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Caregiver perception of children's dental caries and experience of accessing dental health services for their children

Percepção do cuidador sobre a cárie dentária infantil e experiência no acesso a serviços de saúde bucal para seus filhos

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ABSTRACT

Objective: this study aims to know the caregiver's perception of children's dental caries and their experience of accessing dental health services in children. **Material and Methods:** this research was an analytic observational study with a cross-sectional method and used a purposive sampling technique with a sample of 56 respondents. Data were obtained through a questionnaire and the sampling technique used purposive sampling with samples were all caregivers at Cahaya Tazkia Kindergarten, Yapita Kindergarten, and Aisyiah 52 Kindergarten Surabaya. Data were analyzed using a correlation Spearman test. **Results:** perceived benefit and self-efficacy had a significant correlation with the experience of accessing dental health services (p-value ≤ 0.05) with coefficient correlations were 0.168 and 0.936 respectively. Meanwhile, perceived susceptibility, perceived severity, and the perceived barrier had no correlation with the experience of accessing dental health. Most male respondents in this research had a proper job to manage their children to go to dental health. Perceived susceptibility, perceived severity, perceived benefit, and self-efficacy of women caregivers in productive age were good but the perceived barrier showed a high mean. Respondents with that characteristics did not have steady jobs. **Conclusion:** women caregiver between the age of 21-40 years old believes that maintaining oral health is beneficial and will result in an increased number of accessing dental health services for their children. But caregivers who were women and also did not have a steady job had barriers to accessing dental health for their children.

KEYWORDS

Child health; Caregiver; Dental caries; Accessing dental health service; Perception.

RESUMO

Objetivo: este estudo tem como objetivo conhecer a percepção do cuidador sobre a cárie na primeira infância e sua experiência de acesso aos serviços de saúde bucal em crianças. **Material e Métodos:** esta pesquisa foi um estudo observacional analítico transversal e utilizou uma técnica de amostragem intencional com uma amostra de 56 entrevistados. Os dados foram obtidos por meio de um questionário e a técnica de amostragem utilizou amostragem intencional com todas as amostras sendo cuidadores do Jardim de infância Cahaya Tazkia, Jardim de infância Yapita e Jardim de infância Aisyiah 52 Surabaya. Os dados foram analisados por meio de um teste de correlação de Spearman. **Resultados:** o benefício percebido e a autoeficácia tiveram correlação significativa com a experiência de acesso aos serviços de saúde bucal (p-valor ≤ 0,05), com coeficientes de correlação de 0,168 e 0,936, respectivamente. Enquanto isso, a suscetibilidade percebida, a severidade percebida e a barreira percebida não tiveram correlação com a experiência de acesso à saúde bucal. A maioria dos entrevistados do sexo masculino nesta pesquisa tinha um trabalho adequado para gerenciar a saúde bucal de seus filhos. A suscetibilidade percebida,

a severidade percebida, o benefício percebido e a autoeficácia de cuidadores mulheres em idade produtiva foram bons, mas a barreira percebida apresentou uma média alta. Os entrevistados com essas características não tinham empregos fixos. **Conclusão:** mulheres cuidadoras na faixa etária de 21 a 40 anos acreditam que a manutenção da saúde bucal é benéfica e resultará em maior número de acessos aos serviços de saúde bucal de seus filhos. No entanto, cuidadoras que eram mulheres, mas que não tinham emprego fixo, apresentavam barreiras para o acesso à saúde bucal de seus filhos.

PALAVRAS-CHAVE

Saúde da criança; Cuidador; Cárie dentária; Serviço de saúde bucal; Percepção.

INTRODUCTION

According to Riskesdas in 2018, the prevalence of dental caries in children was 90.2% in Indonesia, with def-t mean index was 8.1 in children under 5 years old [1]. However, according to Control Disease Center in 2007, dental caries cases had increased, especially in toddlers and preschoolers, from 24% to 28%. Meanwhile, dental health association was trying to reduce the number of dental caries in children [2]. Therefore, there is a need for early education, as a preventive measure, regarding dental and oral health. In this education, various components are involved. Caregiver is one of the main components, can be interpreted as many people, but mainly parents and teachers. In children, caregiver has an important role especially parents play a major role when the child is out of school, while the teacher plays a major role when the child is entering the school area [2,3].

Nowadays, most children's time is a time for school. According to that condition parent in school or teacher has high responsibility in children. All caregivers including teachers who have good education and knowledge should influence the welfare of their children. However, as previously explained, the prevalence of caries is still high, especially in children. Further research is needed to determine the understanding and perception of caregivers, especially on good tooth-brushing behavior. Previous studies showed that the role of caregivers in maintaining the oral health of children is important [3]. The problem is the emergence of some wrong perceptions of dental and oral health, especially in children [4,5]. Some of them are poor oral and dental health indicated only by pain in the teeth. In addition, there is a perception that primary teeth are only temporary and will be replaced by permanent teeth, so there is an assumption that damage to primary teeth is not something that must be considered, etc. This ultimately affects the child's tooth-brushing behavior [2,6].

According to Health Belief Model Theory, parents are most likely to associate with childcare, if these parents feel that their children are prone to developing problem behaviors in the future (perceived susceptible) [3]. Parents can also believe that these problems will have a very unwanted impact (perceived severity). The perception that the parenting program implemented will be effective in reducing the formation of risky behavior in their children (perceived benefits), not considering the parenting program implemented to be too demanding (perceived barrier), and feel confident that parents will be able to carry out and apply the healthy behavior they have (self-efficacy) [3,5].

Experience is one of the things that can shape perception of people. In this case, the experience of accessing dental and oral health services is an important factor in the caregiver's perception [5]. How the caregiver acts and educates their children depends on their experience and knowledge about oral health [3,4]. Therefore, what will be discussed further in this study is the caregiver's perception of children's dental caries and tooth brushing behaviour in terms of experiences in accessing children's dental and oral health services [2,7]. Based on previous studies, the perception of caregivers needs to be considered more. So that caregivers will have good perception of accessing dental health services. When the caregivers have good perception, the oral health problem in children can be reduced and children can receive an early diagnosis and prompt treatments [4,6]. Based on this background, the purpose of this study was to know the caregiver's perception of children's dental caries and their experience of accessing dental health services in children.

MATERIAL AND METHODS

Study design and samples

This research was an analytic observational with a cross-sectional study approach. Written

informed consent was obtained from all the respondents. All of the subjects were able to comprehend and have given written informed consent. The study design used in this research was analytic observational with a cross-sectionalal approach. This study used a sampling technique that was purposive sampling with respondents included in this study were all caregivers at Cahaya Tazkia Kindergarten, Yapita Kindergarten, and Aisyiah 52 Kindergarten Surabaya. The total number of respondents in this study was 56 respondents. The inclusion criteria were; all caregivers attending the specific kindergarten that had been mentioned and willing to follow all the research procedures. Exclusion criteria were caregivers who had children with disability or special needs.

Data collection

The data in this study were obtained through a questionnaire based on the Health Belief Model Theory to determine the perception of the caregiver and the experience in accessing dental and oral health services in children. The questionnaires had been validated using validation test statistically. The questions were asked according to each aspect of the health belief model theory and the behavior of accessing the dental health of their children. It was written as below:

1. Does your child have dental health insurance?
2. Currently, my child has dental caries
3. My child's dental caries will become more widespread next year
4. If my child has dental caries, it is something that needs attention
5. If my child has dental caries, he will feel pain
6. If my child has dental caries, he will lose teeth
7. If my child has dental caries, the caries will affect his general health
8. If my child brushes his teeth properly, he will avoid dental caries
9. If my child brushes his teeth properly, then his teeth won't fall out/deer
10. My child doesn't like brushing his teeth
11. In my opinion, toothbrushes are expensive
12. In my opinion, toothpaste is expensive
13. My son doesn't like the taste of toothpaste
14. I am sure that I can get my child to brush his teeth 2x a day
15. I am sure that I can make my child consume sweet foods/drinks in the right portion
16. I believe that I can teach my child how to maintain good dental and oral health
17. Have you ever taken your child to the dentist?
18. When was the last time your child visited the dentist for dental treatment?
19. Where was the last time your child had dental treatment
20. Does your child visit the dentist when your child has pain in the teeth?

All the questionnaires were shared to all caregivers and all the caregivers were asked to fill out the questionnaires.

Statistical method

The data that was obtained then was analyzed. The analysis of this study used statistical analysis software (*IBM Statistical Program for Social Science 21*). The test used was the Spearman correlation test to know the correlation between caregiver perception on children's dental caries and their experience of accessing dental health services for their children. After the statistical analysis, the data were presented in table.

RESULTS

The result showed that the majority of respondents were 31-40 years old. Based on the characteristic distribution of respondents, almost all of the respondents were women and the occupation of respondents who does not have a steady job or housewives mostly. More than half of the respondents were parents. The frequency of caregiver behavior in their children's toothbrushing showed that most of the caregivers helped their children brush their teeth twice a day (Table I). While most of the respondents drove their children to visit dental health services twice a year (Table II).

The occupation of caregivers that had the highest mean of perceived severity was another occupation such as housewife or did not have

Table I - Frequency of caregiver behavior in toothbrushing their children

Frequency of toothbrushing teeth	Percentage
Never/rare	10.71%
Once a day	17.86%
Twice a day	57.14%
Three times or more a day	14.29%

Table II - Distribution of experience in accessing dental health services

Experience of accessing dental health services	N	Percentage
Never	12	21.42%
Once a year	16	28.7%
Twice a year	28	50.01%

a steady job. The respondents with the highest perceived benefit were caregivers who were 31-40 years old. Meanwhile, men had higher perceived benefits than women. Most women who had proper jobs also had high perceived benefits, meanwhile, caregivers who were also women in productive age who did not have jobs or only housewives had low perceived benefits.

Caregivers who were women had a higher mean of a perceived barrier than men. This result reported that most of the respondents which were of productive age and also women had high perceived barriers because they did not have proper occupations to support their children's oral health and drive their children to the oral health service. Most men in this research had a proper job so they could manage their children to go to dental health service, while women in this research mostly were housewives or does not have a steady job so they had lower self-efficacy to maintain the oral health of their children including taking children to the dentist (Table III).

Table IV showed that there is no correlation between the characteristics of respondents and perceived susceptibility, perceived severity, perceived benefit, perceived barriers and, self efficacy (p value>0.05). Respondents who had highest perceived susceptibility on dental caries had accessing dental health service twice a year, and highest perceived severity on dental caries had accessed dental health service twice a year also but the mean different was slight between each category of accessing dental health service. Caregiver who had highest perceived benefit had accessed dental health service twice a year. The table above, it was also known that perceived benefit had significant correlation with experience of accessing dental health service with p value was 0.024 (p-value ≤ 0.05) and the correlation between perceived benefit and experience of accessing dental health services was low (Table V).

Caregivers who had lowest perceived barriers was caregiver that their children experience accessing dental health service once a year, even though there was no correlation between perceived barriers and the experience of accessing dental health services in their children. Meanwhile, the highest self efficacy was owned by caregivers whose their children had accessed dental health services twice a year, and self-efficacy had a significant correlation with the experience of accessing dental health services of their children with p-value was 0.000. The coefficient correlation was strong (0.936) (Table V), the caregiver who had high self-efficacy had their children to access dental health service routine (twice a year).

DISCUSSION

In addition to the 5 aspects of the health belief model (HBM) theory, one variable is added in the form of experience in accessing children's oral and dental health services as a modifying factor. In this study, the characteristic of respondents may also have a role to determine their perceptions of dental caries of their children. As represented in the result, the perceived susceptibility of the caregiver in all characteristics was only slightly different. Occupation as a private employee and relation as a relative had the highest perceived susceptibility. Private employees showed that they believed that their children were more susceptible to dental caries. Moreover, in other occupations and relations, the perceived susceptibility was lower. This can be caused by a lack of knowledge of dental caries. The lack of knowledge also affects the perceived severity. The score difference of perceived severity was also affected by the knowledge of respondents about their children's caries was also low [8,9]. Characteristics of respondents might be contributing factors in knowledge. Respondents in productive age might seek many pieces of information about their children's

Table III - Distribution of caregiver's characteristics and caregiver's perception of dental caries of their children

Variable	Perceived susceptibility		*Perceived severity*		*Perceived benefit*		*Perceived barriers*		*Self efficacy*	
	Mean ± SD	OR (95% CI)	Mean ± SD	OR (95% CI)	Mean ± SD	OR (95% CI)	Mean ± SD	OR (95% CI)	Mean ± SD	OR (95% CI)
Age										
20-30	5.47±2.52	4.26–6.69	15.58±1.89	14.67–16.49	8.00±1.76	7.15–8.85	15.16±2.73	13.84 – 16.48	11.63±2.56	10.40 – 12.87
31-40	5.96±2.22	4.99–6.92	15.26±2.59	14.14–16.38	8.30±1.63	7.60–9.01	16.13±2.11	15.21 – 17. 05	11.22±1.73	10.47 – 11.97
41-50	5.00±1.5	3.85–6.15	15.33±2.69	13.26–17.40	7.78±1.48	6.64–8.92	14.56±1.94	13.06 – 16.05	10.89±1.45	9.77 – 12.01
51-60	5.20±3.03	1.43–8.97	15.40±1.94	12.98-17.82	8.00±1.22	6.48–9.52	15.00±1.87	12.68 – 17.32	10.80±2.38	7.84 – 13.76
Sex										
Men	4.67±2.08	-50–9.84	15±1.00	12.52-17.48	9.00±1.00	6.52–11.48	13.67±0.57	12.23 – 15.10	13.00±1.73	8.70 – 17.30
Women	5.62±2.29	4.99–6.26	15.42±2.34	14.77-16.06	8.04±1.61	7.59 – 8.48	15.55±2.35	14.90 – 16.19	11.17±2.02	10.61 – 11.73
Occupation										
Housewife	5.19±2.05	4.44–5.95	15.23±2.10	14.45-16.00	7.84±1.55	7.27–8.41	15.23±2.17	14.43 – 16.02	11.13±1.97	10.40 – 11.85
Private employee	8.4±1.51	6.52–10.28	13.00±2.55	9.83-16.17	8.00±2.00	5.52–10.48	17.00±2.23	14.22 – 19.78	10.80±2.16	8.11 – 13.49
Entrepreneur	4.00±0	-	16.00±0	-	8.00±0	-	16.00±0	-	10.00±0	-
Teacher	5.38±2.24	4.18–6.57	16.19±2.07	15.08–17.29	8.56±1.59	7.72–9.41	14.75±2.29	13.53 – 15.97	11.56±2.12	10.43 – 12.70
Does not have a steady job/housewife	6.33±3.51	-2.39–15.06	16.67±3.05	9.08–24.26	8.33±2.08	3.16–13.50	18.67±1.52	14.87 – 22.46	12.33±2.88	5.16 – 19.50
Relation										
Parent	5.66±2.36	4.91-6.40	15.12±2.08	14.46-15.78	8±1.59	7.50-8.50	15.59±2.37	14.84-16.34	11.27±2.15	10.59-11.95
Teacher	4.57±1.51	3.17-5.97	17.14±2.47	14.85-19.44	8.57±1.13	7.52-9.62	14.86±1.34	13.61-16.10	10.57±1.27	9.39-11.75
Relative	8.5±2.12	-10.56-27.56	15.5±0.7	9.15-21.85	9±1.04	-3.71–21.71	16.5±2.12	-2.56-35.56	12.5±2.12	-6.56-31.56
Other	5.57±2.27	3.13-7.20	15.39±2.28	11.82-18.51	8.09±1.59	5.49-10.17	15.45±2.32	11.55-18.11	11.27±2.04	9.50-13.83

Table IV - Correlation between characteristic and perception of caregiver

Variable	Perceived susceptibility		*Perceived severity*		*Perceived benefit*		*Perceived barriers*		*Self efficacy*	
	P-value	Correlation Coefficient	P-value	Correlation Coefficient	P-value	Correlation Coefficient	P-value	Correlation Coefficient	P-value	Correlation Coefficient
Age	0.414	-0.30	0.496	0.001	0.424	-0.026	0.396	-0.036	0.137	-0.149
Sex	0.233	0.100	0.273	0.083	0.138	-0.148	0.060	0.210	0.058	-0.213
Occupation	0.233	0.099	0.109	0.167	0.088	0.184	0.226	0.102	0.206	0.112
Relation	0.408	-0.032	0.144	0.144	0.269	0.084	0.243	-0.095	0.411	-0.31

Table V - Correlation between perception of caregiver and accessing dental health service experience of their children

Variable	Experience of Accessing Dental Health Service			P-Value	Correlation Coefficient
	Never Mean ±SD	Once a year Mean ±SD	Twice a year Mean ±SD		
Perceived susceptibility	4.58±1.83	5.38±1.78	6.11±2.58	0.067	0.246
Perceived severity	15.08±2.61	15.19±2.76	15.64±1.87	0.215	0.168
Perceived benefit	7.58±1.92	7.56±1.59	8.61±1.31	0.024	0.302
Perceived barriers	15.50±1.83	14.88±1.96	15.75±2.68	0.480	0.096
Self efficacy	8.42±0.996	10.63±0.50	12.86±1.20	0.000	0.936

caries and oral health. Perceived severity is the caregiver's perception of the severity of dental caries. According to the results of this study, it was found that respondents have the perception that caries is a serious/dangerous disease. This result was in line with a previous study from Kasmaei et al. [10], in 2014. That showed the perception of caregivers or parents on dental caries of their children was good [10, 11].

Perceived barriers are the caregiver's perception of behavior, whether in carrying out the behavior the respondent experiences obstacles or not. Perceived benefits and perceived barriers of the caregiver in this study showed differences by the mean. Perceived benefits are the caregiver's perception of behavior, whether the behavior is beneficial or not [7]. In this result the perceived benefit correlated with the experience of accessing dental health services, so it means that caregiver believes they had a high benefit in maintaining oral health in their children due to the knowledge was good and they believe there was none of the obstacles in maintaining oral health and accessing dental health services [10].

The high perceived benefit should be represented by the low perceived barriers. This belief occurs due to the role of perceived benefit, perceived benefit has to outweigh perceived barriers so that it can be effective in the behaviour change. Meanwhile, the self-efficacy of the caregiver should be high. In this result, the self-efficacy of respondents was various. Self-efficacy or self-confidence is the perception of the respondent's beliefs about their ability to change the behavior of their children to dental caries. A study from Burglar M.E., 2010 reported that self-efficacy is an appropriate and significant predictor of tooth brushing behavior [12]. So when self-efficacy is bad, behavior also follows. Parents and relatives had high self-efficacy, self-efficacy interacts with people to determine their readiness of taking preventative behavior. It means that caregivers in this result were ready to take preventive behavior and access dental health services. From this result, men respondents believe that they could maintain the oral health of their children. They also believe that maintenance of oral health and accessing dental health services are beneficial for their children. Productive age, between 20-40 years old have high self-efficacy in maintaining oral health of their children and they tend to think that accessing dental health service for their children is important [9,13].

In this study, we also find out the relationship between the perception of caregivers and the experience of accessing dental health services in their children. In this study, the results showed that the perceived benefit and self-efficacy of caregivers had a correlation with the experience

of accessing dental health for their children. Respondents who had never been to the dentist, the majority perceived that they were prone to dental caries and belief that caries is a serious disease. The majority also perceived that brushing their teeth was beneficial to their children. The majority also perceive that brushing teeth was not a significant obstacle and the child tended to experience of accessing dental health services, this result is in accordance with the study from Lee et al. in 2017 [14]. And lastly, the majority of respondents who have never been to the dentist have the perception that they were not sure that they could make their children behave properly in maintaining oral health. However, in another study according to Notoatmodjo [15], a person's experience is a very important factor in interpreting the stimulus we get [15]. Past experience or what we learn will cause differences in interpretation/perception [16].

Based on the result of this study, caregivers who were women and of productive age already had well-perceived susceptibility, perceived severity, perceived benefit, and self-efficacy toward maintaining oral health for their children. But, the perceived barrier of respondents who were women and of productive age showed high due to their occupation. They mostly did not have a steady job. This factor can be a barrier for caregivers in maintaining the oral health of children. Caregivers who do not have a steady job will postpone their children to access dental health. Based on this study can help to promote increased oral health in children and reduce dental caries in early childhood. This condition can lower the number of dental visits for children and reduce the oral health problem of their children [10,15,16]. The result from this study can be used to give an appropriate dental health program for the caregiver to ensure children will have good oral health and receive prompt treatment at the right time. The limitation of this study was that the clinical evaluation of oral health status was not conducted in children and also caregivers. Even though the perceptions have been studied based on the theory of the health belief model, they needed to be justified by examining the oral health of caregivers and children.

CONCLUSION

The women caregiver between the age of 21-40 years old believes that maintaining oral health is beneficial and will result in an increased number of accessing dental health services for their children. But caregivers who were women and also did not have a steady job had barriers to accessing dental health for their children.

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Author's Contributions

DS: Conceptualization. LAWN, FLD, FFF: Methodology. FLD, FFF: Software. BAA: Validation. DS: Formal Analysis. LAWN: Investigation. LAWN, FLD, FFF: Resources. DS, LAWN: Data Curation. LAWN, FLD, FFF: Writing – Original Draft Preparation. DS, BAA: Writing – Review & Editing. BAA: Visualization. DS: Supervision. FLD, FFF: Project Administration. LAWN: Funding Acquisition.

Conflict of Interest

No conflicts of interest declared concerning the publication of this article.

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Regulatory Statement

This study was conducted in accordance with all the provisions of the local human subjects oversight committee guidelines and policies of: Health Research Ethics Committee of the Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia. The approval code for this study is: 568/HRECC.FODM/VIII/2019.

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