



THE IMPACT OF COMPLEMENTARY FEEDING BASED ON HEALTH COACHING ON MOTHER'S BEHAVIORS NUTRITION INTAKE IN STUNTED CHILDREN

Apriyani Puji Hastuti^{1,2}, Tintin Sukartini³, Yuni Sufyanti Arief³, Nursalam Nursalam³,
Ratna Roesardhyanti², Indari Indari², Ardhiles Wahyu Kurniawan²

¹Doctoral of Nursing Student, Faculty of Nursing, Universitas Airlangga, Indonesia

²Departement of Nursing, Institute Technology Science and Health RS dr Soepraoen Malang, Indonesia

³Faculty of Nursing, Universitas Airlangga, Surabaya

Abstract

Feeding in the first two years of life is closely related to the mother's ability to fulfill nutrition. In this age period, the risk of nutritional problems occurs due to transition/weaning and infant feeding practices, especially in terms of food variety, quality of diet, and availability of nutritious food. Complementary feeding based on health coaching, when the mother feeds her child contributes to makes nutritional problems such as stunted. Intervention is needed to evaluate whether complementary feeding based on health coaching makes a mother's behavior and ability to give nutrition intake to children increase and adds any benefit. This study used a pre-experimental design. A total of 180 mothers have stunted children. The outcome was assessed mothers ability at the pretest and post-intervention. Lack of change in foods eaten and small quantities may explain the similarly low levels of weight gain. The result of this study showed that complementary feeding based on health coaching can give the impact mother's ability in food preparation and processing before complementary feeding ($Z=11.644$ and $p\text{-value}=0.000$), supplemental feeding ($Z=11.641$ and $p\text{-value} 0.000$), and responsive feeding ($Z=11.640$ and $p\text{-value} 0.000$). These results provide evidence that self-feeding and maternal verbal responsiveness, can be increased by targeting specific behaviors with appropriate behavior change strategies of modeling and coached practice.

Keywords: complementary feeding, health coaching, mother's behavior, stunted children

DOI Number: 10.48047/nq.2022.20.19.NQ99089

NeuroQuantology 2022; 20(19): 980-988

1. INTRODUCTION

Feeding in the two years of life is closely related to the mother's ability to fulfill nutrition. In this age period, the risk of nutritional problems occurs due to transition/weaning and infant feeding practices, especially in terms of food

variety, quality of diet, availability of nutritious food, exposure to infection, and poor sanitation (1–3). In practice, mothers provide food to children based on the hunger response expressed by the child, in addition to the food menu prepared based on the wishes of the child and the



use of instant complementary foods which are considered more practical⁴⁻⁶. Responsive feeding is the ability of mothers or caregivers to actively and responsively feed children, including age-appropriate feeding methods, setting examples of healthy habits, encouraging children to eat, responding to lack of appetite, feeding in a safe environment, and using positive interaction^{7,8}

Feeding for children aged 6-24 months must be considered both in quality and quantity because during this period children will find it difficult to switch from breastfeeding to supplementary breastfeeding or complementary foods, as well as introductions to family food for children aged over one year^{9,10}. Mother's knowledge and skills are very necessary as a basis for fulfilling child nutrition, mothers must be able to apply parenting in terms of providing food to children (responsive feeding) which includes feeding according to the child's age, mother's sensitivity regarding the child's eating time, creating a good child's eating atmosphere and comfortable^{11,12}.

In the Global Strategy for Infant and Young Child Feeding To achieve growth and development in children, mothers only give breast milk or exclusive breastfeeding until they are six months old, continue breastfeeding until they are 24 months old, and provide complementary foods for breast milk or supplemental breastfeeding. Insufficient nutritional needs are usually associated with insufficient food quantity or the

presence of infection, but research shows it can occur due to various factors including parenting patterns, specifically the pattern of feeding children¹³⁻¹⁵

The appropriate feeding behavior for toddlers does not only look at the type of food provided but also includes the method, place, and time of feeding and the person who feeds it, or known as the concept of responsive feeding as regulated by WHO and UNICEF (2014). The practice of responsive feeding increases food acceptance and the ability to eat alone, besides that responsive feeding includes psychosocial concepts that are good for children's mental and cognitive development¹⁶.

Feeding practices are behaviors that mothers use to influence children's dietary intake and are categorized as responsive feeding practices or controlling feeding practices. Responsive feeding practices have been shown to support children's acceptance of new foods and ability to self-regulate energy intake. Mothers a role models and give children feeding practices to eat healthy foods, praising children for finishing all of their food, and offering energy-dense foods as rewards, in misguided attempts to promote healthy eating. Controlling feeding practices are associated with an undesirable outcome such as consumption of energy-dense of foods, lack of self-regulation, and fussy or emotional eating behaviors.

Most mothers have not been trained or educated on nutrition and feeding practices but want children to

have the best care and to be healthy. Mothers have expressed the need to learn strategies to encourage children to try new food such as fruits and vegetables, manage children's food refusal and have to desire to promote health about it. It may improve mothers feeding practice ability and have a positive impact on children's nutrition. Therefore, the purpose of this study is (1) the mother's behaviors about complementary feeding before the intervention, (2) the mother's behaviors about complementary feeding after the intervention, and (3) the effective impact of training on complementary feeding.

2. METHOD

Study design

This type of research is a pre-experimental design. The research tries to explain the research variable and examine the relationship between variables. The impact of responsive feeding coaching on mother's behavior in stunted children

Setting and sample

The sample included in this study were 180 mothers with 6- 24 month stunted children who were collected from the Public Health Center in Malang Regency using multistage random sampling during May- Agustus 2022.

Data analysis

The independent variable is complementary feeding training in the mother. The dependent variable is breastfeeding, food preparation and

processing, complementary feeding, and responsive feeding. Then the data were analyzed using the Kolmogorov Smirnov data normality test with p -value = 0.003 so that the data was not normally distributed and further data analysis used the Wilcoxon Signed Rank Test

Ethical Considerations

This study was approved by the Health Research Ethics Committee Faculty of Nursing Universitas Airlangga (Ethical Approval No. 2574-KEPK 2022)

3. RESULTS AND DISCUSSION

Result

The study was carried out in the Malang District Health Center with mothers under five with children aged 6-24 months experiencing stunting who participated in public health center activities in the working area of the Malang Regency (Tajinan Health Center, Kepanjen Health Center, Singosari Health Center, Wajak Health Center, Bululawang Health Center). Based on the highest number of stunting cases randomly selected 5 health centers were selected.

The prevalence of stunting at the Public Health Center was 10.9% with a total of children aged 28 days-72 months in the Malang Regency Public Health Center area as many as 138,155 children with 15,055 of them experiencing stunting. The incidence of stunting for each age classification can be divided as follows: 4% of 0-6 months of age, 33% of 6-24 months of age, 24% of 2-3 years of age, and 39% of 3-6 years of age. Where



children aged 6-24 months who experienced stunting were 3,926 people with details of the Tajinan Health Center with the category of severe stunting as many as 13 people and stunting as many as 176 people out of a total number of toddlers as many as 4826 people; Kepanjen Public Health Center with severe stunting category as many as 87 people and stunting as many as 373 people from a total number of children under five as many as 5035 people; Singosari Health Center with severe stunting category as many as 8 people and stunting as many as 205 people from a total number of toddlers as many as 4923 people; Wajak Health Center with severe stunting category as many as 13 people and stunting as many as 176 people from a total number of children under five as many as 4622 people; Bululawang Health Center with severe stunting category as many as 195 people and stunting as many as 714 people from a total number of toddlers as many as 3991 people. With an

estimated number of children aged 6-24 months as much as 33%.

In the Malang Regency area, the main economic source of the community is the agribusiness sector which includes agriculture and plantations including vegetables (tomatoes, cabbage, carrots, mustard greens, cabbage, beans, long beans, cucumbers, potatoes), rice, sugar cane, ornamental plants, wood, wood, etc. In addition, Malang district is an area with livestock products including native chicken meat and eggs, purebred chicken meat and eggs, dairy cow's milk, goat meat and milk, and rabbit meat. And is an industrial area that is mostly engaged in the processing and trading of agricultural products including the refined sugar industry, the tea industry, the processed food industry (fruit chips, potato chips, and various snacks), the cutting and wood processing industry, the milk processing industry, the chicken meat processing industry.

Table 1 Demographic Characteristic

Variable	Category	Frequency (person)	Percentage (%)
Personal Factor			
Mother's age	17- 25 years	51	28
	26- 35 years	89	49
	35- 45 years	40	22
Occupation	Housewife	155	86
	Employee	25	14
Education	Higher Education	21	12
	Senior high school	84	47
	Junior high school	62	34



Variable	Category	Frequency (person)	Percentage (%)
	Elementary school	13	7
Motivation	Strong motivation	77	43
	Low motivation	103	57
Mobility	High mobility	118	66
	Low mobility	62	34
Decision making	Good	9	5
	Enough	2	1
	Less	169	94
Knowledge	Good	99	55
	Enough	45	25
	Less	23	13
Self- esteem	High	180	100
	Low	0	0
Self- efficacy	Confidence	167	93
	Insecure	13	7

Table 1 shows that sociodemographic characteristic from personal characteristic is age, the majority of mothers aged 25- 35 years old 49%.

Table 2 Complementary Feeding on Mothers' Behaviors in Stunted Children

No	Variable	Pre- coaching	Post- coaching	Z score	p-value
1	Food preparation and processing	35.17 ± 4.49	38.077 ± 1.23	Z= 11.644	0.000
2	Supplementary breastfeeding	63.23 ± 6.53	65.73 ± 4.10	Z= 11.641	0.000
3	Responsive feeding	44.20 ± 4.25	73.46 ± 6.27	Z=11.640	0.000

Mothers' behavior in fulfilling nutrition in stunting children was measured twice, before the intervention and after the health coaching intervention on complementary feeding.

Mentoring efforts were carried out for 2 weeks in providing nutrition to children starting from food preparation and processing, feeding infants and children, and responsive feeding. From the results

of the study, it was found that there were differences in food preparation and processing after being given a health coaching intervention with a value of Z = 11,644 (p-value = 0.000), supplementary



breastfeeding with a value of $Z=11,641$ (p -value = 0.000) and responsive feeding with a value of $Z=11,640$ (p -value= 0.000)

Discussion

Mother's responsive feeding behavior in children aged 6-24 months. The working area of the Malang Regency Health Center found that the responsive feeding behavior of mothers in children aged 6-24 months was almost entirely well-behaved 67%, less behaved as much as 27%, and a small part well-behaved 6%. According to Notoatmodjo (2012), behavior is a person's response or reaction to a stimulus (stimulus from outside). Stimulus is a factor from outside a person (external factor) and response is a factor from within the person concerned (internal factor). Human behavior is included in three domains, according to the purpose of education. In development, the Boom theory was modified to measure health education outcomes, namely: Knowledge, Age, and Action¹⁷. According to the researcher, the responsive feeding behavior of 20 respondents out of 30 respondents has sufficient behavior to have positive awareness and attitude, which is obtained through eyes and ears and knowledge, possibly influenced by several factors, namely age, education, experience, and sources of information. The mother's responsive feeding behavior is related to education and age factors. The level of maturity and strength of a person will be more mature in thinking and working, and

in late adulthood will be less sluggish in thinking because of the aging factor compared to early adulthood who are faster in thinking, receiving information, and applying information. compared to adulthood. According to researchers, the mother's responsive feeding behavior affects a person's age and knowledge because, the older a person gets, the better the knowledge he has. This is because as a person ages, there will be physical and psychological changes. On the psychological or mental aspect, a person's mindset will become more mature and mature, so it will be easier to accept the information provided. A person's memory is also influenced by age. From the results of the study, it was found that the mother's behavior towards responsive feeding was very influential on the growth and development of children aged 6-24 months. less than 8 people (27%) behaved badly and 1 person (3 %). Experience is an event or events that have been experienced by someone in interacting with their environment. A person's experience can be drawn from his education and work environment. Education level is one of the factors that influence or make a person's perception of ideas and technology more acceptable. According to the researcher, the mother's experience regarding responsive feeding has sufficient behavior due to the knowledge and experience that can be taken from work directly or indirectly, on the data that has sufficient behavior, namely not working.



Research shows that maternal factors greatly influence nutritional status, and children born to mothers with higher education have better nutritional status than children born to mothers with low education. In addition, there are intergenerational consequences of early marriage on the welfare of children because they were born in an unsettled family's economic condition, thus affecting the development and health of children. After all, mothers are not able to meet their nutritional needs properly. The type of work and socioeconomic status, especially those who work in the agricultural sector, and also live in rural areas have a higher risk than urban residents.

Maternal autonomy in decision-making where is a factor related to maternal empowerment, especially regarding child health. A mother's ability to make decisions becomes a strength in maintaining health and providing household needs so that the nutritional needs of families, especially children, can be met properly.

Mother's knowledge can be a barrier. In addition, related to the mother's motivational barriers, sometimes mothers feel tired, bored, feel unsure of being able to carry out their duties and roles in fulfilling nutrition for children who experience stunting. In practice, mothers provide food to children based on the hunger response expressed by the child; besides that, the food menu is prepared based on the wishes of the child, and the use of instant

complementary foods is considered more practical.

4. CONCLUSION

The result of this study showed the impact of food preparation and processing before complementary feeding training ($Z=11.644$ and $p\text{-value}=0.000$), complementary feeding ($Z=11.641$ and $p\text{-value} 0.000$), and maternal responsiveness ($Z=11.640$ and $p\text{-value} 0.000$). The role of feeding responsiveness in accelerated growth. These results provide evidence that self-feeding and maternal verbal responsiveness, can be increased by targeting specific behaviors with appropriate behavior change strategies of modeling and coached practice. Therefore, the source of food for complementary feeding must be accessible to all communities.

ACKNOWLEDGEMENTS

The authors are grateful to all who contributed to this study, especially Public Health Center in Malang Regency, the Faculty of Nursing Universitas Airlangga Surabaya- East Java, and Departement of Nursing Institute Technology, Science and Health RS dr Soepraoen Malang- East Java.

REFERENCES

1. Sjarief D, Yuliarti K, Lestari E, Sidiartha L. *Praktek Pemberian Makan Berbasis Bukti Pada Bayi dan Balita di Indonesia untuk Mencegah Malnutrisi*. Ikatan Dokter Anak Indonesia; 2015.



2. Alaofè H, Zhu M, Burney J, Naylor R, Douglas T. Association Between Women's Empowerment and Maternal and Child Nutrition in Kalalé District of Northern Benin. *Food Nutr Bull.* 2017;38(3):302–18.
3. Das S, Chanani S, Shah More N, Osrin D, Pantvaitya S, Jayaraman A. Determinants of stunting among children under 2 years in urban informal settlements in Mumbai, India: evidence from a household census. *J Health Popul Nutr.* 2020;39(1):1–13.
4. Li Z, Kim R, Vollmer S, Subramanian S v. Factors Associated With Child Stunting, Wasting, and Underweight in 35 Low- and Middle-Income Countries. *JAMA Netw Open.* 2020;3(4):e203386.
5. Moorthy D, Merrill R, Namaste S, Iannotti L. The Impact of Nutrition-Specific and Nutrition-Sensitive Interventions on Hemoglobin Concentrations and Anemia: A Meta-review of Systematic Reviews. Vol. 11, *Advances in Nutrition.* Oxford University Press; 2020. p. 1631–45.
6. Goudet SM, Bogin BA, Madise NJ, Griffiths PL. Nutritional interventions for preventing stunting in children (Birth to 59 months) living in urban slums in low-and middle-income countries (LMIC). *Cochrane Database of Systematic Reviews.* 2019 Jun 17;2019(6).
7. Aguayo VM, Menon P. Stop stunting: improving child feeding, women's nutrition and household sanitation in South Asia. Vol. 12 Suppl 1, *Maternal & child nutrition.* England; 2016. p. 3–11.
8. Dadzie LK. WOMEN EMPOWERMENT AND INFANT AND YOUNG CHILD FEEDING PRACTICES IN GHANA.
9. Mallick R, Chouhan P. Impact of women's autonomy and health care practices on nutritional status of U5 children in the slums of English Bazar municipality of Malda District, India. *GeoJournal* [Internet]. 2022;87(3):2019–29. Available from: <https://doi.org/10.1007/s10708-020-10347-5>
10. Noorratri ED, Margawati A, Dwidiyanti M. Improving Self-Efficacy and Physical Self-Reliance of Patients with Pulmonary Tuberculosis through Mindfulness. *Nurse Media Journal of Nursing.* 2017;6(2):81.
11. Biks GA, Tariku A, Wassie MM, Derso T. Mother's Infant and Young Child Feeding (IYCF) knowledge improved timely initiation of complementary feeding of children aged 6-24 months in the rural population of northwest Ethiopia. *BMC Res Notes.* 2018;11(1):1–7.
12. Udoh EE, Amodu OK. Complementary feeding practices among mothers and nutritional status of infants in Akpabuyo Area,



- Cross River State Nigeria.
Springerplus. 2016;5(1).
13. Mikhail, W.Z.A., Sobhy, H.M., El-Sayed HH, Khiry, S.A., Abu Salem, H.Y.H., & Samy MA. Effect if nutritional status on growth pattern of stunted preschool children in Egypt. *Academic Journal of Nutrition*. 2013;2(1):1–9.
 14. Italia S, Wolfenstetter SB, Teuner CM. Patterns of Complementary and Alternative Medicine (CAM) use in children: a systematic review. *Eur J Pediatr*. 2014;173(11):1413–28.
 15. Tsiboe F, Zereyesus YA, Popp J, Osei E. Health Effects of Women's Empowerment in Agriculture in Northern Ghana: Different Patterns by Body Mass Index Categories. *African Journal of Agricultural and Resource Economics* [Internet]. 2018;13:31. Available from: <https://www.semanticscholar.org/paper/8bb41ac4c4f7dc07d37263d95a8f9d4cbe9a2851>
 16. Silva TM, Bueno NB, Azevedo M de L da SG de, Clemente APG, Florencio TM de MT. COGNITIVE PERFORMANCE OF STUNTED PRE-SCHOOL CHILDREN UNDERGOING NUTRITIONAL RECOVERY TREATMENT. *Rev Paul Pediatr*. 2018;36(1):6.
 17. Notoatmodjo S. Promosi Kesehatan dan Ilmu Perilaku. Jakarta: Rineka Cipta; 2014.

