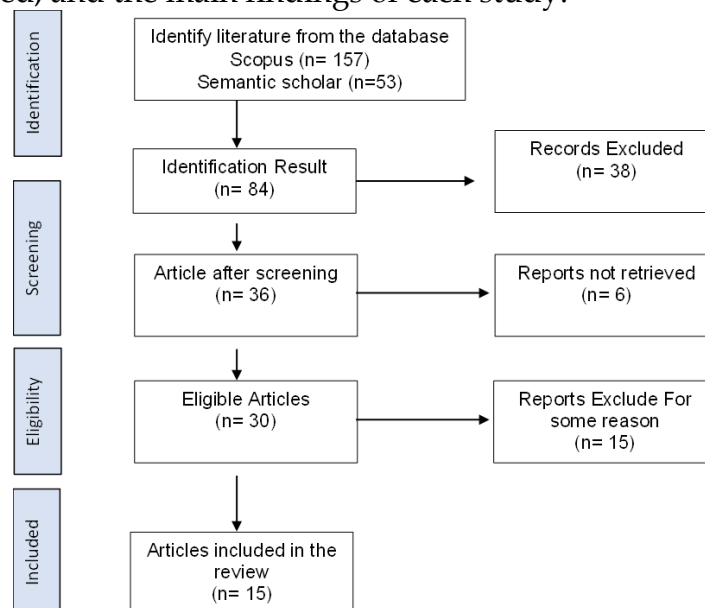


Figure 1. PRISMA diagram Literature Selection Process

DISCUSSION

Shifting food culture and children's nutritional status in fishing community families

In fishing communities that have traditionally adhered to cultural norms and rituals, there has been an important metamorphosis, triggered by the

advent of modernization. This transformation, triggered by increasing global interactions, has progressively changed the cultural fabric of these communities, manifesting in several dimensions, including important shifts in eating habits.

Particularly in cooking traditions, these modifications reflect the pervasive influence of modernization on people's social identities and eating habits. The occupational transition evident in younger demographics weakens the historical connection between fishing and local food culture. There is a looming threat to the preservation of ancestral wisdom in seafood processing and seafood consumption, a heritage that has been passed down through generations.

Cuisine identities, once intrinsically linked to marine resources, are evolving, reshaping dietary variations and strongly influencing nutritional status, especially among children. This shift is evident in food choices, where indigenous foods are increasingly complemented or replaced by universally available food alternatives. This narrowing of dietary diversity has significant consequences for the nutritional well-being of community members, especially children.

The interaction between cultural traditions and dietary patterns in coastal communities is complex and evolving. Eating habits that include the selection, preparation and timing of food consumption are an important part of the identity of these communities. However, as these practices evolve, diets also change. Gradual deviations from traditional diets can result in the depletion of essential nutritional elements, which have historically been integral to the health of coastal communities. This shift presents a major challenge in maintaining a balanced diet, especially for children who are in an important growth phase.

Cultural determinants also significantly affect the provision of nutrition for children in these communities. As identified by Gibson et al. (2020), the delayed introduction of fish into the diets of infants and children, due to allergy and illness concerns, contributes to reduced dietary diversity in fishing households. The family food environment is critical in shaping children's eating habits and nutritional status, as highlighted by Skafida's (2013) research, which emphasizes the importance of recognizing the social and cultural capital that informs food choices.

Further elucidating this, recent studies by Wiliyanarti et al. (2022) and Muhith et al. (2017) have described the influence of cultural and economic factors on the food preferences and nutritional well-being of children in the community. These observations are in line with the findings of Marinda et al. (2023), which underscore the need to consider the impact of cultural transformation on diet and nutrition in coastal communities. A study by Wiliyanarti et al. (2022) investigated the influence of cultural practices in meeting children's nutritional needs, highlighting the complex interactions between cultural norms and economic conditions in shaping dietary decisions and nutritional outcomes.

Dietary shifts and nutritional status of children in fishing community families

The classic diet of fishing communities is largely pescatarian, relying heavily on marine products such as fish, shellfish, and other seafood. In addition, the cultivation of local vegetables, fruits, and grains also varies according to the geographical location of the region where they live. Traditionally, these seafood-centered diets are rich in essential nutrients such as omega-3 fatty acids, proteins, and vitamins, which play an important role in the health and development of community members, especially children.

More than just food, eating habits in these communities are intertwined with cultural and spiritual values. Certain marine species are highly valued or sacred, shaping food preferences and customs. Seasonal consumption and ritualized eating practices, directed by cultural and religious principles, have historically sustained the dietary rhythms of these communities.

In recent decades, important shifts in dietary practices have emerged, influenced by economic, environmental and social factors. The integration of global markets and modern fishing methods has driven a transition from traditional subsistence fishing to a more commercial approach. This shift has led to a decline in local seafood consumption, as most catches are typically sold for economic gain. Simultaneously, the surge in processed and packaged foods has changed traditional diets, with these less nutritious food options becoming more common due to their affordability, convenience, and changing generational tastes.

As a result, the dietary landscape in these communities is evolving, with a notable shift from nutrient-rich fish-based diets to processed and less nutritious alternatives. Factors such as overfishing, climate change and the influence of Western diets are driving these changes, critically affecting the nutritional status of children in these communities.

The family environment plays an important role in shaping children's eating and nutrition habits. Studies, including those by Skafida (2013) and Hendrie et al. (2013), underscore the importance of the family eating environment in shaping children's food choices. They emphasize the importance of public health initiatives to acknowledge the social and cultural capital that defines eating habits.

Recent studies, such as Marinda et al. (2023), have revealed clear differences in dietary diversity and nutritional status between children in fishing and non-fishing communities. Gibson et al. (2020) examined the impact of women's involvement in fisheries value chains on family nutrition and found that increased control over income by women positively impacts the health and nutrition of women and their children. This is due to women's tendency to allocate resources to family health and nutrition. In addition, Sujarwo et al. (2022) investigated how socioeconomic factors such as income and expenditure in fishing communities affect livelihoods and food security, which in turn affect child nutrition. Their findings suggest that economic stability is crucial to ensure consistent and adequate food availability, which is a key factor in child nutrition.

CONCLUSIONS AND RECOMMENDATIONS

These studies collectively illustrate that the nutritional status of children in fishing families is influenced by complex interactions between dietary diversity, women's economic roles, the family food environment, food insecurity, socioeconomic factors, and cultural practices.

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