

Article

The Relationship Between Knowledge and Maternal Behavior in Handling Oral Thrush in Infants Aged 3-14 Days

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A B S T R A C T

Oral thrush in infants can be common, especially in newborns up to 14 days of age. The mother's role in dealing with oral thrush in infants has a significant influence in the healing process and prevention of further infection. This study aims to examine the correlation between maternal knowledge and behavior in dealing with oral thrush in infants aged 3-14 days at Cikarang Medika Hospital. The research method used was a cross-sectional approach with a population of 37 mothers who had babies aged 3-14 days at Cikarang Medika Hospital, and the entire population was taken as a sample (total sampling). Data were collected through questionnaires and analyzed using frequency distribution and chi-square test. The results showed that most mothers had good knowledge about oral thrush in infants of this age (37.8%), and the majority of them showed good behavior in handling it (51.4%). There was a significant correlation between mothers' knowledge and behavior in managing oral thrush in infants aged 3-14 days at Cikarang Medika Hospital ($p = 0.002$). Thus, it was concluded that improved educational programs and support to mothers are needed to reduce the incidence of oral thrush, including counseling, clearer presentation of educational materials, and motivation to improve maternal compliance and understanding in managing the condition.

I. INTRODUCTION

Children's oral hygiene is a major concern for parents in maintaining children's health. This is because the condition of a child's mouth is not as strong as that of an adult's mouth, so children's oral problems are more prone to occur. One common problem is oral thrush, which is a painful condition that appears in the oral cavity and can affect anyone, including children and even babies. Thrush is characterized by white patches that often appear on the tongue,

lips, inner cheeks (mucosa), and throat (Dewi, 2019).

According to the World Health Organization (World Health Organization) in (Mahmudah, 2020), reports show that every year, around 80% of the total oral thrush cases occur, of which 65% occur in infants. The proportion of oral thrush incidence in infants aged 0-7 days reached 35%, while at the age of 8-28 days reached 40%, which was higher than that of infants aged 29 days to 12 months,

which was around 25%. In some countries, there are variations in the incidence of oral thrush, such as in Thailand at 39.6%, Japan at 20.6%, and Africa at 67.5%.

Based on the 2018 Basic Health Research (Riskesdas) report, it was found that 49.6% of the Indonesian population is at risk of oral thrush, with the incidence mostly occurring in infants, especially in big cities. The prevalence of oral thrush in several Provinces was also noted in the report, with DKI Jakarta having a prevalence of 30.6%, West Java and Banten Provinces at 40.5%, Central Java Province at 49.5%, and East Java at 43.6% (Kementerian Kesehatan RI, 2022).

Oral thrush often occurs in infants who consume milk through a bottle or use a pacifier (fopspeen) whose hygiene is not maintained. The presence of milk residue in the baby's mouth after feeding can also trigger stomatitis if there are bacteria in the mouth (Widyastuti, 2021). Stomatitis, which is inflammation and ulceration of the oral mucous membrane, often occurs in infancy and young children whose oral hygiene is poorly maintained, especially in those who drink milk. A common cause of stomatitis is the fungus *Candida albicans*, which can be transmitted as a newborn through the mother's infected vagina during labor, or through unclean feeding bottles and nipples. The presence of residual milk in the baby's mouth can also worsen the condition (Legawati, 2018).

Although not a life-threatening disease, thrush in infants can cause significant discomfort. Babies tend to cry and fidget because of the pain caused by the thrush. The white deposits that form on babies' tongues and lips can reduce their appetite, making them reluctant to drink milk or breastfeed. This can result in decreased intake of fluids and calories that are important for the baby's growth and development, which in turn can

hinder their weight gain. Thrush also has the potential to cause diarrhea, as the fungus present in the mouth can be swallowed and cause infection in the intestines, which in turn can lead to dehydration (Dewi, 2019).

In improving the prevention and treatment of stomatitis in infants, good knowledge and behavior are needed as an important effort (IDAI, in (Sinaga & Safari, 2022)). Knowledge is the result of the sensing process of a particular object, which occurs after a person makes observations using the five human senses, including sight, hearing, smell, taste, and touch. The majority of information is obtained through the eyes and ears. Cognitive knowledge plays a very important role in shaping a person's overt behavior (Notoatmodjo, 2017). Behavior in the context of health refers to a person's actions after they have knowledge about a particular health stimulus or object. It involves a process of assessment or opinion of the information possessed, followed by the implementation or practice of what has been known or understood. This process is known as health practice or overt health behavior (Notoatmodjo, 2017).

The results of research conducted by (Prastyo, 2022) showed a relationship between knowledge and behavior in handling oral thrush in infants. Studies conducted by (Ulfa & Salim, 2019) also revealed a relationship between the level of knowledge and behavior in handling oral thrush in infants. In addition, research conducted by (Ahmad, 2018) in Hulawa Village, Buntulia District, Pohuwato Regency, found a significant relationship between knowledge about personal hygiene of breastfeeding mothers and behavior in handling oral thrush.

This study was conducted at Cikarang Medika Hospital between June and November 2023, with a total sample size that could be analyzed as many as 37

mothers who had babies aged 3-14 days at the hospital. Demographic data showed that most respondents were 20-35 years old (94.6%), with the majority having primary and secondary education (40.5% each), and most were unemployed or housewives (54.1%). The results of data collection showed that mothers' knowledge about oral thrush in infants of that age was quite good, with 37.8% of respondents having good knowledge, while 35% had good knowledge and 27% had insufficient knowledge. Meanwhile, the mother's behavior in handling oral thrush in infants of that age was mostly considered good, with 51.4% of respondents showing good behavior, while 48.6% showed poor behavior. Based on these findings, researchers are interested in conducting further research with the title of the relationship between knowledge and maternal behavior in handling oral thrush in infants aged 3-14 days at Cikarang Medika Hospital in 2023

II. METHODS

This study is a type of correlational research with a cross-sectional approach. The independent variable is the mother's knowledge about oral thrush, while the dependent variable is the mother's behavior in handling oral thrush in infants aged 3-14 days. The population in this study consisted of all mothers who had babies aged 3-14 days at Cikarang Medika Hospital, totaling 37 people, and the entire population was taken as a sample (total sampling). Data collection was done through questionnaires, and data analysis using frequency distribution and chi-square tes.

III. RESULT

The following table provides an overview of respondents based on age, education, and occupation.

Table 1
Frequency Distribution of Respondents by Age, Education and Occupation at Cikarang Medika Hospital

Overview of Respondents	F	%
Age		
20-35 years old	35	94.6
> 35 years old	2	5.4
Education		
Primary education	15	40.5
Secondary education	15	40.5
Higher education	7	18.9
Behavior		
Not working	20	54.1
Working	17	45.9
Total	37	100

Based on Table 1, it can be concluded that the majority of respondents are 20-35 years old, which includes 94.6% or 35 people, while only 5.4% or 2 people are over 20 years old. In terms of education, the majority of respondents have primary and secondary education backgrounds, as many as 40.5% or 15 people each, while only 18.9% or 7 people have higher education. Based on occupation, the majority of respondents are housewives or not working, which includes 54.1% or 20 people, while only 45.9% or 17 people are working.

Table 2
Frequency Distribution of Maternal Knowledge about Oral Thrush in Infants 3-14 Days of Age at Cikarang Medika Hospital

Knowledge	F	%
Less	10	27.0
Enough	14	37.8
Good	13	35.1
Total	37	100

Based on Table 2, it was found that the majority of mothers had good knowledge about oral thrush in infants aged 3-14 days, with a percentage of 37.8% or 14 people. Meanwhile, a small proportion of mothers had poor knowledge, reaching 27.0% or 10 people, and the number of mothers with good knowledge was 35.1% or 13 people.

Table 3
Frequency Distribution of Maternal Behavior in Handling Oral Thrush in Infants 3-14 Days of Age at Cikarang Medika Hospital

Behavior	F	%
Less	18	48.6
Good	19	51.4
Total	37	100.0

Based on Table 3, it can be concluded that the majority of maternal behavior in handling oral thrush in infants aged 3-14 days is considered good, with a percentage of 51.4% or 19 people. While the number of mothers with poor behavior reached 48.6% or 18 people.

Table 4
Relationship between Knowledge and Maternal Behavior in Handling Oral Thrush in Infants 3-14 Days of Age at Cikarang Medika Hospital

Knowledge	Maternal Behavior in Handling Oral Thrush in 3-14 Day Old Infants				Total		p value
	Less Good		Good		N	%	
	n	%	n	%			
Less	9	90,0	1	10,0	10	100	0,002
Enough	7	50,0	7	50,0	14	100	
Good	2	15,4	11	84,6	13	100	
Total	18	48,6	19	51,4	37	100	

Based on Table 4, it can be seen that the proportion of mothers with poor knowledge and poor oral thrush management behavior in infants aged 3-14 days is 90.0%. The same proportion for mothers with sufficient knowledge but poor behavior was 50.0%, while the proportion of mothers with good knowledge but poor behavior was 15.4%. This shows that poor behavior in handling oral thrush in infants aged 3-14 days is more common in mothers who have poor knowledge. Statistical test results with the chi-square test at a significance level of $\alpha = 0.05$ showed a value of $p = 0.002$, which means the value of $p < \alpha$. Therefore, the null

hypothesis is rejected, which indicates a significant relationship between maternal knowledge and behavior in handling oral thrush in infants aged 3-14 days at Cikarang Medika Hospital.

IV. DISCUSSION

Overview of Maternal Knowledge

The results showed that the majority of mothers had good knowledge about oral thrush in infants aged 3-14 days at Cikarang Medika Hospital, reaching 37.8%. Nevertheless, there are still some respondents who have insufficient knowledge, especially regarding causes and preventive measures. Therefore,

efforts are needed to improve mothers' understanding in these aspects.

This good knowledge may be supported by the fact that most respondents were aged 20-35 years (94.6%). Piaget's theory states that knowledge develops along with the stages of a child's cognitive development. In this context, age can be an important indicator in evaluating one's ability to understand and process information. Stages of cognitive development such as the concrete operational stage and formal operational stage reflect significant changes in children's cognitive abilities as they age (Notoatmodjo, 2017).

The results of this study are consistent with findings from other studies. Research by (Ulfa & Salim, 2019) showed that most mothers had fairly good knowledge about oral thrush (70.5%). On the other hand, research by (Ahmad, 2018) in Hulawa Village, Buntulia District, Pohuwato Regency found that most respondents had poor knowledge (65.5%).

Oral thrush in infants aged 3-14 days is a common health problem. Maternal knowledge about this condition plays an important role in proper management and prevention of complications. Assessment of maternal knowledge was conducted through a questionnaire developed by the researcher, covering aspects such as definition, symptoms, causes, prevention, and treatment. The assessment results showed that 37.8% of mothers had knowledge that was considered good enough about oral thrush in infants aged 3-14 days.

Oral thrush is generally found in infants who drink milk from a bottle or use a pacifier (fopspeen) whose hygiene is not maintained. Milk residue in the baby's mouth after drinking can also trigger stomatitis if there are bacteria in the mouth (Widyastuti, 2021). Stomatitis, which is inflammation and ulceration of

the oral mucous membrane, often occurs in infancy and young children whose oral hygiene is poorly maintained. A common cause of stomatitis is the *Candida albicans* fungus, which can be transmitted as a newborn through an infected mother's vagina during labor, or through unclean feeding bottles and nipples, as well as the presence of milk residue in the baby's mouth (Legawati, 2018).

RS Cikarang Medika has taken steps to improve maternal knowledge through regular counseling organized by the medical team. In addition, they provide educational materials, brochures and informational videos to support maternal understanding. Health workers at the hospital are also actively involved in facilitating education to mothers through counseling to provide further information and answer mothers' questions directly. Although mothers' knowledge about oral thrush in infants aged 3-14 days at Cikarang Medika Hospital can be considered quite good, with 37.8% of mothers having adequate understanding, continuous efforts are needed to improve mothers' knowledge, especially in terms of risk factors and preventive measures. With collaboration between health workers and mothers, it is hoped that the level of knowledge can be improved, which in turn will improve infant health and prevent possible complications.

Overview of Maternal Behavior in Handling Oral Thrush

The results showed that most mothers' behavior in handling oral thrush at Cikarang Medika Hospital in infants aged 3-14 days was good, with 51.4% of mothers showing good behavior. Oral thrush in infants aged 3-14 days can be a significant health challenge, and the role of mothers in managing this condition is very important. The data showed that most mothers at Cikarang Medika Hospital followed the guidelines

and recommendations given by the medical team or health workers.

This study is in line with findings from other studies. For example, research conducted by (Cahyono et al., 2018) in the Pediatric Poly of Jombang Hospital found that most mothers' behavior related to oral thrush was good (77.2%). However, research conducted by (Prastyo, 2022) concluded that most mothers' behavior related to oral thrush was not good (60.5%).

Several factors influence maternal behavior including level of education, access to information, social support, and previous experience in caring for infants. Compliance levels may vary based on these factors. Although the results showed good behavior, it is necessary to identify aspects of compliance that need to be improved, given that there are still mothers who show poor behavior (Lumsden, 2017).

The results of this study can be used as a basis for improving education and support programs for mothers facing oral thrush in their infants. Strategies such as counseling, providing clearer educational materials, and providing psychosocial support can be implemented to improve maternal compliance and understanding of this condition. With 51.4% of mothers showing good behavior in managing oral thrush in infants aged 3-14 days at Cikarang Medika Hospital, these results paint a positive picture. However, further efforts need to be made to improve the level of compliance through a more targeted educational approach and more effective support to mothers.

Relationship between Knowledge and Maternal Behavior in Handling Oral Thrush

The results confirmed a significant relationship between maternal knowledge and behavior in handling oral

thrush in infants aged 3-14 days at Cikarang Medika Hospital, as evidenced by the statistical value of $p = 0.002$ which is smaller than the significance level α . Bivariate analysis showed that the proportion of mothers who had poor knowledge but poor behavior (90.0%) was higher than the proportion of mothers who had sufficient (50.0%) and good knowledge (15.4%).

This study also revealed that some mothers who had good knowledge but poor behavior may be influenced by other factors, such as busy work and low education level. Heavy responsibilities such as household chores and taking care of children may hinder mothers' ability to effectively implement their knowledge in their daily lives. In addition, limited coping in dealing with daily stress or challenges may also affect mothers' ability to change unhealthy behaviors even though they know what they should do.

The results of this study are consistent with previous studies, such as those conducted by (Prastyo, 2022) which showed a relationship between knowledge and oral thrush behavior in infants, as well as research by (Ulfa & Salim, 2019) which found a relationship between the level of maternal knowledge about oral hygiene and the incidence of stomatitis in infants. Similarly, research (Ahmad, 2018) in Hulawa Village, Buntulia District, Pohuwato Regency also found a significant relationship between maternal knowledge of personal hygiene and behavior related to oral thrush.

The results of this study are in line with the theory that human behavior cannot be simplified into a single factor, because it is influenced by various internal and external factors. Human behavior reflects psychological symptoms such as knowledge, desire, interest, motivation, perception, and attitude, which in turn are influenced by

experiences, beliefs, physical environment, and socio-cultural factors in society. In the context of oral thrush in infants aged 3-14 days, knowledge plays an important role in shaping mothers' behavior in caring for their infants. Mothers who have better knowledge tend to show better behavior in handling this condition, according to the findings in the study (Prastyo, 2022).

This study has important implications for health care providers at Cikarang Medika Hospital. Education and support programs should be tailored to the needs of mothers based on their varying levels of knowledge. Education should provide accurate and in-depth information about oral thrush, while considering the mother's ability to understand the information, especially for those who are older and have low education levels.

V. CONCLUSION

Based on the results of research and discussion, it can be concluded that most mothers' knowledge about oral thrush in infants aged 3-14 days at Cikarang Medika Hospital is quite good, namely 37.8%, good at 35% and less at 27%. Lack of knowledge is mainly related to causes and preventive measures. Most of the mothers' behavior in handling oral thrush in infants aged 3-14 days is good, namely 19 people or with a percentage of 51.4% and less than 48.6%. Poor oral thrush handling can be due to low maternal knowledge about oral thrush. There is a relationship between knowledge and maternal behavior in handling oral thrush in infants aged 3-14 days at Cikarang Medika Hospital, as evidenced by the value $\rho = 0.002 < \alpha$, meaning that the better the mother's knowledge about oral thrush, the better the handling of oral thrush in infants aged 3-14 days.

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