



Analysis of the Relationship between Nutritional Behavior in Emergency Conditions and the Nutritional Status of Toddlers: The Case of the Semeru Eruption in Lumajang Regency

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Abstract: Toddlers are a group that is classified as vulnerable in disaster emergencies. One of the areas running a nutrition emergency program is Lumajang Regency, which also has a prevalence of severely wasted reaching 6.9%. A factor that indirectly influences the nutritional status of toddlers is the mother's nutritional fulfillment behavior. This can apply especially in disaster situations that cause local food limitations. This study aimed to analyze the relationship between nutritional behavior in emergency conditions and the nutritional status of toddlers. This research is a cross-sectional study with a quantitative approach. Data collection was carried out by filling out questionnaires for 44 parents of toddlers and measuring the nutritional status of 44 toddlers. Data analysis was carried out by giving a score on the questionnaire and calculating the z-score on the anthropometric data. The Sommers'd test was carried out to analyze the relationship between nutritional behavior and nutritional status. This research found there was no relationship between the mother's nutritional behavior (including participation, reactions, knowledge, attitudes, skills, and behavior) and the nutritional status of toddlers ($p > 0.05$). This can be caused by food availability factors which directly influence the nutritional status of toddlers.

Keywords: Emergency nutrition; Nutritional behavior; Nutritional status; Toddlers

Introduction

Toddlers are a group that is classified as vulnerable and require special nutritional treatment in disaster emergency situations. The reason is that at the toddler age, growth and development occur very quickly and cannot be repeated (Mufida et al., 2015). Nutritional status is one of the indicators used to show the quality of life in toddlers (Soekirman, 2018).

The nutritional status which is classified as vulnerable in the toddler group means that the aim of implementing a disaster emergency nutrition program for toddlers is to maintain nutritional status and prevent the risk of illness and death due to malnutrition (Indonesian Ministry of Health, 2020). Various activities carried out in the emergency nutrition program for toddlers include infant and young child feeding (IYCF),

prevention and treatment of wasted and severely wasted, as well as nutritional supplementation. The expected output from the implementation of the emergency nutrition program is changes in mothers' behavior in meeting the nutritional needs of toddlers, through counseling with the final expected result being good nutritional status for toddlers (Indonesian Ministry of Health, 2020). However, it was found that there was an increase in the rate of decline in nutritional status in areas that implemented emergency nutrition programs, such as after the earthquake disaster in Palu City which experienced an increase in wasted reaching 22.7% and severely wasted reaching 9.1% (Nasrul, 2019).

One of the post-disaster areas that is running an emergency nutrition program for toddlers is Lumajang Regency which experienced the eruption of Mount

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Semeru in December 2021. Previous studies found that Lumajang Regency is one of the regencies in East Java that still has a high prevalence of severely wasted toddlers and continues to increase above WHO standards, reaching 6.9% in 2022, an increase of 1.5% from the previous year (Indonesian Ministry of Health, 2021; Indonesian Ministry of Health, 2022). The natural disaster conditions faced by the implementation of emergency nutrition programs in Indonesia which cannot maintain and improve the nutritional status of toddlers, can lead to the risk of worsening nutritional status of toddlers which can result in disruption of physical growth and cause death in toddlers (Indonesian Ministry of Health, 2013; Afritayeni, 2017).

The thing that indirectly influences the nutritional status of toddlers is the level of knowledge. The level of nutritional knowledge greatly influences attitudes and behavior in choosing food which can influence nutritional conditions. Lack of knowledge regarding the choice of food ingredients can lead to mistakes in choosing nutritious foods, besides low knowledge of nutrition can lead to an indifferent attitude towards certain foods. In this case, intake can have a direct effect on nutritional status. In the toddler group, the factor that influences the nutritional status of toddlers is the mother's parenting style (Anida et al., 2015). Good maternal nutritional knowledge can convince mothers to behave appropriately in meeting the nutritional needs of toddlers (Notoatmodjo, 2014). This applies especially in disaster situations that cause limited local food which results in the nutritional needs of toddlers not being met in terms of quantity, quality, and appropriate types of food ingredients, as well as the absence of special food for groups of toddlers (Sulistiawati & Taufiqqurahman, 2020; Subratha, 2019).

Measuring changes or the impact of program implementation can be shown through Claude Bennet's hierarchy, in the form of people's involvement, reactions, changes in knowledge, attitudes, skills, and changes in practice, which results in the final result of achieving program goals (Bennett, 1979 in Som et al., 2020). In this case, the weight-for-height index (W/H) is used as an indicator of the achievement of the objectives of the emergency nutrition program for toddlers, related to results that can assess malnutrition that has recently occurred (acute) or that has occurred for a long time (chronic) (Supariasa et al., 2016). However, analysis of the relationship between nutrition program outputs in Indonesia has only been carried out on programs outside of disasters and has not been thoroughly assessed according to Bennett's hierarchy, such as in the IYCF program (Sari & Ernawati, 2018; Tanuwijaya et al., 2020). Based on this, this study aimed to analyze the relationship between nutritional behavior in emergency

conditions (including the level of mother's participation in posyandu activities during the disaster emergency period, the mother's reaction regarding fulfilling emergency nutrition for toddlers, the mother's attitude in meeting the nutritional needs of toddlers during the disaster emergency period, skills mothers in meeting the emergency nutritional needs of toddlers, and the behavior of mothers related to fulfilling nutrition) and the nutritional status of toddlers.

Method

This research is a cross-sectional study with a quantitative approach. The research was carried out at the permanent residence in Sumbermujur Village, Candipuro District, Lumajang Regency from March to April 2023. Respondents in this study were selected using a total sampling technique, namely 44 respondents were mothers of toddlers and 44 were toddlers.

Data collection techniques were carried out by filling out questionnaires to assess the participation, reactions, attitudes, skills, and nutritional behavior of mothers of toddlers in emergency conditions. The questionnaire has been declared valid and reliable, through the valid Pearson Product Moment correlation test ($r_{count} > r_{table}$ of 0.361), as well as reliability through the Pearson Product Moment test ($p < 0.05$) using SPSS ver. 25.

The assessment of the results of filling out the questionnaire is divided into several categories, including the assessment of the mother's participation questionnaire is divided into active (score 5-7) and inactive (score < 5), the mother's reaction questionnaire assessment was divided into good (score 17-24), sufficient (score 9-16), and poor (score < 9), the mother's knowledge questionnaire assessment was divided into good (score 15-21), sufficient (score 8-14), and poor (score < 8), the mother's attitude questionnaire assessment was divided into very positive (score 31-40), positive (score 21-30), negative (score 11-20), and very negative (score < 11), the maternal skills questionnaire assessment was divided into good (score 9-11), fair (score 5-8), and poor (score < 5), and the maternal behavior questionnaire assessment was divided into good (score 29-42), sufficient (score 15-28), and poor (score < 15).

In assessing the nutritional status of toddlers, the z-score is calculated using the WHO-Anthro application. The W/H index categories from Indonesian Ministry of Health (2020) are underweight <-3 SD, underweight -3 SD to <-2 SD, normal -2 SD to +1 SD, possible risk of being overweight >+1 SD to 2 SD, overweight >+2 SD to +3 SD, and obesity >+3 SD.

After the questionnaire data and assessment of nutritional status were collected, the Sommers'd test was carried out to analyze the relationship between the nutritional behavior of mothers of toddlers in emergency conditions and the nutritional status of toddlers.

Research ethical approval was obtained from the Health Research Ethics Committee, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia (Reference No: 66/UN27.06.11/KEP/EC/2023).

Result and Discussion

General Characteristics of Respondents

Based on Table 1, it can be seen that the majority (39%) of mothers are aged 31-35 years, followed by those aged 26-30 years reaching 23%. Most of the mothers had a final education level of elementary school reaching 68% and 91% worked as daily laborers. The toddler group is dominated by females and most (38%) are 37 - 48 months.

Table 1. Distribution of Respondents Based on General Characteristics

General Characteristics	Frequency (n)	Percentage (%)
Mother's Age (years)		
21 - 25	9	20
26 - 30	10	23
31 - 35	17	39
36 - 40	6	14
> 40	2	5
Total	44	100
Mother's Education Level		
Elementary school	30	68
Junior High School	10	23
Senior High School	2	5
Bachelor	2	5
Total	44	100
Mother's Job		
Daily laborer	40	91
Others	4	9
Total	44	100
Toddler Gender		
Male	18	41
Female	26	59
Total	44	100
Toddler Age (months)		
23 - 36	15	33
37 - 48	17	38
49 - 60	13	29
Total	44	100

Mother's Participation in Activities in the Toddler Emergency Nutrition Program

Assessment of maternal participation in the emergency nutrition program for toddlers in Lumajang Regency was assessed through attendance at *posyandu*

activities carried out from the beginning of the disaster to post-disaster. Basically, according to the Central Java Department of Health (2021), visits by toddlers to *posyandu* that are classified as good are routine every month or 12 times per year, in this case, visits 8 times or more in one year are considered routine or active. However, the disaster conditions and unpreparedness of the program in Lumajang Regency meant that *posyandu* activities could only be implemented after 8 months of the disaster, namely in August 2022 with a total of 7 *posyandu* implementation until February 2023.

Table 2. Frequency Distribution of Mothers' Participation in the Emergency Nutrition Program

Participation	Frequency (n)	Percentage (%)
Active (Score 5 - 7 is classified as active)	13	30
Inactive (Score 0 - 4 is classified as inactive)	31	70
Total	44	100

Based on the research results in Table 2, it can be seen that the majority (70%) of mothers of toddlers are classified as not actively attending *posyandu*. According to Diagama et al. (2019), the lack of mother's activeness in attending *posyandu* can be caused by several things, including a lack of health facilities, a lack of quality of health services, and a lack of activities carried out by the local health center, so that mothers' interest in bringing toddlers to *posyandu* is low. Similar to the research results of Nazri et al. (2016) who found that the mother's attitude towards using *posyandu*, satisfaction with *posyandu* services, and intention to attend *posyandu* significantly influenced the mother's frequency of participation. The mother's inactivity in the *posyandu* also shows that the mother's role in monitoring the growth and development of toddlers is very lacking (Arbie & Moputi., 2016). This can be similar, especially in areas affected by natural disasters which can experience difficulties in accessing health services. The results of research by Sulistiawati et al. (2020) found that in disaster situations obstacles were encountered, such as areas that were difficult to reach by means of transportation or locations that were classified as remote and remote, thus causing difficulties in obtaining and monitoring toddler anthropometric data.

Apart from the quality of health facilities, Maulana (2013) research results found that other factors that also influence the activeness of mothers' visits to *posyandu* activities are the mother's age, education, family support, and cadre support. In this case, although most of the mothers' ages are in the range of 31 to 35 years, the mothers' education is relatively low, namely elementary school, and they have a job as daily laborers. The results of research by Diagama et al. (2019) found that the

majority of mothers who actively visited *posyandu* were 26 to 35 years old. However, apart from age, the level of parental education is also significantly related to the nutritional status of toddlers (Shulhaeni 2016). In this case, mothers who have at least a high school education believe it is important to take their children to *Posyandu* to monitor growth and development, as well as nutritional status. This is similar to the results of research by Putri (2015) which found that the higher the mother's education, the easier it will be for the mother to understand information and implement it in health and nutrition behavior. Apart from this, according to Maulana (2013), the mother's job also influences her activeness in participating in *posyandu* activities, in this case, mothers who do not work will tend to have time to regularly take their children to the *posyandu*. The research results of Russiska (2020) also found that mothers who work but are not active in weighing toddlers at the *posyandu* can be caused by the mother's busy schedule which causes her time to be taken up by work. In this case, the research results found that parents who were not active in going to the *posyandu* worked as laborers who had relatively low levels of education, thus triggering parents' indifference to visiting the *posyandu*.

Mother's Reaction Regarding Fulfillment of Emergency Nutrition for Toddlers

The mother's reaction to fulfilling emergency nutrition for toddlers is related to the mother's level of interest, both in participating in activities in the emergency nutrition program for toddlers and implementing nutritional requirements for toddlers.

Table 3. Frequency Distribution of Mother's Reactions Regarding Fulfillment of Emergency Nutrition for Toddlers

Reaction	Frequency (n)	Percentage (%)
Poor (Score 0 - 8)	4	9
Sufficient (Score 9 - 16)	17	39
Good (Score 17 - 24)	23	52
Total	44	100

Assessment of the reaction of mothers of toddlers in the emergency nutrition program for toddlers in Lumajang Regency, including interest in participating in activities in the program, such as infant and young child feeding (IYCF), *posyandu*, nutritional counseling, vitamin A supplementation, providing additional food, and participation in consultations. Based on the assessment results in Table 3, it can be seen that the majority (52%) of mothers' reactions were classified as good. According to Kirkpatrick (1998) in Nurbiyati (2017), reactions are related to participant satisfaction, in this case, the program is considered effective in achieving goals if it is felt to be fun and satisfying so that

participants are interested and have the motivation to learn and practice. A mother's reaction that is classified as good can increase motivation related to the nutritional status of toddlers (Fitri & Sartika, 2021). The conditions that also influence mothers' interest and motivation in fulfilling toddler nutrition are related to family support and the role of nutrition officers. The research results of Sari et al. (2022) found a significant relationship between motivation, family support, and the role of nutrition officers in implementing the vitamin A supplementation program for toddlers. This support is specifically needed by mothers of toddlers in disaster situations, where the disaster situation itself has triggered stressful conditions in mothers of toddlers (Indonesian Ministry of Health, 2020). This is also supported by the results of research by Hine et al. (2023) which found that natural disasters can worsen the stress conditions experienced by mothers, especially those who live in rural areas.

Mother's Knowledge Regarding Fulfillment of Emergency Nutrition for Toddlers

The knowledge gained in implementing the emergency program for toddlers in Lumajang Regency includes knowledge related to breast milk, the benefits of giving animal protein and daily fruit consumption for toddlers, providing snacks for toddlers, reading the growth line on the *kartu menuju sehat* (card for health), causes of delayed growth in toddlers, and the causes of malnutrition in toddlers.

Table 4. Frequency Distribution of Mothers' Knowledge Regarding Fulfillment of Emergency Nutrition for Toddlers

Knowledge	Frequency (n)	Percentage (%)
Sufficient (Score 8 - 14)	7	16
Good (Score 15 - 21)	37	84
Total	44	100

Based on the results of assessing mothers' knowledge regarding fulfilling emergency nutrition for toddlers in Lumajang Regency in Table 4, it can be seen that 84% of mothers have relatively good knowledge. Mothers' relatively good knowledge of toddler nutrition is inseparable from the role of nutrition officers in providing information through nutrition education. As per the research results of Azria et al. (2016), there is a difference in knowledge between the group of mothers who were given nutritional education and the group who were not given nutritional knowledge. The existence of knowledge in the sufficient category can also be influenced by the inactivity of the majority of mothers in *posyandu* activities during the disaster. Good knowledge can be influenced by the knowledge received by the mother during *posyandu* activities before the disaster occurred. As the results of research by Saepudin

et al. (2017) found that *posyandu* has become a center for public health information. Research by Novianti et al. (2021) also found that *posyandu* plays a role in providing nutritional education and counseling which aims to increase mothers' awareness and knowledge regarding good nutritional behavior.

Mother's Attitude Regarding Fulfillment of Emergency Nutrition for Toddlers

The mother's attitude after participating in the emergency nutrition program for toddlers in Lumajang Regency has an impact on the assessment of matters related to fulfilling toddler nutrition. This includes the mother's attitude in choosing the type of food sources needed by toddlers, food needs that are appropriate to the age and development of toddlers, application of food diversity, application of hygiene, controlling children's food, goals for feeding toddlers, weighing toddlers every month at the *posyandu*, as well as consultations if toddlers experience weight loss.

Table 5. Frequency Distribution of Mother's Attitudes Regarding Fulfillment of Emergency Nutrition for Toddlers

Attitude	Frequency (n)	Percentage (%)
Very positive (Score 31 - 40)	35	80
Positive (Score 21 - 30)	9	20
Total	44	100

Based on the results of assessing mothers' attitudes towards fulfilling emergency nutrition for toddlers in Lumajang Regency in Table 5, it can be seen that the majority (80%) of mothers have attitudes that are classified as very positive. This shows that good knowledge in mothers causes a very positive attitude toward fulfilling toddler nutrition. According to Notoatmodjo (2015), knowledge based on correct understanding can foster positive attitudes and actions as expected. Knowledge, which is a cognitive component, can also come from beliefs through what has been seen or from personal experience. This is also supported by research results from Fatharanni et al. (2019) which found that the negative attitudes of respondents are in line with the knowledge that tends to be lacking, in other words, the level of nutritional knowledge will be in line with nutritional attitudes. Suryani et al. (2014) also found that respondents who had fairly good knowledge were in line with respondents who had positive nutritional attitudes.

Mother's Skills Regarding Fulfillment of Emergency Nutrition for Toddlers

Mothers' skills in implementing emergency nutrition program materials for toddlers in Lumajang Regency can be seen from what mothers implement in

fulfilling toddler nutrition, including preparing their own food for toddlers, presenting food textures appropriate to the toddler's age, preparing varied foods, weighing toddlers at the *posyandu*, and consulting toddler's weight and health.

Table 6. Frequency Distribution of Mother's Skills Regarding Fulfillment of Emergency Nutrition for Toddlers

Skills	Frequency (n)	Percentage (%)
Sufficient (Score 5 - 8)	9	20
Good (Score 9 - 11)	35	80
Total	44	100

Based on the research results in Table 6, it can be seen that 80% of mothers are classified as having good skills. Good skills are needed before habitual behavior is formed. The research results of Setiawati et al. (2023) found that appropriate nutritional skills are the result of improvement in nutritional knowledge and attitudes. According to Kasumayanti et al. (2020), maternal skills are very necessary for improving the nutritional status of toddlers. Maternal skills that play an important role in nutritional behavior are related to selecting and preparing food for consumption. Apart from nutritional behavior related to food, in disaster emergencies, mothers' nutritional skills also include monitoring the weight and height of toddlers to determine the development of toddlers' nutritional status.

Mother's Behavior Regarding Fulfillment of Emergency Nutrition for Toddlers

Mother's behavior after participating in the emergency nutrition program for toddlers in Lumajang Regency is related to habits in daily implementation. This can be seen from the daily habits of mothers in fulfilling toddler nutrition, including preparing their own food for toddlers, paying attention to the nutritional composition of toddler food, implementing hygiene, providing basic food and additional food for toddlers, applying varied food, being active in attending *posyandu*, as well as consulting on the weight and health of toddlers.

Table 7. Frequency Distribution of Mother's Behavior Regarding Fulfillment of Emergency Nutrition for Toddlers

Behavior	Frequency (n)	Percentage (%)
Poor (Score 0 - 14)	2	4
Sufficient (Score 15 - 28)	7	16
Good (Score 29 - 42)	35	80
Total	44	100

Based on the research results in Table 7, it can be seen that the majority (80%) of mothers have good

behavior in fulfilling emergency nutrition for toddlers. Nutritional behavior is every action carried out by the mother in the behavior to regulate the daily composition of the toddler's food which contains nutrients in the type and amount that suit the toddler's needs (Fajriani et al., 2020).

Even though most mothers have a very positive attitude, this does not guarantee that all good actions will be created. The results of research by Rahmatillah (2018) found that positive attitudes towards the value of health do not always translate into concrete actions, as evidenced by the fact that there is still mothers' behavior which is classified as deficient in fulfilling the nutrition of toddlers. This mother's behavior can be seen from wrong habits in meeting nutritional needs.

Nutritional Status of Toddlers

In this study, nutritional status was measured using the W/H index. The results of the frequency distribution of nutritional status for toddlers obtained in Table 8 show that the majority of toddlers are classified as having good nutritional status, reaching 96%.

Table 8. Frequency Distribution of Toddler Nutritional Status Based on the W/H Index

Nutritional Status (W/H)	Frequency (n)	Percentage (%)
Wasred (-3 SD to <-2 SD)	1	2
Normal (-2 SD to +1 SD)	42	96
Overweight (>+2 SD to +3 SD)	1	2
Total	44	100

Relationship between Mother's Participation in Activities in the Emergency Nutrition Program and the Nutritional Status of Toddlers

Based on the research results in Table 9, it can be seen that the 13 toddlers whose mothers had active participation all had normal nutritional status with a percentage reaching 29%. Another 31 toddlers from mothers who were classified as inactive participants were wasted and overweight, each amounting to 1 toddler (2%), and 29 other toddlers (66%) were classified as having normal nutritional status.

Table 9. Relationship between Mother's Participation and Toddler's Nutritional Status

Participation	Nutritional Status			Total	p-value
	Wasted n (%)	Normal n (%)	Overweight n (%)		
Active	0 (0)	13 (29)	0 (0)	13	1.00
Inactive	1 (2)	29 (66)	1 (2)	31	(> 0.05)

Based on the Sommers'd test, a p-value of 1.00 (> 0.05) was obtained, which means that there is no significant relationship between maternal participation in emergency nutrition program activities and the

nutritional status of toddlers with the W/H index. The results of this research are in line with the results of research by Fitri et al. (2018) which found that there was no relationship between the activity of mothers visiting *posyandu* and the nutritional status of toddlers. However, different from the research results of Diagama et al. (2019), who found a relationship between the number of *posyandu* visits and the nutritional status of toddlers. The research results of Agustiawan et al.(2020) also found a strong relationship between the frequency of *posyandu* visits and the nutritional status of toddlers. In other words, being active in *posyandu* activities has a big influence on monitoring nutritional status, apart from that, mothers of toddlers who actively attend *posyandu* will get the latest information related to health which can be useful in managing a healthy lifestyle and fulfilling the appropriate daily nutrition for toddlers.

The differences in research results could be caused by other variables that can influence the nutritional status of toddlers, namely knowledge obtained through counseling in *posyandu* activities. In this case, the lack of relationship could be caused by the lack of intensive nutrition education activities for toddlers. Rarastiti et al. (2014) found that the absence of a relationship between the frequency of *posyandu* attendance and the nutritional status of toddlers was due to the lack of routine nutritional education carried out in *posyandu* activities. This is in accordance with the implementation of *posyandu* which is not routinely carried out in Lumajang Regency, especially since the disaster occurred and the inactivity of mothers of toddlers in attending *posyandu*.

The nutritional status of toddlers, which is mostly classified as normal in the group of inactive mothers of toddlers, can be caused by good regional food security. As is the condition in Lumajang Regency, which is basically abundant in food and agricultural sources which are one of the people's sources of livelihood (Badan Pusat Statistik, 2016). In this case, even though it was affected by the disaster, one of the emergency nutrition programs that was also implemented was infant and young child feeding (IYCF) to ensure the nutritional needs of toddlers were met (Indonesian Ministry of Health, 2020). This is in accordance with the research results of Safitri et al. (2018) who found that agricultural products influence nutrition through the availability of a variety of foods with quantities and ingredients that meet nutritional needs.

The Relationship between Mother's Reaction Regarding Fulfillment of Emergency Nutrition and the Nutritional Status of Toddlers

Based on the research results in Table 10, it can be seen that of the 4 toddlers whose mothers had poor reactions, 3 toddlers (7%) had normal nutritional status, while the remaining 1 toddler (2%) was overweight. Of

the 17 toddlers whose mothers were classified as having a moderate reaction, 16 (36%) of the toddlers had normal nutritional status, while the other 1 (2%) had wasted. The other 23 toddlers (52%) from mothers who had good reactions had normal nutritional status.

Table 10. Relationship between Mother's Reaction and Toddler's Nutritional Status

Reaction	Nutritional Status			Total	p-value
	Wasted n (%)	Normal n (%)	Overweight n (%)		
Poor	0 (0)	3 (7)	1 (2)	4	0.65 (> 0.05)
Sufficient	1 (2)	16 (36)	0 (0)	17	
Good	0 (0)	23 (52)	0 (0)	23	

Based on the Sommers'd test, a p-value of 0.65 (> 0.05) was obtained, which means that there is no significant relationship between the mother's reaction regarding fulfilling emergency nutrition and the nutritional status of toddlers with the W/H index. Regarding the assessment of maternal reactions, no similar research has been found. Meanwhile, the results of the study related to the results of maternal reactions that give rise to motivation by Pratiwi et al. (2018) found different results from this research, namely that there was a relationship between mothers' motivation and the provision of nutritious food. This is the same as the results of research by Fitri et al. (2021), which found a significant relationship between mothers' motivation regarding balanced nutrition and children's nutritional status. Atu et al. (2017) also found a strong relationship between maternal motivations in improving nutritional status in a group of severely wasted toddlers. Mothers' motivation in implementing good nutritional parenting plays an important role in meeting children's nutritional needs. Lack of motivation will result in poor nutritional status for children. In this case, motivation will more easily arouse feelings and responses to achieve the desired goals, so that through motivation, groups of mothers will be more motivated to meet their children's nutritional needs (Fitri & Sartika, 2021).

The Relationship between Mother's Knowledge Regarding Fulfillment of Emergency Nutrition and the Nutritional Status of Toddlers

Based on the research results in Table 11, it can be seen that of the 7 toddlers from mothers who have sufficient knowledge, 6 toddlers (13%) have normal nutritional status, while the remaining 1 toddler (2%) is overweight. Of the 37 toddlers whose mothers were classified as having good knowledge, 36 (82%) toddlers had normal nutritional status, while 1 other (2%) had wasted.

Table 11. Relationship between Mother's Knowledge and Toddler's Nutritional Status

Knowledge	Nutritional Status			Total	p-value
	Wasted n (%)	Normal n (%)	Overweight n (%)		
Sufficient	0 (0)	6 (13)	1 (2)	7	0.23 (> 0.05)
Good	1 (2)	36 (82)	0 (0)	37	

Based on the Sommers'd test, a p-value of 0.23 (> 0.05) was obtained, which means that there is no significant relationship between mothers' knowledge regarding fulfilling emergency nutrition and the nutritional status of toddlers with the W/H index. This is in line with the results of research by Lamia et al. (2019) who found that there was no relationship between nutritional knowledge and children's nutritional status (W/H). Likewise, the research results of Burhani et al. (2016) also found that there was no relationship between the mother's level of knowledge and the nutritional status of toddlers. The results of the latest research by Komala et al. (2023) also found that there was no significant relationship between maternal nutritional knowledge and toddler nutritional status (H/A and BMI/A). In contrast to the research results of Fajriani et al. (2020) who found a significant relationship between knowledge and the nutritional status of toddlers. The research results of Sadiq et al. (2020) also found that there was a very significant relationship between mothers' overall knowledge regarding nutrition and the nutritional status of toddlers according to BMI categories. These differences in results illustrate that good maternal nutritional knowledge is not necessarily in line with good nutritional status in children. According to many things influence toddler nutrition, such as food availability, consumption patterns, infectious diseases, community participation, and maternal activities (Burhani et al. 2016).

The Relationship between Mother's Attitude Regarding Fulfillment of Emergency Nutrition and the Nutritional Status of Toddlers

Based on the research results in Table 12, it can be seen that 35 toddlers from mothers with very positive attitudes are wasted and overweight, 1 toddler each (2%), and the other 33 toddlers (75%) have normal nutritional status. The other 9 toddlers (20%) from mothers who were classified as positive had normal nutritional status.

Table 12. Relationship between Mother's Attitude and Toddler's Nutritional Status

Attitude	Nutritional Status			Total	p-value
	Wasted n (%)	Normal n (%)	Overweight n (%)		
Very positive	1 (2)	33 (75)	1 (2)	35	1.00 (> 0.05)
Positive	0 (0)	9 (20)	0 (0)	9	0.05

Based on the Sommers'd test, a p-value of 1.00 (> 0.05) was obtained, which means that there is no significant relationship between the mother's attitude regarding fulfilling emergency nutrition and the nutritional status of toddlers with the W/H index. This is in line with the research results of Nurdiana et al. (2021) who found that there was no relationship between maternal attitudes and the nutritional status of children under five. Likewise, the results of the latest research by Prastichi et al. (2023) found that there was no relationship between maternal attitudes and the nutritional status of toddlers based on the W/A and H/A indices. This is because mothers who have a positive attitude will tend to pay attention to the food consumed by toddlers, but it does not rule out the possibility that there are mothers with negative attitudes who have toddlers with normal nutritional status. There are other causes, such as the environment around the child, which can influence nutritional status, so that even if the mother's attitude is negative, if the child always consumes food with sufficient nutritional content, the child's nutritional status will remain normal.

The results of this study are inversely proportional to the results of Syafni's (2022) research which found a significant relationship between mothers' attitudes and the nutritional status of toddlers. Likewise, the research results of Safitri et al. (2018), Maesarah et al. (2018), and Fakhroh et al. (2023) also found a significant relationship between parents' attitudes and the nutritional status of toddlers. This is because the average mother who has a negative attitude has insufficient knowledge so the mother's attitude in paying attention to toddler nutrition through the type and source of food is not in accordance with the guidelines for balanced nutrition. The differences in research results could be caused by the mother's attitude, which is an indirect factor in influencing the nutritional status of toddlers.

Relationship between Mother's Skills Related to Fulfilling Emergency Nutrition and Toddler Nutritional Status

Based on the research results in Table 13, it can be seen that 9 (20%) toddlers from mothers with sufficient skills have normal nutritional status. Of the other 35 toddlers whose mothers were classified as having good skills, 33 (75%) toddlers had normal nutritional status, while the others were wasted and overweight, each with 1 toddler (2%).

Table 13. Relationship between Mother's Skills and Toddler's Nutritional Status

Skills	Nutritional Status			Total	p-value
	Wasted n (%)	Normal n (%)	Overweight n (%)		
Sufficient	0 (0)	9 (20)	0 (0)	9	1.00 (> 0.05)
Good	1 (2)	33 (75)	1 (2)	35	0.05

Based on the Sommers'd test, a p-value of 1.00 (> 0.05) was obtained, which means that there is no significant relationship between mothers' skills related to fulfilling emergency nutrition and the nutritional status of toddlers with the W/H index. Similar research has not been found, but regarding the mother's role in good nutritional skills, it was found to have a relationship with the child's nutritional status (W/H) (Yendi et al., 2017). Concerning mothers' skills in the early detection of children's nutritional status, research results from Anggaraeningsih et al. (2022) found that mothers' skills and roles are very beneficial for the child's overall growth and development. Meanwhile, Purnasari et al. (2022) also found that mothers' skills in measuring anthropometry and reading Z-score tables are needed in an effort to detect the nutritional status of toddlers.

The Relationship between Mother's Behavior Related to Fulfilling Emergency Nutrition and the Nutritional Status of Toddlers

Based on the research results in Table 14, it can be seen that 2 (4%) toddlers from mothers with poor behavior have normal nutritional status. In 7 toddlers (16%) mothers with sufficient behavior had normal nutritional status. Of the other 35 toddlers from mothers who had good behavior, 33 toddlers (75%) had normal nutritional status, while the remaining 1 toddler (2%) was wasted and overweight.

Table 14. Relationship between Mother's Behavior and Toddler's Nutritional Status

Behavior	Nutritional Status			Total	p-value
	Wasted n (%)	Normal n (%)	Overweight n (%)		
Poor	0 (0)	2 (4)	0 (0)	2	1.00 (> 0.05)
Sufficient	0 (0)	7 (16)	0 (0)	7	0.05
Good	1 (2)	33 (75)	1 (2)	35	0.05

Based on the Sommers'd test, a p-value of 1.00 (> 0.05) was obtained, which means that there is no significant relationship between mothers' behavior regarding fulfilling emergency nutrition and the nutritional status of toddlers with the W/H index. This is comparable to the research results of Purnama et al. (2017) who found that there was no relationship between mothers' behavior in feeding and the nutritional status

of toddlers, but there was a relationship between maternal behavior in parenting and the nutritional status of toddlers. The absence of a relationship in feeding behavior could be caused by other factors, such as choosing food based on economic sufficiency and prioritizing food that is easier to obtain. In this case, good parenting is needed for mothers to process food with high nutritional value at relatively cheap prices. Apart from that, similar research results were also found from the research results of Kisnawaty et al. (2023) which found that there was no relationship between maternal behavior in fulfilling nutrition and the nutritional status of toddlers as seen based on the H/A index. This is different from the results of research by Rahmatillah (2018) which found a relationship between maternal actions and the nutritional status of toddlers. This difference can be caused by other factors that influence the nutritional status of toddlers, such as family income, exclusive breastfeeding, appropriateness of complementary feeding, consumption level, and history of infectious diseases (Supariasa & Purwaningsih, 2019).

Overall, from the research results, it was found that there was no relationship between the level of participation, reactions, attitudes, skills, and behavior of mothers regarding fulfilling emergency nutrition and the nutritional status of toddlers, which could be caused by various factors, especially those that directly influence the nutritional status of toddlers, such as food intake in children and infectious diseases (Nurmaliza & Herlina, 2019). Even in disaster situations, parents' tendency to pay attention to nutritional needs is very minimal, due to the post-disaster stress conditions they face. Research by Subratha (2019) found that parents in post-disaster refugee camps were unable to provide good nutrition for their children due to stressful conditions.

The absence of a relationship between the level of participation, reactions, attitudes, skills, and behavior of mothers regarding fulfilling emergency nutrition with the nutritional status of toddlers can also be caused by the sensitivity of the sample size and the results of filling out the questionnaire. Research by Nurdiana et al. (2021) revealed that the absence of a relationship in the analysis of the relationship between maternal attitudes and toddler nutritional status could be caused by the fact that during the process of filling out the questionnaire, there were several respondents who exchanged answers with other respondents. Research by Bari et al. (2021) also found that there was no effect of implementing a nutrition program on a smaller sample size. In this study, the total sample follows the total number of families of toddlers who chose to live in Permanent Shelters in Sumbermujur Village, while there are several other families of toddlers who are disaster survivors

who do not live in Permanent Residents in Sumbermujur Village so that the total sample can only be obtained as many as 44 respondents.

Apart from this, the role of nutrition officers in providing nutritious food to maintain and improve the nutritional status of children under five after a disaster is an important thing to carry out. The results of research by Larasati et al. (2022) found a relationship between infant and child feeding patterns and the nutritional status of toddlers.

Future researchers are expected to be able to examine the relationship between feeding toddlers in disaster situations and the nutritional status of toddlers by considering other factors that influence the nutritional status of toddlers in natural disaster conditions, according to the research results of Adeoya et al. (2022), including malnutrition before the disaster, food insecurity, shelter environment, breastfeeding practices and misunderstandings in breastfeeding during a disaster, socio-cultural factors, and challenges in organization and administration, with a total sample that includes all families of toddler survivors disaster.

Conclusion

In a disaster situation, no significant relationship was found between the level of maternal participation, reaction, attitudes, skills and behavior in meeting the emergency nutritional needs of toddlers, with the nutritional status of toddlers.

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Wrote the article draft, revised, and edited the final article, H. C. P.; Provided input in revising and developing the draft article, S. and S.A. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

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