



ANALYSIS OF NUTRITIONAL PROBLEMS USING *FOCUSED INTERVIEWS METHOD* IN ELEMENTARY SCHOOL CHILDREN (*LATER CHILDHOOD*) IN BATAM CITY

Roza Erda^{1*}, Dachriyanus Hamidi², Desmawati³, Rosfita Rasyid⁴

¹Doctoral Program of Public Health Science, Faculty of Medicine, Universitas Andalas, Limau Manis, Pauh, Padang, West Sumatra 25163, Indonesia

²Department of Pharmacy, Faculty of Pharmacy, Universitas Andalas, Limau Manis, Pauh, Padang, West Sumatra 25163, Indonesia

³Department of Nutritional Science, Faculty of Medicine Universitas Andalas, Limau Manis, Pauh, Padang, West Sumatra 25163, Indonesia

⁴Department of Public Health and Community Medicine Sciences, Faculty of Medicine, Universitas Andalas, Limau Manis, Pauh, Padang, West Sumatra 25163, Indonesia

*rozaerda21@gmail.com

ABSTRACT

Optimal nutrition significantly impacts human health, particularly for primary school-aged children. Malnutrition manifests in various health issues, such as stunting, underweight, micronutrient deficiencies, and obesity. The prevalence of malnutrition among school-aged children in Indonesia, including Batam City, is rising yearly. This study aimed to analyse factors affecting the nutritional needs of elementary school children in Batam City. The study was conducted over one month and employed a qualitative approach. Participants included 39 respondents: 13 children, 11 parents, 5 peers, 5 teachers, and 5 school health centre officers, selected purposively. Data collection used open-ended responses through in-depth interviews. Findings revealed limited knowledge among children about balanced nutrition. All informants emphasized the importance of consuming diverse foods to meet nutritional needs, with children showing a positive attitude toward trying various foods. The respondents also highlighted the importance of avoiding impulsive snacking. Moreover, the study identified a positive relationship between physical activity and cognitive focus in learning, underscoring the need for regular physical activity. Programs addressing the specific nutritional challenges faced by children in Batam could enhance awareness and encourage healthy eating habits among elementary students.

Keywords: childhood; depth interview; habits; nutrition

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INTRODUCTION

Nutritional status measures success in fulfilling children's nutrition, including height and weight. Optimal dietary status affects physical growth, brain development, workability and children's health (Nadya A, 2019). However, preschool children generally experience difficulty eating due to independence in children's cognitive development (Firdaus IR et al, 2022). Severe difficulty eating will have negative impacts, such as malnutrition (Anggari RS, 2020). Malnutrition in children can cause decreased physical growth, suboptimal development and intelligence, as well as reduced body resistance to disease, resulting in the risk of illness and even death (Ikhwan I, 2017).

Each stage of a child's growth and development has different nutritional needs. From pregnancy to adolescence, children are always at risk of experiencing malnutrition. One of the most critical but often overlooked age stages is school age. When children reach elementary school age, eating habits form (JPGI, 2022). Children's nutritional status indicates their health and nutritional adequacy (Ahmad, Mishra, 2022). Malnutrition covers a variety of health

conditions, including *stunting*, *wasting*, *underweight*, micronutrient deficiencies, overweight, obesity, or diet-related non-communicable diseases (WHO, 2021).

Nutrition (less or overnutrition) is generally caused by imbalanced substance nutrition entering the body and substance nutrition going out. The problem of less nutrition caused by low expenditure of energy (carbohydrates, proteins, fat) and is often accompanied by deficiency in substance nutrition micro (vitamins and minerals). On the other hand, problem nutrition is caused by a lack of physique activities, which causes an imbalance between substance nutrition, which needs to be issued from the body, and substance nutrition, which enters the body (Wiradnyani LAA, 2019).

School-age children and teenagers are one of the groups targeted for good nutritional practices. 23% of the population in Indonesia are children aged 7-18 years, and this age range requires them to study for 12 years, so they spend quite a long time at school (Khusun H, Wiradnyani L, 2020). The severe and long-term consequences of early childhood malnutrition can hinder motor, sensory, cognitive, social and emotional development. When children grow up malnourished, they do less well in school and are more likely to become undernourished adults who are at greater risk of disease and dying early (Rashmi MR, 2015). Meanwhile, the direct consequences for children who are overweight and obese are the risk of asthma and cognitive impairment. Long-term consequences include the risk of obesity, diabetes, heart disease, several types of cancer, respiratory, mental health and reproductive disorders (WHO, 2023).

The prevalence of overweight, including obesity among children and adolescents, has been observed to increase worldwide. In 2010, the prevalence was 17.0% among boys and 15.5% among girls aged 5-9. For adolescents aged 10-19, the rates were observed at 14.4% for boys and 13.8% for girls. By 2019, these figures had risen to 24.5% for boys and 21.4% for girls in the 5-9-year age group. Among adolescents, the rates were increased to 20.2% for boys and 18.4% for girls. Data from 2019 also indicated that the global prevalence of underweight among children and adolescents has slightly decreased since 2010. Among boys, the prevalence was reduced from 12.8% to 10.9%, while for adolescent girls, it decreased from 9.6% to 8.9% in the 5-9-year age group. In the 10-19 year age group, the prevalence of underweight among adolescent boys declined from 13.4% to 12.3%, and among teenage girls from 8.1% to 7.9%.

In Batam City, located in the Riau Islands Province, the prevalence of overnutrition among children aged 5-12 has been recorded at 23.57%, with 9.82% being overweight and 10.53% obese, the highest rate in the province. Meanwhile, severe undernutrition and undernutrition rates are noted at 4.17% and 7.20%, respectively (Risksedas, 2018). According to the Batam Health Department's 2021 data, health screenings of primary and MI school students covered 387 out of 409 schools. Of the 44,087 students surveyed, 1,404 were found to be severely thin, 2,571 were thin, 1,593 were overweight, and 153 were obese (Wirakesuma, 2022). This study aimed to analyse factors affecting the nutritional needs of elementary school children in Batam City

METHOD

The research design is structured to include the methods and assumptions for data collection on a specific topic. In this study, a qualitative approach is employed to understand the issues related to nutritional fulfilment among elementary school students in Batam City. The primary instrument used is the researcher, who will conduct in-depth interviews with both primary and secondary informants. Three stages are followed in this qualitative research: (1)

The pre-fieldwork stage, where initial research planning is conducted, along with a preliminary study in selected elementary schools in Batam to observe children's daily nutritional habits and select informants. (2) The fieldwork stage, during which data is gathered through regular, in-depth interviews with chosen informants to ensure accurate information is collected. (3) The post-fieldwork stage, in which data is analysed cyclically throughout data collection to help refine the focus of the study.

In this study, two types of key informants were involved: primary and secondary informants. A total of 39 informants participated, including students, teachers, parents, peers, and school health unit managers, who served as supporting informants. Data saturation for the primary informants was reached at the 13th informant, resulting in 13 primary informants. Informants were selected through an in-depth interview tailored to the research data needs. Additionally, a snowball sampling technique was used to validate the necessary data. The researcher was the primary instrument in this study, conducting in-depth interviews with selected samples using a structured interview guide. Each respondent was asked a series of questions, recorded with audio devices and documented in field notes. Sample questions included knowledge-based questions like, '*What is a balanced diet?*' and behaviour-oriented questions such as, '*Do you buy snacks at school?*' Additionally, support was assessed with questions for teachers (e.g., '*What advice is given to students on nutritional needs?*') and peers (e.g., '*Do you encourage friends to buy snacks outside of school?*'). School roles, eating patterns, and physical activities were explored through similar specific questions.

The study used three stages of observation: observation, participation, and reflection. Observational participation involved observing children's daily nutritional habits at school and home and conducting in-depth interviews with key and supporting informants to evaluate their behaviours and interactions. A tape recorder was employed during interviews to capture insights into informants' experiences, thoughts, and feelings about meeting nutritional needs, though recordings were limited to the first interview only. Field notes were maintained throughout interviews and observations, documenting key activities and insights. The researcher completed data collection through interviews with primary informants (elementary school children) and supporting informants, along with participation-based observation of the main informants' daily activities. This research has obtained ethical approval from the Universitas Andalas with letter number 108/UN.16.2/KEP-FK/2023.

RESULT

Based on interviews conducted with all primary and supporting informants, conclusions were drawn regarding several factors that play a crucial role in meeting children's nutritional needs. These factors include knowledge, attitudes, support from teachers and peers, the role of schools, eating habits, physical activity, and parental nurturing. Conversely, issues in children's nutritional fulfilment were found to be directly and indirectly linked to these factors, as explored through in-depth interviews. The researcher carried out the research with support from a notetaker. Data collected from the field was subsequently analysed through several stages: listening to and transcribing recordings, reviewing field notes, grouping data, organising it for more straightforward interpretation, and drawing conclusions. Some of the results obtained from in-depth interviews with informants are as follows: The identification of the analysis in this study shows that the analysed aspects asked of the informants were what the informants knew about balanced nutrition. Schoolchildren need balanced nutrition to achieve optimal growth and development. Balanced nutrition for school children is provided daily with various types of food.

The information about balanced nutrition is intended to assess elementary school student's understanding of the concept. In-depth interviews conducted by the researcher showed that students do not know about balanced nutrition. Several questions were posed to the primary informants, including: "Do you know what nutritious food is?" "What types of nutritious foods do you know?" and "What components make up nutritious food?" It was found that the informants were unable to explain the questions correctly. The primary informants provided the following responses:

"..... I don't know; I like to purchase my meal in front of school"
"..... rice, fish and vegetables"
"... I don't know ..."

Additionally, in-depth interviews were conducted with parents and schoolteachers to validate their knowledge regarding nutrition for children. Questions posed to parents included, "What types of food are prepared daily?" and "How is the child's appetite?" For teachers, the questions were, "What education is provided to children about balanced nutrition?" and "How do teachers motivate children to consume nutritious food?" Various responses were received from the supporting informants, such as:

"... rice and eggs, but he doesn't like vegetables (pointing to the main informant)..."
"... he has difficulty eating..."
"... he likes to snack outside..."
"... he eats crackers..."

In contrast, the responses from schoolteachers were recording gave the same answer regarding the questions asked:

"... balanced nutrition is food that contains carbohydrates, protein, fats, fibre, vitamins, and minerals..."
"... there are references available in the library about balanced nutrition, but the children rarely read them..."
"... I explain about nutrition in class using the reference books provided by the school..."

The results of the in-depth interviews conducted to understand the support provided by teachers regarding the nutritional issues faced by respondents revealed that the support given includes information about not buying snacks from random sources. This is evident in the following statements made by the informants:

"... yes, do not buy random snacks."
"... yes, providing information."

The results from the interviews with teachers about the support given to students experiencing nutritional issues indicate that reminders are provided for students to have breakfast, avoid buying random snacks, and bring lunch from home. The insights gained from the interviews with the teachers regarding their support can be seen in the quotes below:

"I often remind students to have breakfast before school and bring lunch from home."
"I inform the children not to eat random food, to consume fruits and vegetables, and to bring their lunch from home."

Physical activity is defined as movements produced by skeletal muscles that enhance energy expenditure and can fill free time during the day. Physical activity can improve concentration, thinking, and learning, so students should engage in physical activities. The results from the in-depth interviews regarding the physical activities of informants showed various types of

physical activities, such as playing football, running, and sedentary activities. This is reflected in the statements made by the informants:

“... playing football, reading the Quran, and watching television...”
“... playing and hanging out with friends...”
“... I usually engage in physical activities like running and playing basketball after school...”
“... I eat and play football with my friends...”

The results of the in-depth interviews regarding the physical activities performed by children revealed that when respondents were asked, ‘What do you do after school?’ the majority of responses from the primary informants were as follows:

“... playing football, reading the Quran, and watching television...”
“... playing and walking with friends...”
“... I usually engage in physical activities like running and playing basketball. After school, I eat and play football with my friends...”

In-depth interviews with the parents of the primary informants addressed the question, ‘What do your children do after school?’ It was concluded that most of the responses indicated similar activities, namely playing and studying the Quran. Here are the responses to that question:

“After school, my child eats lunch, rests, plays with friends, and recites the Quran.”
“... after school, they often play football in the evening.”
“... children remain active in all activities, including playing, learning, and exercising.”

In-depth interviews about the informants’ diet revealed that the informants maintain a good and regular diet. Questions asked included, ‘How many meals do you have in a day?’ and ‘What types of food are provided to the children?’ This is reflected in the following statements made by the informants:

“... they eat three times a day...”
“... three times a day, sometimes twice a day...”
“... regularly, if they are reluctant to eat, I buy them their favourite food...”
“... I give my child snacks like fries or let them bake at home.”
“... they eat rice and snacks...”
“... my child is rarely given snacks...”

The results of the in-depth interviews conducted by the researcher regarding the role of schools found that only body weight and height were measured. This is reflected in the statements from the informants below:

“... yes, measurements of weight and height are taken...”
“... to determine body weight and height...”

The results of the in-depth interviews conducted at the school to assess its role revealed that the school had not provided sufficient support for the children. When asked, ‘Has balanced nutrition education ever been conducted at this school?’ the informants made the following statements:

“... never...”
“... none...”

Interviews with health centre staff indicated that the Trias Health Centre’s services, including health education, health services, and environmental management, showed that the health centre’s implementation at the school was ineffective. Questions such as, ‘Are there any

health facilities provided?’ and ‘What programs have been implemented to educate children about balanced nutrition?’ led to the following responses:

“... yes, but only handwashing facilities are provided...”
“... not well implemented, only in a few aspects such as providing handwashing facilities like sinks. We have prepared sinks in every classroom. However, other health programs have not been initiated.”

The results of the interviews conducted by the researcher regarding the health programs related to nutrition screening for school children showed that these initiatives have not been effectively implemented. This can be seen in the following statements:

“... for nutrition, nothing like that exists; there is a screening for measuring children’s height and weight twice a year from the health centre...”
“... twice a year, the health centre usually comes for immunisation; apart from immunisation, there is nothing else.”

The interviews conducted by the researcher regarding the causes of insufficient nutrition screening and monitoring in schools indicated a lack of follow-up from the health centre after the screening. This is illustrated in the following statements:

“... because if there are nutrition problems, such as overweight and underweight children, there is no follow-up, which is an issue; there is no evaluation and no follow-up...”
“... there is no follow-up because no screening is conducted apart from immunisations.”

The research findings indicate that students’ knowledge about balanced nutrition is still lacking. Additionally, parents’ understanding of their children’s ideal body weight is also insufficient. Parents stated that they are aware of their children’s current ideal weight and generally understand the concept of balanced nutrition. In other words, even though parents possess good knowledge about balanced nutrition, their children still have unhealthy eating habits. As the providers of nutrition education in schools, teachers mentioned that the nutritional content in textbooks is minimal and that no specific nutrition modules are available.

DISCUSSION

The lack of knowledge and misconceptions regarding food needs and nutritional values are still common. This may be attributed to poverty and the insufficient availability of nutritious food, which are significant factors contributing to malnutrition in children (Di Nucci A, 2024). Inadequate nutrition knowledge that is not effectively communicated cannot change eating habits; therefore, developing positive attitudes towards healthy eating from an early age is essential. Information sources regarding adequate nutrition also play a critical role in this regard. Misbeliefs and inappropriate attitudes toward certain foods result in inadequate and unbalanced diets, leading to child malnutrition. Parents’ beliefs, attitudes, and feeding practices are significantly associated with children’s BMI z-scores (Park SJ & Ryu SY, 2019). Parental involvement in health promotion interventions for children has been identified as an essential factor in enhancing intervention effects (Waters E, 2011).

Not only knowledge but also physical activities undertaken by children are supported by parents, who report their children’s activities after school. The WHO recommends at least 60 minutes of daily physical activity to improve or maintain heart and muscle health (WHO, 2010). Many qualitative studies have explored the roles of peers, family, and teachers in promoting children’s engagement in physical activities, with parents identified as the primary facilitators of their children’s physical activities. Engaging in physical activities improves children’s physical health and minimises the incidence of illness (Allender S, 2023).

Furthermore, several important supporting factors need to be analysed regarding nutritional issues, including peer support; peers often provide insufficient nutritional information to friends facing nutritional problems. The family and peer environments are crucial as primary social contexts contributing to body weight and behavioural norms (Ziets S & Cheng E, 2023). Previous studies concluded that the nutritional needs of children and adolescents are also influenced by what their friends eat and the physical conditions of their peers. Peers can significantly affect children's eating behaviours. For instance, peer approval and attitudes towards food choices predict children's eating behaviours (Manzano-Sánchez D, 2022; Zulkipli Z, 2024). This influence may be directly observed, and shared beliefs among peer groups positively impact healthy eating patterns (Rosenrauch S, 2017) for example, sharing meals or spending time with friends who support healthy eating, regarding food choices during meals, children mention factors such as taste, convenience, packaging, and food availability (Hyldelund NB, 2022). Additionally, support from the surrounding environment, such as teachers, must actively improve academic performance and promote healthy living for students by providing motivation, support, and good examples of proper nutrition (Hawks M, 2022).

The most significant and powerful instrument is the existence of policies or regulations implemented in schools and surrounding environments. The role of these regulations is to provide comprehensive and sustainable health services to address and prevent nutritional problems in children. Currently, school-aged children spend most of their time in schools and community environments without supervision or education, significantly increasing the risk of inadequate nutrition or eating patterns and snacking habits that do not meet good nutritional sources (Heslin MA, 2023).

With existing policies, it is hoped that the quality of the nation's future generation can be improved academically. Established school policies will shape children's habits, ensuring that the availability of food in schools or local environments is safe for children, provides adequate nutrients, and that the food available in these environments is free from harmful substances that could pose long-term risks to children's health (Madzorera I, 2023). Educational health programs for children, especially regarding balanced nutrition fulfilment, should also be considered essential so that schools, parents, and surrounding communities can synergise to support children's growth as competent and competitive future leaders (Mallipu A, 2021).

CONCLUSION

Children's knowledge is an aspect that influences their habits in meeting balanced nutritional needs. Additionally, the knowledge about nutrition from parents, peers, and the surrounding community are urgent aspects that must be addressed to ensure adequate and appropriate nutrition. Furthermore, when not accompanied by sufficient and nutritious intake, excessive physical activity can also impact children's growth and development; often, children forget to meet their nutritional needs while playing. The role of teachers is crucial in ensuring that children gain knowledge of nutrition. Equally important are the policies and regulations that support the foundation for creating a community that is aware of and engaged in addressing current nutritional issues. Recommendations emphasise the importance of fostering community awareness through education, outreach, and management of nutritional problems, along with the government's role in establishing policies regarding the community's nutritional needs, especially for children.

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