



The Factors Associated with Choking Prevention Behavior in Mothers of Toddlers

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ABSTRACT

Introduction: Choking is a common health problem in children, especially those under three and younger and one of the most common cases in emergency medical services. This study aimed to analyze factors correlated with choking prevention behaviour in mothers with toddlers.

Methods: This study used a descriptive correlational design with a cross-sectional approach conducted integrated service post, Purworejo Village. The population in this study were 154 mothers who had toddlers. Inclusion criteria could access google forms, were domiciled in Purworejo Village, and lived with their families and toddlers. Exclusion criteria were mothers with special needs and toddlers with special conditions, and when the research was conducted, the mother was outside the Purworejo village. Sample selection used the cluster sampling technique with a sample size was 111 mothers.

Result: There was a relationship between knowledge ($p=0.007$ $r=0.253$), attitudes ($p=0.018$ $r=0.224$), and family support ($p=0.011$ $r=0.242$) with choking prevention behaviour, and there was no relationship between the availability of health facilities ($p=0.827$ $r=0.021$) with choking prevention behaviour.

Conclusion: Better knowledge, attitudes and family support will represent better choking prevention behaviour. Therefore, support from various parties, such as nurses, is needed to carry out health promotion related to preventing choking in families. Further research is needed regarding other factors influencing mothers' choking prevention behaviour.

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1. INTRODUCTION

Choking in children is still one of the principal public health problems (Chang et al., 2021). Children under three years of age are a group that is more at risk of experiencing choking (Chapin et al., 2013). The causes of choking in children are immature chewing ability and the behaviour of children who are easily distracted, so they do not focus when eating. If choking is not treated correctly, the child will experience serious complications such as pneumonia, atelectasis, and even death (Schoem et al., 2015). Choking is a preventable accident (Coffey et al., 2014). Prevention can be done by increasing knowledge,

attitudes, and actions about dangers, signs, and choking prevention (Ambrose & Raol, 2017). However, many parents are not aware of the dangers and prevention of choking (Bentivegna et al., 2018). As many as 75% of choke cases occur in children under three years of age (Blair et al., 2014). Additionally, in the United States, about 75 children die each year because of choking on food in the emergency room, and about 10,000 children experience choking on food in the emergency room (Altkorn et al., 2014). While in Italy, from 2001-2013, as many as 6124 cases of choking in children aged 0-3 years were hospitalized (Lorenzoni et al., 2018). WHO (World Health Organization) also mentioned

that in 2011 there were 17,537 cases of choking in children aged 1-3 years (Siahaan, 2019).

Improper choking prevention can increase the number of choking incidents. When children choke, and parents have less knowledge, parents tend to worry and panic (Sumarningsih, 2015). Thus, children do not get first aid immediately, which can cause disorders such as decreased breath sounds, abnormal breath sounds, tachypnea, and wheezing or stridor (Foltran et al., 2012). Inflammation of the airway mucosa due to stuck foreign objects is also general so that it can close the airway and restrict airflow (Denny et al., 2015). Closure of the airway can cause the children to develop a lack of oxygen, resulting in decreased consciousness and even death (Sumarningsih, 2015).

Nurses significantly promote a mother's knowledge, attitudes, and actions regarding preventing choking in children. Based on the Precede-Proceed Model Theory of Lawrence W. Green, one's health behaviour is affected by three predisposing factors, enabling factors, and reinforcing factors (Nursalam, 2020). On the other hand, choking prevention in toddlers is vital for mothers to know and understand. Thus, it is necessary to identify several factors influencing choking prevention behaviour in mothers with toddlers, such as knowledge, attitudes, availability of health facilities, and family support. This study aimed to analyze the factors related to choking prevention behaviour in mothers with toddlers.

2. METHOD

This study used a descriptive correlational design with a cross-sectional approach, conducted at the integrated service post, Purworejo Village, Geger District, Madiun Regency. The population was the mothers who had toddlers with sample selection used the cluster sampling technique and obtained a large sample of 111 respondents. The inclusion criteria in this study were being able to operate a smartphone and access google forms, domiciled in Purworejo Village, and mothers who lived with their families and toddlers (0-3 years). While the exclusion criteria were mothers with special needs, toddlers with special conditions (cleft lip, etc.), and at the time of the study, the mother was outside Purworejo Village. This study has five variables: knowledge, attitudes, family support, and availability of health services as independent variables, as well as choking prevention behaviour as the dependent variable.

The instrument in this study used a knowledge questionnaire and a family support questionnaire that was a modification of existing previous questionnaire (Anjarsari, 2017; Prasetyo Panji N,

Table 1. Demographic characteristics of respondents (n=111)

	Parameter	n	%
Age	20-29 years old	51	45,9
	30-39 years old	55	49,5
	40-49 years old	5	4,5
Recent Education	Junior High School	8	7,2
	Senior High School	41	36,9
	D1/D3	27	24,3
	D4/S1	35	31,5
Profession	Housewife	64	57,7
	Civil Servant	12	10,8
	Private Employees	20	18
	Entrepreneur	13	11,7
	Teacher/Lecturer	2	1,8
Child's Age	≤ 12 Months old	41	36,9
	13-24 Months old	32	28,8
	25-36 Months old	38	34,2
Child Gender	Female	50	45
	Male	61	55
Number of children	1	60	54,1
	2	36	32,4
	3	14	12,6
	4	1	0,9
Integrated Health Post	Bougenville	51	45,9
	Mawar	26	23,4
	Melati	34	30,6

2019), an attitude questionnaire, and availability of health facilities questionnaire made by the researcher based on the Precede-Proceed Model and previous research (Gustini, 2015; Khasanah, 2018), as well as choking prevention behaviour questionnaire that was also made by the researcher based on the concept of choking prevention in children (Denise Dowd, 2019; Denny et al., 2015). The questionnaire was conducted in a trial on 20 mothers who have toddlers, and the validity test result was valid with a value of $r > 0.444$. A reliability test was reliable with a value of alpha Cronbach: knowledge questionnaire: 0.715, attitude: 0.634, health facilities: 0.639, family support: 0.672 and choking prevention behaviour: 0.638.

The researcher collected data online using Google Forms, by compiling a list of prospective respondents based on predetermined criteria and sample sizes. Furthermore, because each integrated health post had a WhatsApp group consisting of cadres and mothers with toddlers, the cadres helped the researcher distribute questionnaires and lists of respondents' names through the WhatsApp group. Cadres also sent messages personally to respondents who met the criteria. Before the respondents filled out the questionnaire, there was an explanation regarding the research to the respondent and the required respondent's criteria in the google form. Furthermore, the researcher will re-validate the collected data based on the list of respondents made previously.

The collected data were analyzed using the descriptive analysis method to determine the

frequency distribution of respondents' demographic data and data from each variable. After that, an inferential analysis was performed using the Spearman rho statistical test with a significance level of $\alpha=0.05$ to determine the relationship between the independent and dependent variables. If the $p<0.05$, H_1 is accepted, and if the value of $p>0.05$, then H_1 is rejected. This research has been reviewed and approved by the Health Research Ethics Commission, Faculty of Nursing, Universitas Airlangga with No. 2242-KEPK. The ethical components in this study include informed consent, anonymity, confidentiality, and nonmaleficence

3. RESULT

This research was conducted in May – June 2021, and 111 mothers with toddlers filled out the questionnaire and participated in this study. The following is a description of the demographic characteristics of all respondents.

From the table. 1, it can be known that the majority of respondents in this study were between 30-39 years old, 55 respondents (49.5%), and the most recent education being Senior High School, 41 respondents (36.9%). In addition, in this study, 64 respondents (57.7%) worked as housewives. Most of the respondents in this study had toddlers aged 12 months, 41 respondents (36.9) with the gender of the toddlers being the majority of boys, 61 toddlers (55%). Furthermore, 60 respondents (54.1%) have a toddler who was their 1st child. Based on integrated health post origin, 51 respondents (45.9%) came from Bougenville integrated health post, 34 respondents (30.6%) came from Melati integrated health post, and 26 respondents (23.4%) came from Mawar integrated health post.

Based on the table. 2 it can be known that there was a significant relationship between the relationship strength was weak, between knowledge, attitudes, and family support with choking prevention behaviour in mothers who have toddlers ($p = 0.015$, $r = 0.230$; $p = 0.015$, $r = 0.231$; $p = 0.011$, $r = 0.241$) and there was no relationship between the availability of health facilities with choking prevention behaviour in mothers who have toddlers ($p = 0.359$, $r = 0.088$). In the knowledge variable, the most results were found in respondents with enough knowledge and had good choking prevention behaviour, 35 respondents (31.5%). Furthermore, in the attitude variable, the highest number was found in respondents with a positive attitude and had good choking prevention behaviour, 53 respondents (47.7%). Meanwhile, in the family support variable, the most results in respondents who received good

family support and had good choking prevention behaviour, 44 respondents (39.6%). Then, in the variable availability of health facilities, the most results were found in respondents with good availability of health facilities and had good choking prevention behaviour, 67 respondents (60.4%).

4. DISCUSSION

The majority of respondents in this study have good behaviour in preventing choking in toddlers. However, still found there were a small number of respondents who have enough and not enough preventive behaviour. This matter can happen because several factors influence a person's health behaviour. Someone with sufficient knowledge, ability, and skills to implement a healthy lifestyle will produce good health behaviour. (Olisarova et al., 2021). In addition, other factors such as education, age, migration status, and socioeconomic status can affect health literacy which can determine a person's health behaviour. (World Health Organization, 2013). Based on the Precede-Proceed Model theory from Lawrence W. Green, behaviour can also arise when there is a stimulus. Furthermore, the behaviour is influenced by three factors: predisposing factors, enabling factors, and reinforcing factors (Nursalam, 2020).

Based on the results of statistical tests in this study indicate that there was a significant relationship between knowledge and choking prevention behaviour. This matter is in line with research conducted by Jamil & Laksono (2020), which shows there was a relationship between knowledge and practice of injury prevention in preschoolers, which is a person's level of knowledge was influenced by educational factors. In addition, Jamil & Laksono (2020) also stated that mothers with higher education have better knowledge than mothers with low education. (Jamil & Laksono, 2020). Another study conducted by Siahaan (2019) stated that there was a significant relationship between a mother's knowledge about the Heimlich manoeuvre and choking behaviour in toddlers (Siahaan, 2019). However, not all respondents with good knowledge have good behaviour in preventing choking. This matter can happen because the mother cannot apply the knowledge she has in action. The majority of respondents in the study had a senior high school

Table 2. Relationship of knowledge, attitudes, family support and availability of health facilities with choking prevention behavior (n=111)

Variable	Category	Behaviour						Total		Spearman Rho Test	
		Good		Enough		Not Enough		n	%	p	r
		n	%	n	%	n	%				
Knowledge	Good	33	29,7	6	5,4	2	1,8	41	36,9	0,015	0,230
	Enough	35	31,5	10	9	1	0,9	46	41,4		
	Not enough	12	10,8	8	7,2	4	3,6	24	21,6		
Attitude	Positive	53	47,7	11	9,9	2	1,8	66	59,5	0,015	0,231
	Negative	27	24,3	13	11,7	5	4,5	45	40,5		
Family Support	Good	44	39,6	7	6,3	1	0,9	52	46,8	0,011	0,241
	Enough	24	21,6	14	12,6	3	2,7	41	36,9		
	Not enough	12	10,8	3	2,7	3	2,7	18	16,2		
Availability of Health Facilities	Good	67	60,4	19	17,1	5	4,5	91	82	0,359	0,088
	Enough	10	9	3	2,7	1	0,9	14	12,6		
	Not enough	3	2,7	2	1,8	1	0,9	6	5,4		

education background, which enabled the mother's ability to implement choking prevention behaviours was still lacking. In line with research conducted by Hastuti (2017), which states that mothers can obtain information from various sources both directly and indirectly, but the ability to understand deeply and apply the information obtained is still lacking, this is because the majority of mothers have the last educational background is senior high school (Hastuti, 2017). In addition, a lack of awareness in prevention efforts can also occur due to a lack of stimulation to carry out a health behaviour. Based on the Precede-Proceed Model theory by Lawrence W. Green states that behaviour will develop when there is a stimulus (Nursalam, 2020).

The frequency distribution of the knowledge variable also found that most of the mothers had sufficient knowledge. This was likely to happen because the majority of respondents have children less than 1-year-old and the majority of respondents also have children who were their first children, so there were still many mothers who had sufficient knowledge due to the lack of experience possessed by mothers. Research conducted by Wong et al. (2015) found that people with experience with dengue fever had good knowledge and significantly more preventive behaviour than people who had not experienced dengue fever (Wong et al., 2015). Based on this statement, it can be concluded that a person's experience can affect the level of knowledge possessed. In addition, another study by Higuchi et al. (2013) also stated that most mothers with children under 12 months of age and mothers with their first child lacked knowledge about choking. (Higuchi et al., 2013).

The results of statistical tests also show a significant relationship between attitudes and choking prevention behaviour in mothers with

toddlers. This matter is in line with the results of research by Indriati & Ningsih (2021), which found that there was a significant relationship between maternal attitudes and injury prevention practices, which is mothers with positive attitudes tended to practice injury prevention 15 times greater than mothers with negative attitudes (Indriati & Ningsih, 2021). Another study conducted by Marito (2019) found a significant change in attitude among elementary school teachers after receiving training related to handling choking in children (Marito, 2019). This matter shows that health behaviour is related to a person's attitude. However, other data in this study also showed that there were mothers who had a positive attitude, but the behaviour to prevent choking in toddlers was enough. This matter can happen because a person's behaviour is not only influenced by attitudes but also influenced by other supporting factors. Attitude is the main predictor of a person's behaviour which is a response when receiving a stimulus from the environment (Ira Nurmala et al., 2018). However, an attitude has not automatically manifested itself in an action or behaviour (overt behaviour). Attitudes will manifest into tangible actions if supporting factors or a possible condition, including facilities. In addition to the facility factor, support from other parties, such as husband, wife, family, and others, also needed to shape attitudes into behaviour. (Pakpahan et al., 2021). In addition, this study also found some mothers who had negative attitudes but had good behaviour in preventing choking events. This matter can happen because maybe there are other influential factors such as environmental factors, knowledge, and family support. Based on the Precede-Proceed Model theory, Lawrence W. Green stated that a person's behaviour is influenced not only by attitude factors but also by other factors such as knowledge,

family support, beliefs, and health facilities (Nursalam, 2020).

Furthermore, there was a significant relationship between family support and choking prevention behaviour in mothers with toddlers. This study found that respondents who received good family support behaved well in preventing choking events and vice versa. This proves that the better support provided by the family will represent better choking prevention behaviour in mothers with toddlers. In line with the Precede Proceed Model theory from Lawrence W. Green, which states that one of the factors influencing a person's healthy behaviour is the reinforcing factor, which family support is part of the reinforcing factor (Nursalam, 2020). However, not all mothers who get good family support behave well in preventing choking. Mothers with enough and not enough preventive behaviour still often feed their children while playing and rarely cut food into cubes before giving it to children. Heardman's theory (1990) (Hasan, 2016) stated that the family is the primary source of support because the family has created a trusting relationship. Individuals make the family a place to tell stories, ask questions, and issue complaints if they are experiencing a problem. (Hasan, 2016). In addition, Puspah's (2017) research states that families can provide the emotional support needed to overcome health problems because individual health problems will affect other family members. Information support from the family is also necessary because family members will be easier to receive information if supported by other family members. (Puspah, 2017).

On the other hand, the statistical test analysis results showed no significant relationship between the availability of health facilities and choking prevention behaviour. The results of this study were in line with research conducted by Raoef (2017), which stated that there was no relationship between the availability of health facilities and health behaviour, namely personal hygiene. The studies stated that the availability of health facilities is one of the health resources that works as a place for health services, including curative, preventive, promotive, and rehabilitative. (Raoef, 2017). Thus, the availability of health facilities is very significant in preventing choking because it is included in one of the functions of health facilities, namely preventive. Another study by Setyowati (2017) found no relationship between the availability of health facilities and the behaviour of preventing pediculosis capitis. This matter happens because the prevention behaviour of pediculosis capitis is simple. (Setyowati, 2017). This matter is almost the same as the mother's

choking prevention behaviour. Preventive action is effortless and does not require special training, but requires good knowledge and awareness from the mother to implement the preventive behaviour. The distribution data of variable availability of health facilities showed that most of the respondents get the convenience of health facilities in the area around the respondent's residence well. However, some respondents still had enough behaviour to prevent choking. The researcher believes that this is because most respondents rarely use health facilities as a preventive measure to dig up information about efforts to prevent choking.

Based on the results of the study found that mothers needed to improve choking prevention behaviour in children. Knowledge, attitudes, and good family support can improve a mother's behaviour in preventing choking events, reducing the rate of choking events in children. Therefore, the implication of the results of this study for nursing is that health workers, especially nurses, can carry out health education and promotion following their roles as comprehensively and more focused with an appropriate method. Counselling and health promotion are given to mothers to increase knowledge and attitudes and to mothers' families to provide information about family support to improve choking prevention behaviour in mothers with toddlers.

However, in this study, there were also some limitations, including the researcher could not assist the respondents directly in filling out the questionnaire because the research was conducted online, so it was worried that the respondents would answer in a hurry and only as necessary. In addition, some parameters were still unmeasured in the questionnaire. This happened because the researcher deleted several questions during the validity test. Like deleting the parameter of choking symptoms on the knowledge questionnaire caused the researcher to be unable to get a picture of the mother's knowledge regarding choke symptoms.

5. CONCLUSION

Knowledge, attitudes, and family support possessed by mothers who have toddlers related to choking prevention will influence mothers in improving choking prevention behaviour so that the better knowledge, attitudes, and family support possessed by mothers will represent better choking prevention behaviour for mothers who have toddlers. Family support is the factor that most influences a mother's behaviour to prevent choking in toddlers. Furthermore, the availability of health facilities that

are the most accessible access to information does not influence the improvement of choking prevention behaviour in mothers with toddlers. Knowledge and attitude improvement are significant for mothers with toddlers implementing choking prevention behaviours. In addition, the family that is the primary source of support and the most influential on the mother's behaviour in preventing choking can provide various forms of support to the mother. Future researchers are expected to be able to analyze other factors that influence maternal choking prevention behaviour and find the most appropriate intervention in increasing maternal knowledge, attitudes, and family support.

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