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Association Between Maternal Knowledge and Nutritional Status of Children Aged 6–24 Months in Padangsidimpuan, Indonesia

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ABSTRACT:
Background: Chronic malnutrition has a significant impact on children's physical growth, where feeding practices that are not appropriate for age and nutritional needs are often caused by a lack of knowledge among mothers.
Aims: This study aims to determine the relationship between mothers' knowledge and the nutritional status of children aged 6-24 months at the Labuhan Rasoki Community Health Centre, Padangsidimpuan City, in 2024.
Method: This quantitative study used a cross-sectional approach, involving a sample of 70 respondents selected using total sampling from the population of mothers with children aged 6-24 months.
Result: The results of the analysis using the Fisher Exact Test statistical test showed a p-value of 0.000 ($p < 0.05$), indicating that there is a significant relationship between mothers' knowledge and the nutritional status of children.
Conclusion: It can be concluded that the level of maternal knowledge is closely related to the nutritional status of children aged 6-24 months in the working area of the Labuhan Rasoki Community Health Centre in 2024.

Keywords: Nutritional Status, Mothers, Children aged 6-24 months.

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INTRODUCTION

Nutritional status is a crucial indicator in determining the quality of physical growth and development of children especially during their golden age of growth (Samta et al. 2024; Ramadhanintyas et al. 2025; Setyaningsih and Mustikaningrum 2025) . Globally, malnutrition remains a major challenge; approximately 45% of deaths among children under five each year are related to nutritional problems (Iswarawanti, n.d.; Veri et al. 2025; K et al. 2021) . In Indonesia, the prevalence of malnutrition continues to show an upward trend, with national data for 2022 recording a figure of 17.1%. The urgency of addressing this nutritional problem is pressing because chronic malnutrition can have long-term effects on children's health in the future (Martony 2023; Gunasari et al., n.d.; Anwar et al. 2025) .

Ideally, exclusive breastfeeding for 6 months followed by appropriate complementary feeding until 24 months of age is highly recommended to achieve optimal growth and development (Azzahra et al. 2025; Swandari et al. 2017) . However, conditions in the field show a significant gap, with many mothers providing food that is not appropriate for their children's age and nutritional needs (Khayati and Munawaroh 2018; Wakkary and Hutapea 2025; Marlinda et al. 2026) . In the Labuhan Rasoki Health Centre area alone, the prevalence of malnutrition reached 31.93%, which was the highest figure compared to other health centres in Padangsidimpuan City in 2023.

The opportunity to conduct this research is significant, given the high rate of abnormal nutritional status among children in the Labuhan Rasoki Community Health Centre working area, which reached 54.3% based on the latest data. In addition, the support from academics and local health facilities in granting research permits paved the way for researchers to explore more deeply the factors causing nutritional problems in that location. The high level of community participation and the need for nutrition education for mothers with children aged 6-24 months provide the right momentum for conducting this research. In addition, this study uses the latest post-pandemic data to evaluate whether mothers' knowledge levels remain a dominant factor amid increasingly open access to information. During the COVID-19 pandemic, the regional access to direct nutritional counseling and routine health services at the Labuhan Rasoki Community Health Centre was significantly restricted, which hindered the dissemination of accurate nutritional guidance for mothers. Consequently, this study serves to re-examine the current state of maternal nutritional literacy in the post-pandemic recovery phase to determine if previous information gaps have been bridged or persist.

Although many global studies have discussed nutritional status, there is a need to test this correlation in the specific local context of Padangsidimpuan City, particularly in the Labuhan Rasoki Community Health Centre area in 2024. The novelty of this study lies in its focus on children aged 6-24 months, which is a critical transition period from exclusive breastfeeding to solid foods. In addition, this study uses the latest post-pandemic data to see whether mothers' knowledge levels are still a dominant factor amid increasingly open access to information today.

The selection of maternal knowledge as a variable is based on the assumption that mothers are primarily responsible for their families' nutritional intake. Mothers' lack of understanding of the nutritional value of food is often the main trigger for nutritional problems in children. Good nutritional knowledge is expected to shape mothers' positive behaviour in preparing meals that meet health requirements, thereby ensuring the proper growth and development of toddlers.

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This study generally aims to determine the relationship between mothers' knowledge and the nutritional status of children aged 6-24 months at the Labuhan Rasoki Community Health Centre. Theoretically, the results of this study are expected to enrich scientific knowledge about the factors that influence child nutrition. Practically, this study contributes as a source of information for mothers in improving the quality of complementary feeding, as well as a reference for health workers in designing more effective nutrition education programmes in the future.

METHOD

Research Design

This study is a quantitative study that aims to explore how health phenomena occur by analysing the correlation dynamics between variables (Riyanto and Hatmawan 2020) . The design used is a correlational design with a cross-sectional approach. Through this approach, independent and dependent variables are studied and data is collected simultaneously to determine the relationship between mothers' knowledge and the nutritional status of children aged 6-24 months.

Participants

The participants in this study were mothers with children aged 6-24 months who lived in the working area of the Labuhan Rasoki Community Health Centre. Based on the characteristics of the respondents, the majority of participants were in the productive age range of 20-35 years (75.70%) with the highest level of education being senior high school (40%). In terms of occupation, most respondents worked as entrepreneurs, followed by housewives and farmers.

Population and sampling methods Instrumentation

The participants in this study were mothers with children aged 6-24 months who lived in the working area of the Labuhan Rasoki Community Health Centre. Based on the characteristics of the respondents, the majority of participants were in the productive age range of 20-35 years (75.70%) with the highest level of education being senior high school (40%). In terms of occupation, most respondents worked as entrepreneurs, followed by housewives and farmers. The population in this study consisted of all mothers with children aged 6-24 months at the Labuhan Rasoki Community Health Centre, totalling 70 people. The sample was determined using total sampling technique, where all members of the population were used as research samples. This sample was also limited by inclusion criteria, such as willingness to be a respondent and possession of a KIA book, as well as exclusion criteria such as mothers who were not present at the time of the study or babies who were ill.

Instruments

The instrument used to collect data on mothers' knowledge was a structured questionnaire consisting of 25 questions. To ensure the accuracy of the data, the questionnaire underwent validity and reliability testing prior to use to confirm that the items were suitable for measuring the target variables. For nutritional status variables, the researchers used calibrated weighing scales and measuring tapes to measure the height of toddlers. Periodic calibration of these anthropometric tools was strictly performed to ensure the validity and accuracy of the weight and height measurements.

Procedures and Time Frame (Procedures and Time Frame)

The research procedure began with the submission of the title, request for permission from the university, to direct data collection in the field through the distribution of questionnaires and physical measurements. Respondents were given an explanation of the purpose of the study and signed an informed consent form before being given approximately 15 minutes to complete the questionnaire. Overall, this series of research activities is planned and

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implemented from November 2024 to data processing and a final seminar in early 2025.

Analysis Plan

Data analysis was conducted through several processing stages, namely editing, coding, entering, and cleaning. Univariate analysis was used to examine the frequency distribution of respondent characteristics and research variables. Next, bivariate analysis was performed using Fisher's Exact Test as an alternative to the Chi-square test because there were cells that did not meet the expected count requirement. Statistical decisions were made based on a significance value of $p < 0.05$ to determine the relationship between variables.

RESULTS AND DISCUSSION

Result

Based on data collected from 70 respondents at the Labuhan Rasoki Community Health Center (Puskesmas), it was found that the majority of mothers possessed sufficient nutritional knowledge, accounting for 40 individuals (57.10%). However, regarding the children's nutritional status, a significant proportion of children aged 6–24 months fell into the abnormal nutritional status category, comprising 38 children or approximately 54.30% of the total sample. This finding highlights a serious challenge in meeting children's nutritional needs in the region.

Table 1. Distribution of the Relationship between Maternal Nutritional Knowledge and Toddler Nutritional Status in the Working Area of Labuhan Rasoki Community Health Center

Maternal Knowledge	Abnormal Nutritional Status	Normal Nutritional Status	Total	p-value
Good	2	24	26	
Sufficient	9	9	18	**0.000**
Poor	26	0	26	
Total	**37**	**33**	**70**	

Notes: Nutritional status is classified based on anthropometric measurements. The category "Abnormal Nutritional Status" in this study encompasses underweight, severe malnutrition, and overnutrition according to standard child growth charts.

Further analysis using the Fisher's Exact Test yielded a p-value of 0.000, which is well below the significance level of 0.05. These results statistically confirm a significant relationship between maternal knowledge levels and the nutritional status of children aged 6–24 months. A particularly striking finding is that 100% of mothers with a 'poor' knowledge level (26 individuals) have children with abnormal nutritional status. This demonstrates that low nutritional knowledge has an absolute correlation with poor nutritional status among children in the study area.

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Discussion

The results of this study confirm that maternal knowledge is the main foundation in determining nutritional care patterns for children. Mothers with good knowledge tend to be able to regulate portions, types of food, and appropriate processing methods according to the growth and development needs of toddlers (Najwatory and Priasmoro 2026; Artini et al. 2024; Shaluhiyah et al. 2020) . Conversely, low knowledge often makes mothers unaware of the risks of malnutrition or feel that giving certain foods is sufficient without considering their nutritional value (Iwansyah and Juraidin 2025; Nurwati and Harmaidi 2025; MPH and M.Sc 2022) . Nevertheless, there is an interesting finding where respondents with good knowledge still have children with poor nutrition, indicating the influence of other factors such as the mother's attitude, behaviour, and motivation in practising her nutritional knowledge. Nevertheless, there is an interesting finding where respondents with good knowledge still have children with poor nutrition. This anomaly suggests that knowledge alone is insufficient to guarantee optimal nutritional status. Other critical factors likely play a significant role, such as the family's socioeconomic conditions which restrict access to high-quality protein, or a history of recurrent infections in children that hinders nutrient absorption despite adequate intake.

This study has important implications for the need to strengthen ongoing nutrition education for mothers at the grassroots level. Given the strong correlation between knowledge and nutritional status, health intervention programmes at community health centres should focus more on improving nutritional literacy, rather than simply providing food aid. This is important to ensure that mothers not only know "what" to provide, but also understand "why" and "how" to provide balanced nutrition during their children's golden period of growth. Furthermore, the local culture in Padang Sidimpuan also appears to influence feeding practices. Even when mothers possess sufficient theoretical knowledge, traditional beliefs or local dietary habits such as a preference for certain staple foods that may be low in micronutrient density often dictate actual daily feeding patterns. Consequently, the gap between knowledge and practice is not merely an educational issue but is deeply embedded in the socioeconomic and cultural fabric of the community.

This study contributes scientifically in the form of empirical data on specific nutritional conditions in the Labuhan Rasoki area, which can be used as a reference in mapping regional health issues. In practical terms, the results of this study provide valuable input for health workers in the field of maternal and child health to design more intensive and targeted educational materials. Additionally, this research adds to the literature for educational institutions regarding the relationship between knowledge variables and children's physical parameters using the latest anthropometric methods.

The researchers acknowledge the limitations of this study, particularly in terms of the scope of variables, which focused only on mothers' knowledge. Other supporting factors, such as attitudes, actual actions in feeding, family economic conditions, and children's infection history, were not explored in depth in this study. Furthermore, the limited sample size in one health centre working area means that generalisation of the results of this study to a wider population should be done with caution.

Mothers are advised to be more active in Posyandu activities and nutrition education to update their knowledge on healthy eating patterns for children. Health centres are expected to implement more regular nutrition monitoring programmes and provide special assistance to mothers with low levels of knowledge. For future researchers, it is recommended to expand the scope of research by increasing the sample size and including other variables such as mothers' attitudes and behaviour to obtain a more comprehensive picture of the factors causing nutritional problems.

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CONCLUSION

Based on the results of research on the relationship between mothers' knowledge and the nutritional status of children aged 6-24 months at the Labuhan Rasoki Community Health Centre, it can be concluded that there is a significant relationship between the level of mothers' knowledge and the nutritional status of children. The data shows that the majority of respondents had a "Sufficient" level of knowledge (57.10%), while most children (54.30%) were in the "Abnormal" nutritional status category. Statistical analysis using the Fisher Exact Test yielded a p-value of 0.000 ($p < 0.05$), which means that the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted. This proves that maternal knowledge is an important factor influencing children's nutritional status, where a lack of knowledge about nutrition often leads to feeding practices that are not appropriate for the age and physical growth needs of children.

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AUTHOR CONTRIBUTION STATEMENT

The entire research process and preparation of this scientific paper were the result of collaboration between the author and the supervisory team. N.O, acted as the main author responsible for formulating the research idea, collecting field data through questionnaires and anthropometric measurements at the Labuhan Rasoki Community Health Centre, as well as analysing the data and preparing the entire draft of the thesis. M.S, , as the main supervisor, contributed by providing substantive guidance, critical reviews of the research methodology, and guidance on the material to improve the manuscript. Y.A, as the assistant supervisor, provided technical input, suggestions for improvements to the writing, and assistance in the process of completing the thesis from start to finish. All authors have read and approved the final version of this manuscript.

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