

Effect of Nutritional Literacy on Mother's Self Efficacy in Child Feeding (Effect of Nutritional Literacy on Mother's)

Maula Mar'atus Solikhah^{1*}, Lita Heni Kusumawardani², Nurul Devi Ardiani¹, Annisa Cindy Nurul Afni¹,
Atiek Murharyati¹, Siti Nurjanah¹, Erinda Nur Pratiwi¹

1. Faculty of Health and Science, Universitas Kusuma Husada Surakarta.
2. Faculty of Health and Science, Universitas Jenderal Soedirman.

Abstract

The nutrient problems that happen with toddlers still be a challenge that they should do thoughtfully. Mother's efficacy in giving food to their toddler becomes a thing that relates to nutrient status. As for that, it needs an innovative program to increase effectiveness from the mothers. Nutritional literacy is a level of someone's ability to get, process, and understand the nutrient information and the skill needed to make exact nutrient ingredients. This research aimed to know the effect of nutritional literacy on mother's self-efficacy in giving food to their toddlers.

The research used a quasi-experimental design that involved a pre-post-test without a control group. The study was conducted in a community of mother's toddlers in Central Java. There were selected samples with a purposive sampling technique that met inclusion criteria. Subjects were 30 mothers who will get nutritional literacy to know their efficacy before and after they get the program. The measurement of nutritional literacy on mother's self-efficacy. was using related questionnaire mother's self-efficacy. A Wilcoxon signed-rank test performed the analysis.

This research showed a side-effect of giving nutritional literacy toward the mother's efficacy in their behavior in providing food for their toddler with a p-value in the amount of 0,000 ($p < 0,05$).

Nutritional literacy for a mother with a toddler effectively increases the mother's self-efficacy and solves a toddler's nutrient problem.

Clinical article (J Int Dent Med Res 2021; 14(4): 1688-1693)

Keywords: Nutritional literacy, self-efficacy, mother of a toddler.

Received date: 15 February 2021

Accept date: 06 August 2021

Introduction

Until now, toddlers' nutritional problems remain a challenge that must be addressed seriously, including malnutrition. Ministry of Health data for 2009–2010 show that the prevalence of undernutrition in 1989 was 31%, whereby this was successfully reduced through reasonable efforts to 24.5% in 2005, to 18.4% in 2007 and 17.9% in 2010. Thus, the prevalence of malnutrition decreased from 5.5% in 2007 to 4.9% in 2010, while the target to be achieved in 2014 was 3.5%¹.

The prevalence of malnutrition is above the national average (5.4%) in 21 provinces and 216

districts/cities². These results indicate that many children under five (toddlers) suffer from nutritional problems. Of the approximately 25 million children under five, there are 4.6 million malnourished children whose weight does not meet the average body weight according to age. Also, as many as 3.4 million children under five are classified as thin with a body weight that is not proportional to their height. Another nutritional problem is that short toddlers, namely the child's size, do not meet standard height according to age. In Indonesia, the number of short children under five is 9.3 million or around 37% of children under five³.

The leading causes of undernutrition in toddlers and the leading cause of malnutrition in toddlers is lack of nutritious food intake in the toddler's body both in quality and quantity. Also, accompanying infections are often a very significant cause of under-fives' health and nutrition. The indirect causes are the mother's self-efficacy in feeding under-fives and her behavior in child care⁴.

*Corresponding author:

Maula Mar'atus Solikhah
Faculty of Health and Science, Universitas Kusuma Husada
Surakarta.
E-mail: maula.mar'atus@ukh.ac.id

Mother's self-efficacy in feeding children under five is the mother's belief in determining behavior and actions in feeding to children under five. Efficacy in feeding children under five includes self-efficacy in providing healthy food and food diversity, food given, feeding cues, food according to child development, and general effectiveness of feeding children⁵.

The preliminary studies and previous research by researchers at the research location showed that toddlers were undernourished (17.0%) and had good nutrition (2.1%), respectively. The toddler's mothers also said that they did not have the confidence to give their child proper food. The mother of a toddler also said that she did not know how to feed her toddler properly. There are still mothers who have less self-efficacy in providing for their children under five (48.9%)⁶. The results of previous studies showed that there was a relationship between maternal self-efficacy in feeding with the nutritional status of children under five (p-value 0.031, α : 0.05). Mothers of toddlers who have less risk of self-efficacy, had an abnormal nutritional status of children under five 0.091 times compared to mothers of children under five who had good self-efficacy (95% CI; OR: 0.010-0.801)⁷. Therefore, it is necessary to give intervention to mothers of toddlers to increase their self-efficacy so that nutritional problems in children under five can be resolved.

There are efforts or forms of nursing action to increase mothers' self-efficacy to help overcome nutritional problems in toddlers. These include health education about nutrition, nutrition counselling, and home visits to mothers of children under five. Health education about nutrition is mainly done to increase mothers' knowledge about food for under-fives⁸. Uri and Otterbach implemented a curriculum of healthy children-healthy families (HCHF), affecting family knowledge and behavior in feeding practices for children under five⁹.

Nutritional literacy efforts can be carried out with a nutrition education package in a rural community setting in Tanzania. The education package includes 1) education and counselling for mothers. Nutritional literacy is a new concept of literacy skills in nutrition, which provides for behavior and skills in selecting, planning, and serving healthy food to meet dietary needs^{10,11}. Nutritional literacy is the level of a person's ability to obtain, process, and understand nutritional

information and the skills needed to make the right dietary decisions¹². Nutritional literacy can analyze nutrition information, increase alertness, and face obstacles to achieve healthy eating behavior¹³. The nutritional literacy program that will be carried out uses education and counselling using booklet media. This program hopes that it can increase the self-efficacy of mothers in feeding their children under five. Based on the description above, there is a strong reason for the importance of research "The effect of nutritional literacy on the self-efficacy of mothers in feeding their children under five." This study aimed to determine the effect of nutritional literacy on mothers' self-efficacy in feeding children under five.

Materials and methods

Study Design

This research is a quantitative study with a quasi-experimental research design. Quasi-experimental research is a study that tries an intervention on a group of subjects with or without a comparison group but is not randomized in grouping the issues into a treatment group or a control group¹⁴. The type of quasi-experimental research used in this study was the pre and post-test without a control group.

Population, Samples, and Sampling

The population is a research target that has specific characteristics¹⁵. The population can also be interpreted as a whole research subject with particular attributes by the research objectives¹⁶. The population of this study were all mothers of a community of mothers and toddlers in Central Java.

The sample is a part of the population selected in a certain way to represent the population¹⁵. A research sample is a unit or group of individuals who are part of an affordable population where the researcher directly collects data or makes observations or measurements in this unit¹⁷. Research is carried out on a selected sample of affordable populations¹⁶. The selection is a sub-part of the people that are considered to be representative of the entire population. The sample is also an essential part of the study population whose characteristics are measured¹⁸. The number of samples used in this study was 30 mothers of children under five according to the rule of thumb criteria.

The sampling method is a method defined by researchers to determine or select several samples from the population¹⁷. The sampling method used in this study was purposive sampling with the following inclusion criteria: mother of a toddler who was registered and active as a participant in a community of mothers and toddlers, lived in the research location, lived with toddlers and played a role in feeding, was able to read and write and was willing to be a respondent. The exclusion criteria were as follows: uncooperative and incomplete mothers under five following a series of nutritional literacy programs. The dependent variable was mother's self-efficacy and the independent variable in this study was nutritional literacy.

Instruments

Researchers used questionnaires related to maternal self-efficacy in valid and reliable feeding. This questionnaire contains 28 questions that measure the mother's confidence in feeding children under five with an ordinal scale (0-10). Each question's validity value in this questionnaire is *r* average 0.614 with a value range of 0.388-0.766 and is reliable with a Cronbach's alpha coefficient value of 0.934. The tools used in this research are leaflets and workbooks

Procedure

To examine the submission of a permit to the research location, the researcher conducted an ethical test in the Research Ethics Committee of Kusuma Husada University Surakarta. Furthermore, the researchers coordinated with the head of toddler cadres to obtain research samples that matched the inclusion criteria. The researcher made a time contract with the head of the toddler cadre for the research process. Researchers collected data by distributing questionnaires to measure mothers' self-efficacy in feeding their toddlers before being given nutritional literacy. Before measuring self-efficacy, we had to explain to the mothers of toddlers in the research. The mothers who had children under five who were willing to become respondents by signing the informed consent were given a nutritional literacy program. The stages of providing a health literacy program were namely through structured education on nutrition in groups at the toddler, home visits for nutritional counselling, and provision of leaflets and workbooks. After giving the Intervention, the mothers of the children under five were

measured again for their efficacy in feeding their children.

Data Analysis

Univariate analysis was used to assess respondent characteristics and the distribution of maternal self-efficacy in feeding before and after the intervention. The bivariate analysis in this study used a nonparametric test, namely the Wilcoxon test.

Ethical Clearance

This research has passed the ethical test in the Research Ethics Committee of Kusuma Husada University Surakarta with number II.02.j / 05 / S. Ket / III / 2019.

Results

Characteristics of Respondents	amount	Percentage (%)
Age		
Young adults (18-40) years	26	86.7
Middle adult (41-60) years	4	13.3
Amount	30	100
Level of education		
Junior High	3	10.0
High school	19	63.3
Diploma	3	10.0
Bachelor	5	16.7
Amount	30	100
Profession		
Housewife (IRT)	22	73.3
Private	5	16.7
Labor	1	3,3
Teacher	2	6,7
Amount	30	100

Table 1. Characteristics of respondents based on age, level of education, and employment at Posyandu Toddlers, August 2019 (n = 30).

Description of Mother's Self Efficacy in Feeding Children under Five Before Intervention.

Variable	amount	Percentage
Self-efficacy		
Good	17	56.7
Less	13	43.3
amount	30	100

Table 2. Frequency Distribution of Mother's Self Efficacy in Feeding Children under Five Before Intervention at the Toddler Posyandu, August 2019 (n = 30)

Characteristics of respondents are more in young adults, namely 18-40 years, amounting to 86.7%. The education level of the respondents was high primarily school with a total of 63.3%. 73.3% of respondents are housewives (IRT).

Description of Mother's Self-Efficacy in Feeding Children under Toddler before the Intervention shows that the distribution of respondents' self-efficacy is almost the same in the good and poor self-efficacy categories, namely 56.7% have good efficacy and 43.3% have less efficacy. Description of Mother's Self-Efficacy in Feeding Children under the age of five after the Intervention showed that the distribution of respondents' self-efficacy was more in good self-efficacy, namely 76.7%. There is an effect of nutritional literacy on the self-efficacy of mothers in feeding children under five, the p-value is 0.000 ($p < 0.05$) (Table 1, 2, 3, 4).

Variable	amount	Percentage
Self-efficacy		
Good	23	76.7
Less	7	23.3
amount	30	100

Table 3. Distribution of Frequency of Mother's Self-Efficacy in Feeding Children under Five after Intervention at the Toddler Posyandu, August 2019 (n = 30).

Wilcoxon Signed Rank Test	Z	P Value
Pre-efficacy - Post efficacy	-4,022	, 000

Table 4. Wilcoxon Signed Rank Test bivariate test of the effect of nutritional literacy on Mother Self-Efficacy in Feeding Children under five.

Discussion

Description of the characteristics of the respondents

This study showed that more respondents are in young adults, namely 18-40, amounting to 86.7%. The education level of the respondents was the highest school, with a total of 63.3%. As many as 73.3% of respondents are housewives. This is in line with the research by Wardani and Purwaningrum (2012) that most of the mothers under five are young adults, have high school education (47.4%), and as housewives as many as 71.1%. The characteristics of mothers with toddlers are related to mothers' self-efficacy in feeding their children under five. However, it is not a variable that disturbs the effect of nutritional interventions on self-efficacy¹⁹. The age, education level, and occupation of the mothers of children under five are the things that motivate mothers in terms of feeding their children.

Malnutrition during childhood is associated with mortality and higher morbidity. Malnutrition causes 45% of deaths in children under five years worldwide²⁰. The predisposition is for the child to suffer from infectious diseases such as diarrhea and tract infections in acute breathing²¹

Overview of Mother Efficacy in Feeding Toddlers

According to Peterson and Bredow (2004), efficacy is an individual's belief about his ability to organize actions to achieve specific goals. This belief provides strength and motivation to behave, behave, and perform an effort to be completed. This study shows that the distribution of respondents' self-efficacy is almost the same in the excellent and poor self-efficacy categories. Namely, 56.7% have good efficacy, and 43.3% have less efficacy.

The condition for self-efficacy of mothers' under-fives is almost the same between the categories of good and poor self-efficacy because the group of mothers of under-fives has not been exposed to intervention programs on nutrition. Therefore, there are still some mothers of under-fives who have poor self-efficacy. This self-efficacy condition is also related to the nutritional status of children under five. Mothers of toddlers who have less self-efficacy have 0.091 times the risk of having an abnormal dietary quality of toddlers than mothers of toddlers who have good self-efficacy⁷. Thus, the condition of poor self-efficacy in mothers of toddlers requires nursing intervention to resolve nutritional problems.

This study shows the distribution of respondents' self-efficacy is more in good self-efficacy, namely 76.7% because the mothers of under-fives have been given a nutritional literacy program. The healthy literacy program provided is group nutrition education for mothers of toddlers, home visits for nutritional counselling and nutrition monitoring for children under five by filling out children's food journals. This result was under the theory of nutritional literacy, which is the level of a person's ability to obtain, process, and understand.

The effect of nutritional literacy on mothers' self-efficacy in feeding their children under five was significant. This study showed that the Wilcoxon signed rank test results show a p-value of 0.000 ($p < 0.05$). So it was decided that H_0 was rejected and H_a accepted, which means that there is an effect of nutritional literacy on

mothers' self-efficacy in feeding their children under five. According to Brewer et al. self-efficacy in nutrition describes a person's beliefs about his ability to plan, prepare, and comply with healthy diets. In contrast, nutritional literacy describes a person's actual ability to read and interpret nutritional information and make healthy dietary choices¹⁰. This study's results are in line with Dana et al.'s, research, which shows that the mother's self-efficacy in feeding can be influenced by health education on balanced nutrition given to mothers²³.

Modifications made in this study are nutritional literacy, which is carried out on mothers of toddlers, not only in the form of education but also in-home visits that contain nutrition counselling activities and nutrition monitoring of children under five using mothers of under-fives to fill children's food journals. Local health cadres accompany the mothers of toddlers as facilitators in participating in the nutritional literacy program. The concept of increasing self-efficacy for mothers of toddlers was developed based on the theory of Bandura, which explains that the source of self-efficacy can be from verbal persuasion and feedback. Mothers of toddlers who have a high level of self-efficacy in fulfilling nutrition can implement effective self-regulation strategies²⁴. Delahoy et al. examined the interaction between self-efficacy, health literacy, nutritional behavior and physical activity²⁵.

The limitation of the study is it uses only one group so that there is no comparison group

Conclusions

1. The characteristics of respondents are more in young adults. The education level of the respondents was high, primary school with a are housewives
2. Description of Mother's Self-Efficacy in Feeding Children under Toddler Before the Intervention shows that the distribution of respondents' self-efficacy is almost the same in the good and less self-efficacy categories
3. Description of Mother's Self-Efficacy in Feeding Children under the age of Five after the Intervention showed that the distribution of respondents' self-efficacy was more in good self-efficacy
4. There was an effect of nutritional literacy on mothers' self-efficacy in feeding children under

five, and the p-value is 0.000 ($p < 0.05$).

5. The suggestion for further research is to develop nursing intervention research with two groups, namely the intervention and control groups, in terms of developing the effectiveness of the nutritional literacy program

Acknowledgements

Thank you to Kusuma Husada University for providing financial support and research respondents.

Declaration of Interest

The authors report no conflict of interest.

References

1. Bappenas KP. Intervensi Penurunan Stunting. 2018.
2. Kemenkes RI. Rencana Strategis Kementerian Kesehatan Tahun 2015-2019. 2016;7(April).
3. Kemenkes RI. Kesehatan dalam Kerangka Sustainable Development Goals (SDGs). Rakorpop Menteri Kesehatan RI., 2015;(97):24.
4. Amaya-Castellanos C, Shamah-Levy T, Escalante-Izeta E, Morales-Ru??n M del C, Jim??nez-Aguilar A, Salazar-Coronel A, et al. Development of an educational intervention to promote healthy eating and physical activity in Mexican school-age children. *Eval Program Plann.*, 2015;52:159-68.
5. Kang Y, Kim S, Sinamo S, Christian P. Original Article Effectiveness of a community-based nutrition programme to improve child growth in rural Ethiopia : a cluster randomized trial., 2017;1-16.
6. Chowdhury S, Chakraborty P pratim. Universal health coverage - There is more to it than meets the eye. *J Fam Med Prim Care.*., 2017;6(2):169-70.
7. Ardiani ND. Hubungan Efikasi Diri Pemberian Makan Oleh Ibu Dengan Status Gizi Balita Di Plesungan Karanganyar. 2019.
8. Lambert LG, Chang Y, Varner J, Monroe A. Allowing and Using Foods of Low Nutritional Value in Elementary School Classrooms: The Implications of Teachers' Beliefs. *J Nutr Educ Behav.*, 2016;48(2):86-92.e1.
9. Uri D, Otterbach LE. The Impact of the Healthy Children , Healthy Families Curriculum on Maternal Food Parenting Practices., 2016;
10. Brewer H, Church EM, Brewer SL, Brewer H, Church EM, Brewer SL, et al. The Impact of Content-Based Network Technologies on Perceptions of Nutrition Literacy., 2016;5037.
11. Dunn AM, Hofmann OS, Waters B, Witchel E. Cloaking malware with the trusted platform module. *Proceedings of the 20th USENIX Security Symposium.*, 2011; 395-410.
12. Kimani-murage EW, Kimiywe J, Kabue M, Wekesah F, Matiri E, Muhia N, et al. Feasibility and effectiveness of the baby friendly community initiative in rural Kenya: study protocol for a randomized controlled trial., 2015;1-14.
13. Dalane Ø, Petterson S. Improving measurement in nutrition literacy research using Rasch modelling : examining construct validity of stage-specific ' critical nutrition literacy ' scales., 2013;17(4):877-83.
14. Sastroasmoro, S & Ismael S. Dasar-dasar metodologi penelitian kuantitatif (Edisi ke-5). Jakarta: Agung Seto; 2014.

15. Sastroasmoro S, Ismael S. Dasar-Dasar Metodologi Penelitian Klinis. 2014.
16. Polit, D. F., & Beck CT. Nursing research: generating and assessing evidence for nursing practice. Philadelphia: Lippincott William & Wilkins, 2012.
17. Dharma K. Metode penelitian keperawatan: Panduan melaksanakan dan menerapkan hasil penelitian. Jakarta: CV. Trans Info media, 2011.
18. Sabri, L. & Hastono SP. Statistika kesehatan. Jakarta: Rajawali Pers, 2014.
19. López-olmedo N, Jiménez-aguilar A, Morales-ruan MC, Hernández-ávila M, Shamah-levy T, Rivera-dommarco JA. Consumption of foods and beverages in elementary schools: Results of the implementation of the general guidelines for foods and beverages sales in elementary schools in Mexico, stages II and III. *Eval Program Plann.* 2018;66:1–6.
20. Bhutta ZA, Das JK, Rizvi A, Gaffey MF, Walker N, Horton S, et al. Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost? *Lancet (London, England).* 2013;382(9890):452–77.
21. Wirth JP, Matji J, Woodruff BA, Chamois S, Getahun Z, White JM, et al. Original Article Scale up of nutrition and health programs in Ethiopia and their overlap with reductions in child stunting., 2017;1–18.
22. Meiklejohn S, Hons BND, Ryan L, Palermo C. Systematic Review A Systematic Review of the Impact of Multi-Strategy Nutrition Education Programs on Health and Nutrition of Adolescents. *J Nutr Educ Behav.*, 2016;48(9):631-646.e1.
23. Danaei G, Andrews KG, Sudfeld CR, Fink G, McCoy DC, Peet E, et al. Risk Factors for Childhood Stunting in 137 Developing Countries: A Comparative Risk Assessment Analysis at Global, Regional, and Country Levels. *PLoS Med.*, 2016;13(11):1–18.
24. Velardo S, Drummond M. Understanding Parental Health Literacy and Food Related Parenting Practices Understanding parental health literacy and food related parenting practices. 2013.
25. Delahoy MJ, Whitaker M, Chai SJ, Daily Kirley P, Alden N, Kawasaki B, et al. Morbidity and Mortality Weekly Report Characteristics and Maternal and Birth Outcomes of Hospitalized Pregnant Women with Laboratory-Confirmed COVID-19-COVID-NET, 13 States. *Morbidity Mortal Wkly Rep.*, 2020;69(38):1347–54.