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Research Article

Perceptions of Low-Income Families on the Nutritional Value of Dried Squid: A Socioeconomic Perspective

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About Article

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ABSTRACT

This study examined the attitudes of low-income households about the nutritional value of dried squid. Recognized as a reasonably cheap source of protein, dried squid is important for low-income areas addressing food and nutrition security. The study sought to investigate the interactions among nutritional awareness, cultural acceptance, financial accessibility, and health views affecting its usage. Selected from convenience sampling, 110 low-income households in Palimbang, Philippines, participated in a descriptive, cross-sectional survey. To evaluate nutritional awareness, cultural attitudes, economic variables, health perceptions, and consumption frequency, data were gathered using a standardized questionnaire grounded in a five-point Likert scale. Participants somewhat agreed (Mean=3.11) about their awareness of the possible nutritional deficits in dried squid. Meal planning was shown to be influenced by cultural tastes; economic accessibility was scored favorably (Mean=3.22), signifying dried squid's availability in nearby markets. Factors such as dietary awareness, cultural acceptability, economic considerations, and perceived health benefits were mostly rated between 'Agree' and 'Strongly Agree'. With that, dried squid is recognized as a reasonably priced and easily available source of protein; nonetheless, intake of it is influenced by a complicated interaction of several elements. The study emphasizes the need of focused dietary education and supportive policies to include dried squid into diets so efficiently, so enhancing food and nutrition security for low-income households.

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1. INTRODUCTION

Originating from ancient times when refrigeration was not possible, dried squid—known as "Ika" in Japanese, "Daing Na Pusit" in Tagalog, and "Gangu a kanus" in Maguindanaon—has been a mainstay in Asian diets for millennia. To guarantee a year-round food supply and increase the shelf life of their catch, coastal towns devised this preservation method (Dongshuifoods, 2024; Resido, 2024). Popular among parts of Asia including Southeast Asia, East Asia, etc., dried squid is easily available and tastes like most Asian people's pallet. On the records, there are ten varieties of squid through which are consumed by the majority of the earth's population and main source of fishing among various fisher folks. The two most significant commercial species among them are the neon flying squid and the giant squid. Squid usually undergoes processing into dried goods for preservation and/or marketing rather than just being consumed as fresh products. Due to its excellent protein sources and saturated fatty acid content, dried squid has become an increasingly common component in many goods, driving up demand. A common marine alga in many nations' cuisines is the brown seaweed laver (Chang *et al*., 2017). Many countries throughout the world sell dried items such as sun-salted fish that has been dried, dried kale, dried herring fillet, dried algae, dried squid, dried abalone, the dried scallop, dried sea cucumbers, dried oyster, and dried shark. Because of their delicious taste, texture, and distinctive flavor, these dried products are widely accepted by consumers in a variety of countries, including China, South Korea, Japan, Thailand, Vietnam, Norway, for example, Portugal, Germany, Bangladesh, India, Sri Lanka, the United Kingdom, France, Spain, Poland, Italy, Denmark, Sweden, and Lithuania, and others (Rasul, *et al*., 2021).

Dried fish products—including dried squid—are important viands for disadvantaged homes in the Philippines because of their low cost and availability in local markets. Families of five making less than ₱12,030 monthly are deemed poor by the Philippine Statistics Authority (PSA). With a family poverty incidence of 17% (PSA, 2022; PSA, 2024) the family poverty threshold in Palimbang, in Region 12, was ₱12,484 per month in 2023. Dried squid's inexpensive cost makes it a common choice for low-income households. Fresh squid usually costs ₱50 to ₱100 per kilogram in coastal towns; dried squid runs from ₱50 to ₱100 for smaller quantities. Dried squid at roughly ₱175.05 for 100-113g packets is offered by online Filipino food merchants such as Adobo Market (Dunlop, 2018; Adobomarket, 2025). From a socioeconomic standpoint, the view of low-income households about the nutritional worth of dried squid exposes some important new angles. Particularly for its high protein content, dried squid is a nutrient-dense food choice that low-income households may afford reasonably. On low-income households in non-Asian nations, however, its popularity may be shaped by local cuisine and cultural familiarity. Research on parental opinions of food settings imply that for underprivileged households, food decisions mostly rely on cost, accessibility, and perceived healthiness (O'Brien *et al*., 2022).

Economic difficulties experienced by low-income households engaged in the manufacturing and consumption of dried fish products most certainly affect the availability and impression of dried squid as a dietary alternative worldwide (Mitu *et al*., 2021). Particularly in low- and middle-income homes, dried fish—including squid—has been identified as a component of food and nutrition security. In some civilizations, especially for vulnerable groups like children, pregnant women, and the elderly, including dried fish products in meals is a common habit suggesting that dried squid could help to diversify the diets of low-income families and solve particular nutritional needs (Byrd *et al*., 2021). Given the importance of dried squid in the diets of low-income Filipino households, it is imperative to find out how valuable they think it to be. Maintaining physical activities and promoting general health depend on proper diet (Marshall, 2023).

In this sense, the study sought to learn how low-income Palimbang, Region 12, Philippines, households saw dried squid. It specifically investigated: 1) How much these families know about the nutrients in dried squid; 2) How dried squid fits into their culture and cooking traditions; 3) How money and cost affect whether they eat dried squid; 4) What they believe the health benefits of dried squid compared to other foods; and 5) How often they eat dried squid.

2. LITERATURE REVIEW

Dried seafood, particularly squid, holds a vital place in the diets of low-income families due to its affordability and high nutritional value. Research has shown that dried seafood is a significant source of protein, minerals, and essential vitamins, making it an indispensable dietary component for economically disadvantaged communities (Belton *et al*., 2022). Its long shelf life and accessibility further enhance its role in addressing food security among low-income households. The consumption of dried fish, including squid, is deeply rooted in the cultural traditions of coastal communities. According to Chrispin and Kumar (2024), dried fish not only sustains livelihoods for fishers and processors but also contributes to local economies. As a staple food, it holds cultural and economic importance for communities, particularly among families with limited financial resources. Parental perceptions play a crucial role in shaping food choices in low-income families. Ravikumar *et al.* (2022) found that factors such as financial constraints, proximity to food sources, and awareness of nutritional benefits greatly influence these decisions. Improving access to affordable and nutrient-dense foods like dried squid can significantly enhance dietary options for disadvantaged families.

In coastal communities, dried seafood serves as a primary source of nutrition amidst challenges related to food security. Johnson *et al.* (2022) highlighted that while dried seafood is a readily available and affordable option, there is a need for improved processing techniques and policies to address safety and sustainability concerns. Such measures would ensure that dried seafood remains a reliable food source for low-income families. Gender dynamics also play a pivotal role in the dried seafood industry, particularly in the production of dried squid. Women often dominate roles in drying and processing, contributing significantly to household incomes and community welfare. Thrift *et al.* (2022) explored the importance of empowering women within the industry and emphasized the socioeconomic benefits of inclusive policies that support their contributions.

The efficacy of food that has been dried as discussed by Joardder *et al.* (2013) is influenced by a number of variables, such as the source material's effectiveness, internal microscopic structure, preparatory technique, preliminary processing interventions, and drying environments. Due to the combined effects of the transfer of heat and mass during the drying process, the physical makeup of the food materials experiences deformations. The mass dispersion factor, thermal conductivity, thermal diffusivity, and microstructure are just a few of the physical properties that are directly impacted by the formation and evolution of pores and that change over time.

People are now more concerned with their health and choose food that is high-quality in both sensory and nutritional aspects. For export to other nations, the high standard of fish and fisheries products is strictly upheld and controlled, but sadly, such quality control methods are not upheld for the local market. Numerous studies have found that dried fisheries products' physicochemical, microbiological, and tactile characteristics are unsatisfactory for human eating for a number of different reasons. Lack of infrastructure, improper drying techniques, carelessness or ignorance regarding the care and handling of raw materials and finished goods, improper understanding of drying times and temperatures, the use of insecticides, unhygienic conditions, improper sanitation, greater amounts of moisture in the finished product, and poor-quality raw materials are some of the causes for the quality and dietary loss of the finished item (Rasul *et al.*, 2021).

Additionally, Yao (2016) states the combined result of all these factors is a decline in the physical, nutritional, and financial health of dried fish. Microbial deterioration is mostly to blame for the decrease in quality, which makes up 70% of the overall loss in fisheries. However, a number of pretreatments (including blanching, ultrasound examinations, and high hydrodynamic pressure), a number of additives, and irradiated can be employed to speed up the process of drying, lower the primary microbial load, and enhance the nutritional value of dried fish and fisheries products. The factors affecting quality are complex, and variability is still a problem despite the fact that there has been a lot of research on the quality variations of dehydrated fish and seafood.

3. METHODOLOGY

3.1. Research Design

This study employed a descriptive research design, utilizing a cross-sectional survey approach to investigate the perceptions of low-income families in Palimbang, Region 12, Philippines, regarding the nutritional value of dried squid. The descriptive design was chosen because the study aimed to characterize and describe the existing perceptions and consumption patterns related to dried squid within the target population. The cross-sectional survey allowed for data collection at a single point in time, providing a snapshot of the beliefs and behaviors of low-income families regarding dried squid.

3.2. Research locale

The study was conducted in Palimbang, Sultan Kudarat. The municipality comprises of 40 barangays. It is located along the mountainous-coastal part of the province of Sultan Kudarat with a total population of 90, 424 people (DTI, 2023). The municipality is known for its rich cultural heritage, with a predominantly Moro population and a history deeply intertwined with the spread of Islam in the region. Economically, Palimbang thrives on agriculture, fishing, and small-scale industries, with rice farming and dried fish production being key livelihood sources. Additionally, the area is home to scenic coastal landscapes, including the Celebes Sea, which supports local tourism (Butalid-Echaves, 2020).

3.3. Research Participants and Sampling Technique

The targeted population for this study comprised low-income families residing in Palimbang, Region 12, Philippines. Based on the definition provided by the Philippine Statistics Authority (PSA, 2024), families with a monthly income below ₱12,884 were considered eligible for participation. A convenience sampling method was used to recruit one hundred (110) participants from local markets and community centers in Palimbang. Although this sampling method may limit the generalizability of the findings, it was deemed appropriate given the logistical constraints of the study and convenience sampling is a widely used non-probability sampling method where participants were selected based on their availability, proximity, or ease of access (American Psychological Association, 2018).

3.4. Research Instruments and Validity

A structured questionnaire was developed to collect data on the perceptions of low-income families regarding the nutritional value of dried squid. The questionnaire was divided into five sections, each addressing specific aspects of the study. The first section, Nutritional Awareness, included questions designed to assess participants' understanding of the nutritional content of dried squid, focusing on its protein levels, Omega-3 fatty acids, and comparisons to other protein sources. The second section, Cultural Perceptions, explored the cultural significance of dried squid, particularly its role in heritage and traditional cooking practices. The third section, Economic Factors, examined the impact of financial considerations, including income, cost, availability, and budget allocation, on dried squid consumption. Health Perceptions formed the fourth section, focusing on participants' views on the health benefits of dried squid compared to other processed foods. The final section, Consumption Frequency, investigated how often dried squid was consumed and whether it was considered a staple food in participants' households.

Table 1. Interpretation of Likert Scale Mean Ranges

Scale	Range of Mean	Interpretation
5	4.21 - 5.00	Strongly agree
4	3.41 – 4.20	Agree
3	2.61 – 3.40	Moderately agree
2	1.81 – 2.60	Disagree
1	1.00 – 1.80	Strongly disagree

Each question employed a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Additionally, demographic information—including family income, size, and education level—was gathered to provide further context for the study.

3.5. Statistical Treatment

The collected data were analyzed using descriptive statistical methods. Mean scores and standard deviations were computed for each question to provide a detailed summary of low-income families' perceptions regarding the nutritional value of dried squid. The mean scores were further interpreted to evaluate the level of agreement or disagreement with each statement. Data analysis was conducted using the statistical software Jamovi to ensure accuracy and efficiency.

4. RESULTS AND DISCUSSION

The results of the gathered data provide a comprehensive understanding of the factors influencing the consumption of dried squid, encompassing nutritional awareness, cultural acceptance, economic accessibility, health benefits perception, and frequency of consumption.

Table 2. Perceptions of Low-Income Families on the Nutritional Value of Dried Squid

Factors	Parameters	Mean	SE	SD	Interpretation
Nutritional Awareness (NA)	N1. I am aware that dried squid is a good source of protein and other nutrients.	3.48	0.0981	1.029	Strongly Agree
	N2. I am knowledgeable about the nutritional content (e.g., protein, Omega-3) of dried squid.	3.88	0.0938	0.984	Agree
	N3. I know how dried squid compares nutritionally to other protein sources like chicken or fish.	3.17	0.1211	1.270	Moderately Agree
	N4. I am aware of any potential nutritional deficiencies in dried squid.	3.11	0.1003	1.052	Moderately Agree
Cultural Acceptance (CA)	C1. My family enjoys the taste and texture of dried squid.	3.34	0.1083	1.136	Moderately Agree
	C2. Dried squid is a part of our cultural heritage.	3.50	0.0964	1.011	Agree
	C3. Dried squid is traditionally used in our family's cooking.	3.43	0.1194	1.252	Agree
	C4. Cultural preferences influence how often I include dried squid in meal planning.	2.53	0.0973	1.020	Disagree
Economic Accessibility (EA)	E1. Dried squid is readily available in my local markets or stores.	3.22	0.0889	0.932	Moderately Agree
	E2. My family's income level affects our ability to include dried squid in our meals frequently.	4.00	0.0696	0.729	Agree
	E3. I allocate a significant portion of my budget to purchase dried squid.	3.34	0.1213	1.273	Moderately Agree
	E4. The cost of dried squid affects how frequently I purchase it.	4.00	0.0807	0.846	Agree
Health Benefits Perception (HBP)	H1. I believe that consuming dried squid contributes positively to my family's health.	3.83	0.1024	1.074	Agree
	H2. Dried squid is an affordable source of nutrition for my family.	3.85	0.0933	0.979	Agree
	H3. I perceive dried squid as healthier than other processed foods.	4.14	0.1013	1.062	Agree
	H4. Dried squid provides essential nutrients that are beneficial for health.	3.86	0.1180	1.238	Agree
Frequency of Consumption (FC)	F1. My family consumes dried squid regularly as part of our diet.	3.56	0.1130	1.185	Agree
	F2. I plan meals around dried squid at least once a week.	2.14	0.0842	0.883	Disagree
	F3. I purchase dried squid frequently.	3.68	0.1204	1.263	Agree
	F4. Dried squid is considered a staple food in our household.	4.41	0.0810	0.849	Strongly Agree

The study reveals that respondents have a strong understanding of dried squid as a good source of protein and other nutrients, as evidenced by a mean score of 3.48 for N1, indicating strong agreement. Additionally, they demonstrate a high level of knowledge about the specific nutritional content of dried squid, such as protein and Omega-3, with a mean score of 3.88 for N2, showing agreement. However, respondents show only moderate agreement on how dried squid compares nutritionally to other protein sources like chicken or fish (mean score of 3.17 for N3) and awareness of potential nutritional deficiencies (mean score of 3.11 for N4). These findings highlight some understanding but also indicate room for improvement in comparative nutritional knowledge and awareness of deficiencies. Targeted education could enhance these aspects, aligning with recommendations for improving nutritional literacy (Good Health Plan, 2023; WebMD, 2023). Whereas, cultural factors play a pivotal role in the consumption of dried squid, with strong agreement that it is part of cultural heritage and traditionally used in cooking, as indicated by mean scores of 3.50 and 3.43 for C2 and C3 respectively (Dongshui Foods, 2024). But the result indicates that cultural preferences do not directly influence meal planning frequency, as suggested by a mean score of 2.53 for C4. This indicates that while cultural heritage supports the inclusion of dried squid in diets, it may not be the primary driver of consumption frequency (Belton *et al.*, 2022).

On the side of economic factors, it significantly influences consumption patterns, with high mean scores for E2 and E4 (both 4.00) indicating strong agreement that family income level and cost affect how frequently dried squid is included in meals. Moderate agreement on availability (E1) and budget allocation (E3) further emphasizes the importance of economic considerations in purchasing decisions. Moreover, respondents generally perceive dried squid as beneficial for health, with high mean scores for H3 and H4 (4.14 and 3.86 respectively), indicating agreement that it is healthier than other processed foods and provides essential nutrients. Hence, the mean score for H1 (3.83) indicates the agreement that dried squid does indeed contribute positively to family health (Richards, 2024). It shows that respondents generally view dried squid as a healthy food option, providing essential nutrients and being healthier than other processed foods. With that, it correlates on the frequency of consumption which is relatively high, with mean scores indicating agreement that dried squid is regularly consumed (F1-F3) and considered a staple food (F4, mean = 4.41), reflecting both cultural and practical considerations (Belton *et al.*, 2022).

Table 3. Implications on the Perceptions on Dried Squid Consumption

Aspect	Implication
Nutritional Education	Improved understanding of dried squid's comparative nutritional value and awareness of deficiencies is needed; targeted education could enhance literacy.
Cultural Heritage	Cultural appreciation supports the inclusion of dried squid in diets but has limited influence on meal planning frequency; integration with practical planning is suggested.
Economic Considerations	Affordability and accessibility are crucial; family income and cost significantly impact consumption patterns.
Health Perceptions	Dried squid is viewed as nutritious as and healthier than processed foods; promoting these benefits can reinforce its status as a staple food.
Frequency of Consumption	High consumption frequency highlights its cultural and practical importance; dried squid is considered a staple food.

The consumption of dried squid among low-income families exemplifies the intricate interplay of nutritional, cultural, and socioeconomic factors, defining its significance as both a dietary staple and a cultural symbol. Dried squid is a significant source of protein, omega-3 fatty acids, and essential micronutrients important for health, especially in resource-limited environments. The traditional sun-drying method, though historically important, presents challenges including nutrient loss and environmental contamination due to reliance on weather conditions and exposure to pollutants (Jain *et al.*, 2007). In response, Wang *et al.* (2014) advocate for enhanced drying techniques that maintain nutritional value and ensure safety, emphasizing the potential to enhance dried squid's reputation as a dependable protein source. This nutritional aspect is closely linked to its cultural foundations. Dried squid has been a significant component of Asian cuisine for centuries, appreciated for its unique flavor and prolonged shelf life. In addition to its culinary applications, it possesses symbolic importance in festivals and communal events, signifying prosperity and tradition (Wang *et al.*, 2014). Although culturally significant, implementing practical strategies to integrate dried squid into diets can improve its role in nutrition security. Meal planning that enhances nutrient density with affordable and accessible foods may address dietary deficiencies, especially in low-income households.

Economic factors significantly affect dried squid consumption, correlating its availability with cost-effectiveness. In Palimbang, where fresh seafood is limited, dried squid serves as a cost-effective alternative for low-income families. Wickrama *et al.* (2023) emphasize that variations in market prices and supply chain issues can alter consumption patterns (Akmad *et al.*, 2024). This highlights the significance of policies designed to stabilize prices and ensure a consistent supply, which may enhance its role as a vital food source. Health perceptions of dried squid correspond with its practical value, as it is regarded favorably for its high protein and omega-3 content, thereby

establishing it as a nutritious alternative to processed snacks. Moderation is essential because of the sodium and cholesterol content, highlighting the need for public health campaigns to promote balanced consumption. These elements of nutritional education, cultural heritage, and economic practicality collectively underscore the significance of dried squid for low-income families. The frequent consumption of this food illustrates its cultural and practical significance, as well as its adaptability as a staple in areas with restricted access to fresh seafood.

5. CONCLUSION

This study offers insightful analysis of how low-income Palimbang residents view dried squid. Although participants usually agree that dried squid is an excellent source of protein and other nutrients, their knowledge of its particular nutritional value and possible shortcomings is somewhat poor. Families value its taste and historical relevance, so cultural acceptance plays a part. Meal planning is not much influenced, nevertheless, by ethnic tastes. One important consideration is economic accessibility since local stores easily provide dried squid. Nutritional awareness, cultural acceptance, economic accessibility and health benefit perceptions range from Agree to Strongly Agree. These results highlight the need of focused treatments that improve nutritional literacy, support the integration of dried squid into diets in a way that addresses both nutritional needs and cultural preferences within the economic reality of low-income families, so enhancing informed food choices. More investigation could look at particular techniques to increase the nutritional value of dried squid while lowering possible health hazards.

RECOMMENDATIONS

The results of the study call for local government agencies and health organizations in Palimbang working together to create focused nutritional education initiatives. These initiatives should concentrate on giving precise knowledge on the nutritional profile of dried squid, together incorporating its advantages and possible negative effects such sodium content. In order to guarantee balanced nutrition among low-income households, efforts should also be made to support varied dietary practices including a range of reasonably priced and nutrient-rich food sources together with dried squid. Moreover, encouraging sustainable drying methods and helping local fisheries will improve the availability and quality of dried squid, therefore improving food security and economic stability in the municipality and its environs.

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