Relationship between Knowledge, Attitude, and Practice of Mothers Maintaining Children’s Dental Health with Status Early Childhood Dental Caries 5 Years Old in Pondok Labu Village, South Jakarta

Siti Nurbayani¹, Pudentiana Reno Enggarwati²

¹,²Department of Dental Health, Poltekkes Ministry of Health Jakarta I, Indonesia
Email: roro_okechoi@yahoo.com

Abstract

This study aims to determine the relationship between mothers’ knowledge, attitudes, and practice in maintaining children’s dental health with caries status of milk teeth in Early Childhood students aged five years in Pondok Labu Village, Cilandak, South Jakarta. Data analysis was carried out using a computer program including univariate and bivariate (chi-square) analysis. The results showed that most students (68.5%) had caries in their milk teeth, and only 31.5% were caries-free. These results indicate that the caries-free state of students aged five years in the Early Childhood Pondok Labu sub-district, South Jakarta is still far from the target set by WHO as well. Indonesia’s national target is healthy, where the caries-free rate in children aged five years is targeted at 90%. However, this result is better than the study on the prevalence of dental caries in children 3-5 years old in Sawah Village, Ciputat Subdistrict, and Cilandak Village, Pasar Minggu Subdistrict in 2003, where the results obtained that the prevalence of caries in milk teeth was 86.4% or a caries-free rate of 13.6% in children aged five years. The results also showed that mothers’ knowledge, attitudes, and practices in maintaining their children’s dental health were good, where 83.9% of mothers had good knowledge, 54% of mothers had good attitudes, and 69.4% of mothers had good practices and good in maintaining the dental health of their children. Still, statistical tests showed no significant relationship between the variables of mothers’ knowledge, attitudes, and practices in keeping children’s dental health with the presence or absence of caries in the baby’s milk teeth.

Keywords: Mother’s Relationship, Dental Health, Dental Caries Status Of 5-Year-Old Early Childhood Students.

A. INTRODUCTION

Dental caries is the most common dental disease, covering all ages and levels of society, which, if not detected early and allowed to continue, can become more severe. In children, milk tooth caries can have a powerful impact (Al-Nasser & Lamster, 2020). The child becomes difficult to eat and prefers to drink milk or soft
foods. This puts children at risk of lacking a balanced nutritional intake needed during their growth (Ismail et al., 2020).

The prevalence of caries in milk teeth in children under five is relatively high. The study results show that the majority of dental caries in children aged 3-5 years in Sawah Village, Ciputat District, and Cilandak Village, Pasar Minggu District, was 81.7%. In contrast, for children aged five years, the prevalence was 86.4% (Al Ayyan et al., 2018). The high prevalence of dental caries can be caused by various factors, including sugar consumption, knowledge, attitudes, and behavior in maintaining dental health. According to Bahar, one of the main factors affecting people’s dental and oral health in developing countries is attitude and behavior (Al-Tayar et al., 2019). According to Sidharta, behavior is necessary because without changing individual behavior toward dental and oral health, all efforts to carry out dental care will not succeed. According to WHO, behavioral risk factors affecting dental and oral health include dental and oral hygiene maintenance practices (Menegaz et al., 2018).

Based on the targets set by WHO, including 90% of children aged five years free of caries and research on the prevalence of dental caries in toddlers 3-5 years old in Sawah Village, Ciputat Subdistrict, and Cilandak Village, Pasar Minggu Subdistrict in 2003, where the prevalence results were obtained (Ndekero et al., 2021). Milk tooth caries is 86.4% in children aged five years. The most common dental disease found in children is dental caries, so the authors are interested in researching Early Childhood students aged five years in Pondok Labu Village, South Jakarta, to find out the prevalence of caries in milk teeth in Early Childhood students aged five years, knowledge, attitudes and practices of mothers in maintaining the dental health of children and looking at the relationship between knowledge, attitudes, and methods of mothers in maintaining the dental health of children with caries in milk teeth (Sanchez-Perez et al., 2019). Pondok Labu Village was used as a research location because it is a target area for the Department of Dental Nursing to improve the community’s oral health (Masyitah et al., 2020).

The behavior of maintaining dental and oral health is the result of knowing, and this occurs after people carry out particular sensing. Cognitive knowledge is the most critical domain for forming one’s actions (Newton & Asimakopoulou, 2018). A child needs strong and healthy teeth, which are essential for chewing food and saying words. The baby teeth that are damaged by caries cause the child to have difficulty chewing (Kyoon-Achan et al., 2021). Parents, especially mothers, play a role in helping reduce the risk of caries in milk teeth. As a parent, you should be aware of your essential obligation to guide and educate your child (Phantumvanit et al., 2018).

B. METHOD

This study is a descriptive-analytic study with a cross-sectional design approach which is intended to see the relationship between the independent variables (knowledge, attitudes, and practices of mothers) and the dependent variable (carious status of the child’s milk teeth) by collecting data simultaneously at a time (point time approach). The advantage of this design is that it is easy to implement, simple,
Economical in terms of time, and the results can be obtained quickly (Lian et al., 2019). This study aims to determine the relationship between mothers’ knowledge, attitudes, and practices in maintaining children’s dental health with caries status of milk teeth in PAUD students aged five years in Pondok Labu Village, Cilandak, South Jakarta.

The population used in this study were all Early Childhood students aged five years and their mothers in Pondok Labu Village, South Jakarta. The minimum number of samples required in this study was determined based on the formula for the two-proportion difference hypothesis test sample size.

The calculations using this formula obtained the minimum number of samples needed = 61 students/group. Minimum total number of samples required (2 groups) = 61 X 2 groups = 122 students. The sample selection method used in this research is a simple random sampling method. The steps taken in sampling are taking the required number of samples randomly from each Early Childhood located in the Pondok Labu sub-district, South Jakarta.

C. RESULT AND DISCUSSION

1. Caries status of Milk Teeth for Early Childhood Students Aged Five Years in Pondok Labu Village, South Jakarta

The results of data analysis on the caries status of milk teeth in Early Childhood students aged five years in the Pondok Labu sub-district, South Jakarta, obtained an overview of the proportion of respondents who had caries in milk teeth by 68.5% and the remaining 31.5% free from caries. The distribution of respondents according to dental caries status can be seen in table 1 below:

<table>
<thead>
<tr>
<th>Milk Tooth Caries Status</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Caries</td>
<td>39</td>
<td>31.5%</td>
</tr>
<tr>
<td>caries</td>
<td>85</td>
<td>68.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>124</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Based on the caries status of the milk teeth, it was found that the majority of respondents had experienced caries in their milk teeth, as many as 85 people (68.5%). The remaining 39 people (31.5%) did not experience caries in their milk teeth.

2. Mother’s Knowledge in Maintaining Children’s Dental Health

Mother’s knowledge in maintaining dental health is the mother’s understanding of the consequences of damaged milk teeth, causes of cavities, how to keep a child’s dental health, frequency of brushing teeth, and the use of toothpaste. The measurement of respondents’ dental health knowledge was carried out with five questions with a 0-9. The mother’s knowledge variable analysis results obtained a median value of 4.00. Furthermore, the measurement results for the knowledge variable are grouped into two, namely good, if the total score obtained is 4.00 (median
value), and less good, if the total score obtained is < 4.00. The distribution of respondents based on knowledge can be seen in Table 2 below:

Table 2. Distribution of Respondents Based on Knowledge for Mothers of PAUD Students Aged Five Years in Pondok Labu Village, South Jakarta

<table>
<thead>
<tr>
<th>Mother’s Knowledge</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well</td>
<td>104</td>
<td>83.9</td>
</tr>
<tr>
<td>Not good</td>
<td>20</td>
<td>16.1</td>
</tr>
<tr>
<td>Total</td>
<td>124</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Based on the grouping of mothers’ knowledge, it was found that most of the respondents had good knowledge, as many as 104 people (83.9%), while the remaining 20 people (16.1%) had poor knowledge.

3. Mother’s Attitude in Maintaining Children’s Dental Health

A mother’s attitude toward maintaining children’s dental health is the mother’s response/opinion to maintaining a child’s dental health. The mother’s attitude variable analysis results obtained a median value of 25.00. Furthermore, the measurement results for the attitude variable are grouped into two, namely good if the total score obtained is 25.00 (median value) and less good if the total score obtained is < 25.00. The distribution of respondents based on attitudes can be seen in Table 3 below:

Table 3. Distribution of Respondents Based on Attitude For Mothers of PAUD Students Aged Five Years in Pondok Labu Village, South Jakarta

<table>
<thead>
<tr>
<th>Mother’s Attitude</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well</td>
<td>67</td>
<td>54.0</td>
</tr>
<tr>
<td>Not good</td>
<td>57</td>
<td>46.0</td>
</tr>
<tr>
<td>Total</td>
<td>124</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Based on the grouping of mothers’ attitudes, it was found that most of the respondents had a good attitude, many as 67 people (54.0%), while the remaining 57 people (46.0%) had a bad attitude.

4. Mother’s Practice in Caring for Children’s Dental Health

A mother’s practice in maintaining children’s dental health is an action that is already real, namely in the form of actions taken by mothers in keeping children’s dental health. The mother’s practice variable analysis results obtained a median value of 3.00. Furthermore, the measurement results for the mother’s practice variable are grouped into two, namely good if the total score obtained is 3.00 (median value) and less good if the total score obtained is < 3.00. The distribution of respondents based on practice can be seen in Table 4 below:
Table 4. Distribution of Respondents Based on Practice For mothers of Early Childhood students aged five years in Pondok Labu Village, South Jakarta

<table>
<thead>
<tr>
<th>Mother’s Practice</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well</td>
<td>86</td>
<td>69.4</td>
</tr>
<tr>
<td>Not good</td>
<td>38</td>
<td>30.6</td>
</tr>
<tr>
<td>Total</td>
<td>124</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Based on the grouping of mothers’ practices in maintaining children’s dental health, it was found that most of the respondents had good practices, namely 86 people (69.4%), while the remaining 38 people (30.6%) had poor practices in maintaining the dental health of children.

5. Relationship of Research Variables

Bivariate analysis was conducted to see the relationship between the independent variable (knowledge, attitudes, and practices of mothers in maintaining children’s dental health) and the dependent variable (carious status of milk teeth). The independent and dependent variables were measured on a categorical scale, so the chi-square test (chi-square) analysis was carried out. To prove the existence of a relationship between two variables, a significance limit of 0.05 was used. If the p-value < 0.05, then the statistical calculation results are significant, meaning a relationship between the two variables.

a. Relationship of Mother’s Knowledge in Maintaining Child’s Dental Health with Status Child’s Milk Tooth Caries

The chi-square test analyzed the relationship between the mother’s knowledge of maintaining children’s dental health and the child’s dental caries status. The test results can be seen in table 5 as follows:

Table 5. Distribution of Respondents according to Mother’s Knowledge with Dental Caries Status in Early Childhood students aged five years in Pondok Labu, South Jakarta

<table>
<thead>
<tr>
<th>Mother’s Knowledge</th>
<th>Caries Status</th>
<th>Total</th>
<th>OR (95% CI)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Caries</td>
<td>Caries</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Well</td>
<td>35</td>
<td>69</td>
<td>104</td>
<td>66.3</td>
</tr>
<tr>
<td>Not good</td>
<td>4</td>
<td>16</td>
<td>20</td>
<td>80.0</td>
</tr>
<tr>
<td>Amount</td>
<td>39</td>
<td>85</td>
<td>124</td>
<td>68.5</td>
</tr>
</tbody>
</table>

The analysis of the relationship between mother’s knowledge and caries status of the child’s milk teeth showed that there were 35 (33.7%) mothers with good knowledge who had children who did not have caries in their milk teeth. In comparison, 4 (20%) mothers had no caries among mothers with poor knowledge. They have children who do not have caries in their milk teeth. The results of statistical tests obtained a p-value = 0.346, and it can be concluded that there is no difference in the proportion of caries status of milk teeth between mothers who have good
knowledge and mothers who have poor knowledge (there is no significant relationship between mother’s knowledge and caries status of baby’s milk teeth).

b. Relationship of Mother’s Attitude in Maintaining Child’s Dental Health with Dental Caries Status Child’s Milk

Analysis of the relationship between the mother’s attitude in maintaining the health of the child’s teeth and the caries status of the child’s milk teeth was carried out using the chi-square test. The test results can be seen in table 6 as follows:

Table 6. Distribution of Respondents According to Mother’s Attitude with Caries Status of Milk Teeth students aged five years in Pondok Labu Village, South Jakarta

<table>
<thead>
<tr>
<th>Mother’s Attitude</th>
<th>Caries Status Milk teeth</th>
<th>Total</th>
<th>OR (95% CI)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Caries</td>
<td>caries</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Well</td>
<td>26</td>
<td>38.8</td>
<td>41</td>
<td>61.2</td>
</tr>
<tr>
<td>Not good</td>
<td>13</td>
<td>22.8</td>
<td>44</td>
<td>77.2</td>
</tr>
<tr>
<td>Amount</td>
<td>39</td>
<td>31.5</td>
<td>85</td>
<td>68.5</td>
</tr>
</tbody>
</table>

The results of the analysis of the relationship between the mother’s attitude and the caries status of the child’s milk teeth showed 26 (38.8%) mothers with good attitudes who had children who did not have caries in their milk teeth. In comparison, there were 13 (22.8%) mothers who have children who do not have caries in their milk teeth among mothers with poor attitudes.

The results of statistical tests obtained a p-value = 0.086. It can be concluded that there is no difference in the proportion of caries status of milk teeth between mothers who have a good attitude and mothers who have a bad attitude (there is no significant relationship between mother’s attitude and caries status of baby’s milk teeth).

c. Relationship of Mother’s Practice in Maintaining Child’s Dental Health with Caries Status of Child’s Milk Teeth

The chi-square test carried out an analysis of the relationship between a mother’s practice in maintaining a child’s dental health and the caries status of a baby’s milk teeth. The test results can be seen in table 7 as follows:

Table 7. Distribution of Respondents by Practice of Mothers with Dental Caries Status Students Aged Five Years in Pondok Labu Village, South Jakarta

<table>
<thead>
<tr>
<th>Mother’s Practice</th>
<th>Caries Status Milk teeth</th>
<th>Total</th>
<th>OR (95% CI)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Caries</td>
<td>caries</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Well</td>
<td>25</td>
<td>29.1</td>
<td>61</td>
<td>70.9</td>
</tr>
<tr>
<td>Not good</td>
<td>14</td>
<td>36.8</td>
<td>24</td>
<td>63.2</td>
</tr>
<tr>
<td>Amount</td>
<td>39</td>
<td>31.5</td>
<td>85</td>
<td>68.5</td>
</tr>
</tbody>
</table>
The analysis of the relationship between a mother’s practice and the caries status of her child’s milk teeth showed that there were 25 (29.1%) mothers with a good practice who had children who did not have caries in their milk teeth. In comparison, there were 14 (36.8%) mothers who have children who do not have caries in their milk teeth among mothers with unfavorable attitudes. The results of statistical tests obtained a p-value = 0.516. It can be concluded that there is no difference in the proportion of caries status of milk teeth between mothers who have good practice and mothers who have poor practice (there is no significant relationship between mother’s practice and the caries status of the baby’s milk teeth).


The results showed that most students (68.5%) had caries in their milk teeth, and only 31.5% were caries-free. These results indicate that the caries-free state of 5-year-old students in Early Childhood, Pondok Labu sub-district, South Jakarta, is still far from the target has been determined by the WHO and the national target for healthy Indonesia in 2010, where the caries-free rate in children aged five years is targeted at 90%. However, this result is better than the study on the prevalence of dental caries in children 3-5 years old in Sawah Village, Ciputat Subdistrict, and Cilandak Village, Pasar Minggu Subdistrict in 2003, where the results obtained that the prevalence of caries in milk teeth was 86.4% or a caries-free rate of 13.6% in children aged five years.

Dental and oral health is one component of overall health and cannot be ignored because dental and oral health also influences perfect children’s growth and development, aiming to create healthy, intelligent, and productive humans and have high fighting power. More comprehensive and professional efforts and cooperation are needed from various related parties, including the South Jakarta Health Sub-Department, Pondok Labu Health Center, schools, and parents, to reduce caries rates in the future. The function of dental health care services, especially promotive and preventive for Early Childhood students through the School Dental Health Business, is to be further improved to suppress the occurrence of caries since the child is in preschool. Implementing promotive and preventive efforts through continuous dental and oral health counseling to students and their parents, especially mothers, needs to be further improved because preschool children are still very dependent on the care and assistance of adults and the strongest influence during this period is from their mothers.

7. The Relationship Between Mother’s Knowledge Level in Maintaining Children’s Dental Health and Caries Status of Milk Teeth in Early Childhood students Age 5 Years in Pondok Labu Village, South Jakarta

In this study, the results obtained showed that there was no significant relationship between the mother’s level of knowledge in maintaining children’s dental
health and the caries status of milk teeth in Early Childhood students aged five years in the Pondok Labu sub-district, South Jakarta, where the p-value = 0.346.

Knowledge or cognitive is essential in shaping one’s actions (overt behavior). Behavior-based knowledge will be more lasting than behavior that is not based on knowledge (Hayes et al., 2021). The habit of cleaning the teeth and mouth as a form of behavior based on knowledge will affect the good or bad of dental and oral hygiene, which will also affect the free rate of dental caries.

Caries are a preventable disease. The basics of caries prevention are modifying one or more of the three main factors causing caries: plaque, suitable carbohydrate substrate, and tooth vulnerability. Theoretically, there are three ways to prevent caries, namely, firstly by removing carbohydrate substrates by reducing the frequency of sugar consumption and limiting it to eating only, secondly by increasing the resilience of teeth by exposing them to fluoride appropriately, and thirdly by removing bacterial plaque (Shie-Lih et al., 2020). Prevention of dental caries can be done by cutting off the three main factors that cause caries, namely the host, agent, and substrate, to meet and interact.

According to Tarigan and Sutadi, caries prevention that individuals can do include: setting a carbohydrate diet, controlling plaque by brushing teeth continuously and in the right way (covering the entire tooth surface), then using fluoride, among other things. Another is the use of toothpaste containing fluoride when brushing teeth. Preventive measures that can be taken to prevent caries are modification of children’s habits (oral hygiene and sugar consumption diet) and protection of teeth with fluoride (Motallaei et al., 2021).

According to the researchers, the results of this non-significant relationship were because knowledge of the mother’s dental health was not directly related to the dental caries status of her child. A mother who has a high ability is not enough to influence the dental caries status of her child to become non-curious if this knowledge has not been applied in daily practice.

However, the correct knowledge of mothers about how to maintain dental and oral health is one of the predisposing factors in efforts to prevent caries in PAUD students in the Pondok Labu sub-district, South Jakarta, so that mothers’ knowledge about the importance of maintaining dental and oral health from an early age needs to be improved continuously through promotive efforts.

8. The Relationship between Mother’s Attitude in Maintaining Child’s Dental Health and Caries Status of Milk Teeth in 5-Year-Old Early Childhood Pupils in Pondok Labu Village, South Jakarta.

The results of the analysis of the relationship between mother’s attitude in maintaining children’s dental health with the caries status of milk teeth in Early Childhood students aged five years in the Pondok Labu sub-district, South Jakarta, obtained a p-value = 0.086, so it can be concluded that there is no significant relationship between mother’s attitude and the caries status of the baby’s milk teeth.
Attitude is a readiness or willingness to act and is not yet an action or activity but is a predisposition to behavior. Attitude is still a closed reaction. This study found that the mothers of Early Childhood students aged five years in the Pondok Labu sub-district, South Jakarta, mostly had a good attitude towards maintaining their children’s dental and oral health.

According to the researchers, the results of this relationship were not significant because the mother’s attitude was not directly related to the dental caries status of her child. A mother who has a good attitude is not enough to influence the dental caries status of her child to become non-curious if the attitude has not been applied in actual daily practice. However, a good mother’s attitude about maintaining a child’s dental and oral health is an essential predisposing factor in the effort to prevent caries in Early Childhood students in the Pondok Labu sub-district, South Jakarta.

To realize the mother’s attitude about maintaining children’s dental and oral health from an early age into real action, supporting factors or enabling conditions are needed, including facilities and support from related parties (Notoatmodjo, 2002).

9. The Relationship between Mother’s Practice in Maintaining Child’s Dental Health and Caries Status of Milk Teeth in Early Childhood Pupils Age 5 Years in Pondok Labu Village, South Jakarta.

The results of the analysis of the relationship between the mother’s practice in maintaining dental health with the caries status of the child’s milk teeth obtained a p-value = 0.516, and it can be concluded that there is no significant relationship between the mother’s practice and the caries status of the child’s milk teeth. Caries are a preventable disease. The basics of caries prevention are modifying one or more of the three main factors causing caries: plaque, suitable carbohydrate substrate, and tooth vulnerability. Theoretically, there are three ways to prevent caries, namely, firstly by removing carbohydrate substrates by reducing the frequency of sugar consumption and limiting it to eating only, secondly by increasing the resilience of teeth by exposing them to fluoride appropriately, and thirdly by removing bacterial plaque (Shie-Lih et al., 2020). Prevention of dental caries can be done by cutting off the three main factors that cause caries, namely the host, agent, and substrate, to meet and interact. According to Tarigan and Sutadi, caries prevention that individuals can do include: setting a carbohydrate diet, controlling plaque by brushing teeth continuously and in the right way (covering the entire tooth surface), then using fluoride, among other things. Another is using toothpaste containing fluoride when brushing teeth (Devinsky et al., 2020). Preventive measures that can be taken to prevent caries are modification of children’s habits (oral hygiene and dietary sugar consumption) and protection of teeth with fluoride, which aims to change children’s bad habits regarding dental and oral health so that they can support dental care procedures and caries prevention (Butera et al., 2022).

In this study, the factor of caries prevention practice was only the practice of cleaning teeth, while regulating carbohydrate diets were not studied. This shows that
simply cleaning the teeth is not significant enough to prevent dental caries. Another factor that also plays a role in preventing dental caries is the regulation of carbohydrate diets in children since their teeth begin to grow, which needs attention.

D. CONCLUSION

From the study results on Early Childhood students aged five years in the Pondok Labu village area of South Jakarta, it can be concluded that the majority (68.5%) of students have experienced caries in their teeth. The proportion of caries-free students in their milk teeth is only 31.5%, which means that they still have not met the WHO and Healthy Indonesia targets in 2010, which is targeted 90% of children aged five years being caries-free in their milk teeth.

The results also showed that mothers’ knowledge, attitudes, and practices in maintaining the dental health of their children were good, where 83.9% of mothers had good knowledge, 54% of mothers had good attitudes, and 69.4% of mothers had good practices in maintaining the health of children’s teeth. Still, statistical tests showed no significant relationship between mothers’ knowledge, attitudes, and methods in keeping children’s dental health and the presence or absence of caries in the baby’s milk teeth.

REFERENCES


