MATERNAL CARE PRACTICES ASSOCIATED WITH NUTRITIONAL STATUS IN CHILDREN UNDER FIVE YEARS IN WEST NUSA TENGGARA PROVINCE, INDONESIA

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ABSTRACT:

Background: The adequacy of nutrition of children under five years old is influenced by maternal factors. Therefore, mothers are recognized as an important indicator on children nutritional status. The study aimed to examine the relationship between maternal care practices and nutritional status in children under five years old in West Nusa Tenggara Province, Indonesia.

Methods: A descriptive correlational design which employed a systematic random sampling method to select 327 mothers who had children aged six months until five years old was conducted. Data was collected by self-reporting questionnaires to assess the maternal care practices. Anthropometric was performed to examine the nutritional status of children under five years old. The nutritional status of children was evaluated by using WHO Anthro software v3.2.2 which was based on weight for age (WAZ). Descriptive statistics and Chi-square tests were used to analyze data.

Results: The study showed that there were statistically significant relationship between maternal care practices and nutritional status in children under five years old. Variables that were positively and statistically significant correlated with nutritional status in children under five years old were breastfeeding practice (χ^2 = 18.62, p < .001), and child immunization (χ^2 = 10.94, p< .001). However, there was no statistically significant relationship between complementary feeding and nutritional status.

Conclusion: The findings of the study confirmed that mothers had an important influence on the nutritional status of children under five years old. Nurses as health care providers should pay more attention to this group of mothers with the aim of improving the children's nutritional status.

Keywords: Nutritional status, Maternal care, Children under five years, Indonesia

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INTRODUCTION

Nutrition plays an important role in the health and development of children [1]. Adequate nutrition during infancy and early childhood is a keystone of survival health and fundamental to the development of children [2]. According to Akinsola [3], the age group 0-5 years old is a crucial nutritional stage in the growth and development of children. Besides, children who received adequate nutrition certainly perform better in the school and grow into a healthy adult for a better life [4]. To achieve an adequate and steady weight gain, the children need good quality of food and sufficient care from mothers, families, and communities [5]. It can be pointed out that the mother is a keystone in development of children as the mother role is to raise their children and protect them from malnutrition [6]. Therefore, maternal care practice is an important factor in terms of providing adequate nutrition to the children, especially under five years of age. On the other hand, inadequate maternal care practice can lead to malnutrition and health problems in children.

Malnutrition in children is one of the most serious health problems in the world, especially in developing countries [7]. According to the World

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Health Organization (WHO), malnutrition is a major global target that must be addressed to decrease the prevalence of children living with malnutrition starting from the early development stages, so that the optimal nutrition and health can be achieved [8]. The global target is also intended to provide a benchmark for the international community to measure children's performance. Under-nutrition affects physical growth, morbidity, mortality, cognitive development, and physical work capacity. In addition, it consequently impacts on human performance, health, and survival [9].

According to WHO [8], in 2012 the prevalence of malnutrition has declined significantly in developing countries. For example, in Africa, from 2000 to 2011, the prevalence of underweight children under five years old declined from 20.3% to 17.9%. Asian countries also reported a decreasing trend of underweight children under five years old in 2007 from 25.9% to 20.0% in 2012. However, in Indonesia the prevalence of underweight children under five years old is increased from 17.9% in 2010 to 19.6% in 2013. In accordance with this problem, the government set the nutrition improvement program to achieve national target by 15.5% in 2015. Therefore, the prevalence of malnutrition should be reduced by 4.1% from the period 2013 to 2015 [10]. Interestingly, approximately 18 of 33 provinces in Indonesia are still higher in national prevalence rate of underweight children under five years old. West Nusa Tenggara province is one province where the prevalence of underweight children under five years old is attained 26% in 2013 [10].

As mentioned previously, maternal care practice is a keystone in development of children. The mother's care affects the child's nutritional status through better infant feeding practices and breastfeeding, preparation of healthy food, hygiene and support of the mothers from their family so that they have sufficient time to take care of their children [11]. WHO [12] recommended that the mothers should provide exclusive breastfeeding for their children in the first 6 months after birth and children between the ages of 6 to 24 months should be given complementary foods to ensure appropriate growth and healthy life. A study in Kenya showed that there was a significant association between breastfeeding and children underweight [13]. Parent who did not bring their children to take immunizations are more likely to have malnutrition in their children [4]. In addition, a study by Kumar [15], claimed that partial complementary feeding posed a significant risk factor for poor nutrition.

There were several efforts from the federal government, donor agencies such as UNICEF and WHO to provide services such as immunization, food supplements, and deworming medicine to children 0-5 years old. According to the Millennium Development Goals (MDGs), Indonesia government is trying to reduce the prevalence of malnutrition in children under five years old by half during 1990s to 2015. Therefore, several programs have been implemented by the government to reduce the prevalence of malnutrition, including tracking programs and audits of malnutrition, breast milk feeding assistant, supplementary feeding recovery, referral support, and treatment support programs for malnutrition [16]. However, the prevalence of malnutrition in some areas of Indonesia is still high. For example, the prevalence of malnutrition of North Lombok district in 2012 was 25.31% [17]. At the present, there was no evidence based on research studies about nutritional status in children under five years old in West Nusa Tenggara Province, particularly in North Lombok district. Therefore, this primary study was conducted to investigate factors related to nutritional status in children under five years old in this area.

The purpose of this study was to examine the association between maternal care practices, maternal knowledge and nutritional status in children under five years old.

MATERIALS AND METHODS

This study employed a descriptive correlational approach, which data were collected from five Public Health Centers (PHCs), North Lombok district, West Nusa Tenggara Province, Indonesia.

The total participants in this study were 327 mothers who had children under five years old. The participants were selected from five areas of the Public Health Center (PHC). The inclusion criteria of participants were (1) mothers who had children six months until five years old, (2) mothers who were living in West Nusa Tenggara Province-Indonesia, (3) mothers who were able to understand and fill out the questionnaires, and (4) mothers who were agreed to participate in this study.

The instruments used in this study were self-administered questionnaires. These questionnaires comprised of maternal care practices and anthropometric measurement developed by the WHO.

The maternal care practices questionnaires

The maternal care practices questionnaires composed of two parts: 7 items about breastfeeding practice and complementary feeding and 8 items about immunization status of children. These questionnaires were adopted and modified from the instrument developed by Demmisie and Amare, [2].

Table 1 The frequency and percentage of nutritional status in children under five years old (n = 327)

Nutritional status	Frequency	%
Adequate nutrition	203	62.14
Under nutrition	124	37.86
Total	327	100

These questionnaires offered multiple choices as the answer.

The anthropometric measurement

The researcher assessed data for anthropometric measurement in children including, age, height and weight. Anthropometric measurement was used to assess the nutritional status in children under five years old based upon weight-for-age (WAZ). The anthropometric data including age, height and weight of the children were entered into WHO Anthro software version 3.2.2, and expressed to Z-scores for each of the anthropometric indicating nutrition status against the new WHO child growth standards reference. Children were classified as an adequate nutrition when the weight for age is the Z-score by -2 SD. However, children were classified as an under nutrition when the weight for age is below the Z-score by -2 SD [8].

Ethical consideration

The study was approved by Ethics Review Board Committee for Research Involving Human Research Subjects, Boromarajonani College of Nopparat Vajira (ERB Number 46/2014), Bangkok, Thailand. Informed consent was signed by each participant. During the data collection, the research team required to observe tiredness, issues, and problems of discomfort in the respondents. The participants could withdraw from the study at the time. The research team checked the data for completeness of the questionnaires.

Data collection

The permission letter from the director of BCNNV and ERB of BCNNV was sent to the Board of National Unity and People's Protection (Kesbanglinmas) West Nusa Tenggara and Ministry of Health, North Lombok. The researcher received an approval from the Head of all PHC and the researcher explained the research objective, research method, instrument, and method of data collection. Nurses who were responsible to provide Integrated Health Post (Posyandu) in the community were contacted by the researcher and arrange schedules for the data collection.

The researcher checked the data of mothers who had children aged six months until five years old in each PHC. Then, the researcher arranged the population randomly by computer program to select qualified subjects. The researcher explained information about the study to the potential participants who met criteria with the Participants Information Sheet (PIS). All potential participants were required to agree freely after they understood the study thoroughly. Participants consent form and permission form were signed and kept by the researcher and participants. The researcher and research assistants, who were trained how to use questionnaires correctly, collected data using questionnaires and anthropometric measurement. To complete the questionnaires, the participants were given time approximately 30 minutes.

Data analyses

Chi-square (χ^2) test was used to examine the relationships between maternal care practices and nutritional status in children under five years old.

RESULTS

The purpose of this study was to examine the relationships between maternal care practices and nutritional status in children under five years old. The maternal care practices included breastfeeding practice, complementary feeding, and child immunization.

Nutritional status

Among 327 children, 62.14% of them were in adequate nutritional status and 37.86% were in under nutritional status (Table 1).

Maternal care practices

In this study, the majority or about 52.89% of mothers did not exclusively breastfeed their children. Regarding to the complementary feeding, the majority of the respondents or 67.78% had given complementary feeding to their children partially, and about 32.22% respondents had given complementary feeding to their children completely. For child immunization status, about 53.20% of respondents had children with complete immunization and the rest about 46.80% of the respondents had children with partial immunization (Table 2).

The relationships between maternal care practices and nutritional status

The results showed that breastfeeding practice and child immunizations were significantly correlated

Table 2 The frequency and percentage of breastfeeding practice, complementary feeding, and child immunization of children under five years old (n = 327)

Variables	Frequency	%
Breastfeeding practices		
Not exclusive breastfeeding	173	52.89
Exclusive breastfeeding	154	47.11
Child immunization		
Partial immunized	153	46.80
Complete immunized	174	53.20
Complementary feeding (n = 146)		
Partial complementary feeding	99	67.78
Complete complementary feeding	47	32.22

Table 3 The relationship between maternal care practices and nutritional status in children under five years old (n = 327)

Variables	Nutritional status		χ^2	*p*-value
	Under nutrition	Adequate nutrition		
Breastfeeding practices			18.62	.001
Not exclusive breastfeeding	85	88		
Exclusive breastfeeding	39	115		
Child immunization			10.94	.001
Partial immunized	73	80		
Complete immunized	51	123		
Complementary feeding (n = 146)			1.60	.207
Partial complementary feeding	35	64		
Complete complementary feeding	11	36		

with nutritional status in children under five years old (χ^2 = 18.62, p < .001 and χ^2 = 10.94, p < .001, respectively), whereas there was no statistically significant relationship between complementary feeding and nutritional status in children under five years old (Table 3).

DISCUSSION

The results revealed that there was a statistically significant relationship between breastfeeding practice and nutritional status in children under five years old. This study showed children below the desired nutritional status were not exclusively breastfed by their mothers. It indicated that for optimal nutrition, mothers should give exclusive breastfeeding to their children for the first six months after births. Although breastfeeding was still practiced by many of the mothers in this area, only a few mothers gave exclusive breastfeeding to their children. This finding was consistent with a study by Hien and Kam which found that children receiving mother's exclusive breastfeeding for less than six months were at a higher risk on being underweight than children receiving exclusive breastfeeding from their mothers for up to six months [18]. In addition, children who had not received exclusive breastfeeding for six months were more than twice as likely to be underweight than those who benefited from exclusive breastfeeding [13]. As a result, breastfeeding practice was considered to be the most significant variable correlated with nutritional status of children under five years old.

According to child immunization, the result of this study has showed that there was a statistically significant relationship between child immunization and nutritional status of children under five years old. Approximately, a half of children received only partial immunization and nearly half of them were showing poor nutrition which means that children receiving partial immunization were more likely to be in poor nutritional status. This finding was consistent with a study conducted in Kenya, which reported that incomplete child immunization posed a risk leading to the development of poor nutrition in children [19]. Moreover, this finding was also supported by a study conducted in Indonesia, which showed that parents who missed bringing their children for complete course of immunizations would result in their children tending to be in a poor nutritional state [14]. As a result, child immunization was correlated to nutritional status among children under five years old.

However, the results in this study pointed out that complementary feeding was not significantly related to nutritional status of children under five years old. This finding was inconsistent with other studies, in which the poor nutrition among children was more likely occurring in children with partial

complementary feeding. For example, some studies conducted in Nigeria, India, and Ghana showed that inappropriate frequency of complementary feeding bearing certain correlation with nutritional status of children [20, 21]. Furthermore, a previous study conducted in India also found that partial complementary feeding posed a significant risk factor for poor nutrition [15]. Therefore, to confirm the relationship between complementary feeding and nutritional status of children under five years old, further studies need to be conducted by using more appropriate data collection strategies.

Implications

The current study had put focus on the mothers as the core respondents to the questionnaires because the mothers bear more responsibility of taking care of their children. Therefore, healthcare providers should pay more attention to this group of mothers with the aim of improving the nutritional status of children under five years old. Furthermore, based on the findings, the majority of mothers responding to the questionnaires had poor knowledge about nutrition and also the children received only partial child immunization which correlated to malnutrition in their children. Thus, health care providers should consider providing health education to the mothers about breastfeeding practice, appropriate complementary feeding, and vaccination at appropriate time. In addition, the results of this study might be useful as a reference in developing appropriate intervention programs aiming at mothers with children under five years old in order to reduce the incidence of malnutrition among these children living in West Nusa Tenggara province.

Limitations

In the present study, there are some limitations that could affect the results of the study. Firstly, the complementary feeding variable might not be precisely measured because it was assessed by the recommendations of WHO in terms of considering the frequency of complementary feeding, while it did not include consideration of the types of food given in the complementary feeding. Secondly, due to the fact that data of breastfeeding and complementary feeding were collected by recalling of the mothers, recall biases can occur. Thirdly, the results may not sufficiently justify any generalization on nutritional status of children under five years old living in urban area since this study was conducted entirely with children living in rural area. Therefore, the future research aimed to study such variables should consider these limitations.

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