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Original Research

Effect of peer education on improving parental knowledge about nutrition in children

**Firnaliza Rizona,¹ Yeni Anna Appulembang,² Fuji Rahmawati,¹ Viona Fracellia Citra,¹
Zahra Saphira,¹ Shefa Mursalinda¹**

¹School of Nursing, Universitas Sriwijaya, Indralaya, South Sumatra, Indonesia

²Psychology Department, Universitas Sriwijaya, Indralaya, South Sumatra, Indonesia

Running title: Effect of peer education on improving parental knowledge

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Correspondence: Firnaliza Rizona, School of Nursing, Universitas Sriwijaya, Indralaya, Jalan Dokter Muhammad Ali, Sekip Jaya, Kec. Kemuning, Palembang, South Sumatra, Indonesia, Postcode: 30114, Ph: +62711373438, Email: firnaliza.rizona@fk.unsri.ac.id

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Significance to public health: In Indonesia, children between the ages of 5 and 12 encounter challenges related to underweight and obesity. Parents' influence is paramount in moulding children's dietary patterns. It is imperative to conduct regular nutritional assessments, offer educational opportunities, and involve families in this process. Additionally, peer education enhances awareness regarding nutrition. This study provides an overview of how peer education can increase the understanding of various health knowledge, specifically for parents about nutrition in children.

Abstract

The knowledge about nutrition in children is essential for parents, who play a significant role in ensuring proper growth and development. Many parents lack awareness about proper maintenance of nutrition for children. Therefore, this study aimed to evaluate the effect of peer education on parental knowledge about the nutritional status of children.

A pre-experimental method was used and respondents comprised 20 parents of students from elementary school in Palembang City. Data was collected using a questionnaire before and after the intervention.

The result showed that there was an increase in parental knowledge with a p-value =0,001 according to the Wilcoxon test. The mean values before and after intervention were 16.8 and 21.8, respectively. Intervention through peer education improved parental knowledge about achieving balanced nutrition in children. Parents were also empowered to share information with others regarding the knowledge obtained through trusted sources. This information entailed nutritional status, appropriate nutrient uptake, and optimized physical activity for children.

The integration of peer education resulted in a substantial increase in the average level of parental knowledge after the intervention.

Introduction

The prevalence of overnutrition and persistent undernutrition is increasing in both developed and developing countries.¹ According to Basic Health Research in 2018, nutritional status of children aged 5-12 years based on body mass index or age in Indonesia showed a prevalence of thinness at 9.3%, comprising 6.8% thin and 2.5% very thin. The problem of obesity is also high with a prevalence of 20.6%, including 11.1% fat and 9.5% very fat (obesity).² Problems associated with overnutrition or undernutrition may have adverse effects on both the physical growth and psychological development of children.³

The imbalance between nutritional intake and adequacy potentially leads to nutritional problems, both overnutrition and undernutrition.⁴ Children lacking a balanced nutritional intake due to poor dietary habits tend to experience malnutrition which leads to a weakened immune, as well as hindered growth and development. Consequently, children fail to grow and develop optimally according to the age stage.⁵ The majority of parents take pride in the slightly extra-weight appearance of children, overlooking the potential health implications.³ Adequacy or deficiency of nutrition can be determined by evaluating nutritional status, categorized as underweight, normal, or overweight. Given the consequences associated with these conditions, it is highly essential to regularly assess and monitor nutritional status, ideally once a month.⁶

Nutritional problems in children are also influenced by the role of parents in providing food. Most parents tend to prefer instant or fast food for convenience, without considering nutritional value. Unhealthy eating behaviors such as skipping breakfast and consuming fewer dairy products, fruits, and vegetables are also prevalent. Easily accessible snacks often consist of foods lacking essential vitamins and minerals while being high in sugar, fat, and salt.⁷ Furthermore, parents shape the growth environment of children which can either promote the development of healthy eating habits and weight or contribute to issues such as overweight and disordered eating tendencies.⁸ The level of nutritional awareness among parents is a crucial and defining factor that significantly impacts the health of children.⁹

Parents have direct control over diet by managing the quantity and quality of food intake.¹⁰ This parenting strategy is associated with healthy eating patterns, such as a regular intake of fruits

and vegetables, breakfast, and a tendency to avoid high-energy-density foods.¹¹ Children require a sufficient quantity of nutritious food to support health, physical and cognitive development, as well as overall growth.^{12,13} Sufficient and well-rounded nutrition serves as a preventative measure against illnesses, enhances the quality of life, improves the mental health of children, and elevates academic performance.¹⁴

Early prevention is essential to counteract the increasing prevalence of nutrition-related diseases.¹⁵ In this context, nutrition education is a planned effort to improve nutritional status through changes in knowledge related to food production, preparation methods, distribution, disease prevention as well as child care. By definition, nutrition education is a method of disseminating information based on the principles of nutrition science. The information provided is often related to the problems faced by the community.¹⁶ The significance of family participation in nutrition education should not be underestimated, as the behaviors of children strongly correlate to the time spent with parents. More specifically, when parents receive nutrition education, positive eating behaviors tend to have a more enduring impact on children.¹⁷

An effective method to increase parental knowledge of providing proper nutrition is through peer education. This method has been used as a public health strategy to promote various positive health behaviors, resulting in the transfer of knowledge and experience among members of the same group.¹⁸ A study conducted in Medan, North Sumatra, showed that peer education was effective in increasing knowledge and attitudes about nutrition and obesity. Additionally, this method caused a statistically significant decrease in fast-food consumption habits.¹⁹ Nutrition knowledge is one strategy to protect children from negative impacts. The greater the level of nutrition knowledge, the higher the attention given to the quality and quantity of food consumed.²⁰ Based on recent observations, it is evident that a significant number of parents need an understanding of the critical role of nutrition in child development. Furthermore, public health services have noted a deficiency in disseminating relevant information. Consequently, this study seeks to assess the impact of peer education in enhancing parental knowledge regarding childhood nutrition.

Materials and Methods

This quantitative study was conducted using the pre-experimental method with one group pre-posttest design. Respondents were 20 parents of students in elementary school in Ilir Barat District, Palembang City, while data was collected using a questionnaire after conducting intervention through peer education. Sample selection was carried out through the purposive sampling method. The inclusion criteria include parents of children in elementary school who own a smartphone or personal computer and were willing to be respondents. The intervention used was peer education method to increase parental knowledge about nutrition in children. The study team delivered information about nutrition of children to the selected parents and data was collected using a questionnaire. The instrument was modified from previous studies where the validity and reliability were assessed in elementary school number 79 in Palembang City. The questionnaire was assessed for pretest and posttest after conducting the intervention.

Univariate analysis was conducted for descriptive computation of data on parental nutrition knowledge. This includes information about good nutrition for children, comprising appropriate types of food, preparation methods, achieving normal nutritional status, and monitoring nutritional status. The bivariate analysis was used to analyze data about parental knowledge, while statistical analysis was conducted with the Wilcoxon test. The protocol for this study was approved by the Regional Ethics Committee for Research with Human Subjects at the Health Research Review Committee, Faculty of Medicine, Sriwijaya University, Indonesia, with protocol number 109-2023.

Results and Discussion

The characteristics of respondents presented in Table 1 showed that the majority (95%) were females, and aged between 20-40 years old (85%). The mean values representing parental knowledge are presented in Table 2. The analysis was conducted using the Wilcoxon test, showing that the mean value increased after intervention from 16.8 to 21.8. The p-value of 0.002 suggested significant differences between pre-intervention and post-intervention.

Parents have a crucial role in fostering the health and education of children, particularly in establishing favorable nutritional environments that increase awareness and appreciation of the

positive impact obtained from food and nutrients. Nutrition knowledge, in this context, refers to grasping the advantages of food and nutrients for health, as well as the capacity to retain and recall specific terminology and information related to the subject.²¹ The provision of nutrients to school-age children should be given accurately both in terms of quality and quantity as this age group is particularly vulnerable to nutritional problems.²²

Sufficient nutrition is crucial for supporting the growth and development of children. Therefore, children need to adopt appropriate and healthy dietary habits to acquire the necessary nutrients in sufficient quantities. As components of a balanced diet, fruits and vegetables can aid in achieving the daily recommended intake of numerous essential micronutrients, including vitamins and minerals, for children.²³ Insufficient and unbalanced nutrition hinders effective maturation.¹⁴ Furthermore, muscle weakness, delayed maturation, reduced bone density, and low productivity over time are potential consequences of being underweight. Overweight or obese children are at a high risk of developing conditions such as hypertension, type 2 diabetes, metabolic disorders, and mental health issues.³

Nutrition is an essential factor that cannot be separated from human growth and development, specifically in children. Ensuring adequate nutrition intake and monitoring nutritional status is considered crucial to achieve optimal learning and quality education.²⁴ Children often lack the knowledge to naturally select nutritious foods, giving preference to snacks and other unhealthy options, which are usually detrimental to health. Parents can contribute to enhancing a better quality of life by instilling proper eating habits in children.²⁵

Nutritional status serves as a reflection of overall health in an individual, stemming from the equilibrium between nutrient intake and the body absorption capacity. Adequate nutrient intake in the correct quantities, coupled with precise timing at the cellular level facilitates normal bodily functions. A favorable nutritional status not only acts as a preventive measure against diseases, including infections but also fosters the optimal growth and development of children.²⁶ In addition to ensuring a balanced nutritional intake, parents should consistently carry out regular weight measurements and monthly height assessments. This proactive method enables appropriate tracking of growth as well as prevention of both stunting and obesity.⁵

Factors contributing to hindrances in nutritional success include limited parental knowledge regarding nutritional status, coupled with the persistence of beliefs and taboos surrounding specific foods. Nutritional education is an effective method to improve knowledge and guide positive behavioral changes.²⁷ More specifically, peer education as one of the methods entails the delivery of information by individuals or groups of community members categorized based on age, class, or status.²⁸ This method produces more sustainable changes by leveraging social support and group norms. The groups have the potential to provide a valuable system for sharing evidence-based nutritional information at the right time and with maximum impact. Therefore, peer education can be a useful method for addressing issues and providing cost-effective interventions at the population level.²⁹

The results showed that peer education had a significant influence on parental knowledge regarding nutrition in children. This was consistent with previous studies that obtained a statistically significant difference in the average knowledge of adolescent girls about reproductive health after receiving peer education with a p-value of 0.000.³⁰ Another study used peer education method to increase the knowledge and attitudes of elementary school students about personal hygiene, obtaining statistical test results with a p-value of 0.000.³¹

Peer group education is more effective in increasing health knowledge due to the close relationships and similar levels of maturity among individuals, creating a more open environment that promotes asking questions among peers regarding unfamiliar topics. This was evident through the abundance of questions and the exchange of experiences among respondents. Additionally, information dissemination can occur repeatedly in small groups, facilitating a more open exchange of experiences.³² Peer group education empowers members, leading to the consideration as an accurate model.¹⁵

Conclusions

In conclusion, peer education significantly increased the mean value of parental knowledge after conducting intervention. Based on the results, the delivery of appropriate information through

peers could be optimized to improve parental understanding of nutrition in children and prevent abnormalities.

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Table 1. Characteristics of respondents (N=20)

Characteristics	F	%
Gender		
Man	1	5
Woman	19	95
Age (Years)		
20-40	17	85
40-60	3	15

Table 2. Parental knowledge before and after intervention

	Mean	Min	Max	Ties	Positive ranks	<i>p</i>
Pre Test	16.8	7	21	0	20	0.002
Post Test	21.8	19	25			