

The Correlation of Parental Knowledge on Oral Health-Related Quality of Life in Down Syndrome Children (Overview in Banjarmasin Special School)

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Online submission : 20 Juli 2022

Accept Submission : 10 Mei 2023

ABSTRACT

Background: Physical, motor, and intellectual retardation experienced by children with Down syndrome leads to low self-care skills and independence so that Down syndrome children depend on their parents in an effort to maintain oral hygiene. Parental knowledge will be one of the predisposing factors that shape the behavior of parents in maintaining children's oral health. Children's oral health can affect functional, psychological, and social aspects that impact the quality of life related to oral health. **Objective:** To analyze the correlation between the level of parental knowledge about dental and oral health to realize the quality of life in children with Down syndrome at SLB Banjarmasin. **Methods:** This study is an analytical observational study with a cross-sectional approach. The sampling method used was simple random sampling with 32 respondents from parents of children with Down syndrome at SLB Banjarmasin. The level of parental knowledge and quality of life related to oral health was determined using a modified oral health knowledge questionnaire and a modified Parent-Caregiver Perception Questionnaire (P-CPQ). **Results:** The results of the Spearman correlation test showed that there was a significant correlation between the level of parental knowledge and the quality of life of children with Down syndrome associated with oral health in SLB Banjarmasin with a significance value of 0.007 ($p < 0.05$). The correlation coefficient value is 0.466. **Conclusion:** There is a correlation between the level of parental knowledge and the quality of life related to oral health in children with Down syndrome in SLB Banjarmasin City.

Keywords: Down syndrome, Knowledges, Oral health related to quality of life, Parents.

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INTRODUCTION

Parental knowledge and awareness of dental and oral health is a fundamental component in creating a good dental health status in children. The lack of parental knowledge regarding dental and oral health will affect children's attitudes and practices in caring for teeth from an early age. Children will imitate the behavior of parents in maintaining oral hygiene into adulthood.¹ Knowledge becomes one of the predisposing factors that shape the behavior of parents in maintaining children's oral hygiene.² This is especially the case in children with special needs such as Down syndrome, who often have more dental and oral problems than normal children. Research also shows that Down syndrome children have poor oral cavity conditions with a high prevalence rate of caries and periodontal disease.³

Down syndrome is an autosomal chromosome genetic disorder resulting from a trisomy of chromosome 21. According to the World Health Organization (WHO), this disorder occurs in 1 in 1,000 births worldwide. According to the 2018 Basic Health Research (Riskesdas), there was an increase in the incidence of Down syndrome cases in Indonesia by 0.21% from the previous one of 0.13% in 2013 and 0.12% in 2012.^{4,5} Down syndrome has the characteristics of low intellectual function, delays in physical, mental, and motor development. Individuals with Down syndrome have a specific orofacial character that can increase the risk of impaired oral health development and indirectly affect the quality of life.³

Oral Health Related Quality of Life (OHRQoL) is related to a person's sense of comfort with the state of their oral cavity functionally, emotionally, and socially.⁶ Neglected dental and oral problems can cause pain and complaints that will interfere with mastication function, play activities, nutrition, to sleep and concentration disorders. The physical and intellectual retardation experienced by Down syndrome leads to low self-care skills and

independence so that Down syndrome children depend on their parents in an effort to maintain oral hygiene.⁷

Studies on the relationship of parental knowledge to oral health related quality of life in children with Down syndrome have not been studied. This refers to Law No. 18 of 2016, that persons with disabilities have the same rights and opportunities in obtaining information and health services, including dental and oral health. In addition, it is also based on the Long-Term Development Plan for the Health sector (Rencana Pembangunan Jangka Panjang/RPJPK) 2005-2025, which aims to increase awareness, willingness, and ability to live a healthy life for everyone so that the highest increase in the degree of public health can be realized.⁸ Based on this description, the authors are interested in conducting research on "The Correlation of Parental Knowledge to Oral Health Related to Quality of Life" in children with Down syndrome.

MATERIALS AND METHODS

This study used an analytical observational method with a cross-sectional approach that has been declared ethically feasible by the Health Research Ethics Commission of the Faculty of Dentistry, Lambung Mangkurat University with No. 018/KEPKG-FKGULM/EC/III/2022. The population in this study were parents of Down syndrome children from SLB Negeri 2 Banjarmasin, SLB Negeri 3 Banjarmasin, SLB Negeri Pelambuan Banjarmasin, SLB Madana Dun Ya Banjarmasin, SLB Harapan Bunda Banjarmasin, and SLB Paramita Graha Banjarmasin. The sample technique in this study used simple random sampling with a total sample of 32 people. The study was conducted in January – May 2022.

Data were collected directly from the parents of children with Down syndrome. Parental knowledge was measured using a modified questionnaire on parental knowledge about dental and oral health with a choice of



correct (score 1) or incorrect (score 0) answers. The scores are summed up and categorized into high knowledge ($\geq 76\%$), moderate knowledge (56-75%), and low knowledge ($\leq 55\%$).⁹

Oral Health Related Quality of life in children with Down syndrome was measured using a modified Parental-Caregiver Perceptions Questionnaire (P-CPQ) with answers using the Likert scale (never = 0, rarely (1-2x in 3 months) = 1, sometimes ($>2x$ in 3 months) = 2, often (almost every week) = 3, and very often (almost every day) = 4). The scores are summed up and categorized into good quality of life ($\leq 33\%$), moderate quality of life (34-66%), and poor quality of life ($\geq 67\%$). Then to determine whether there is a complaint or not, then out of 5 answer choices are categorized in two groups, if the answer is 'never' = 0 (no impact) and the answers 'rarely', 'sometimes', 'often', and 'very often' = 1 (an impact).¹⁰

RESULTS

This study was conducted on 32 parents of children with Down syndrome in SLB Banjarmasin consist of 17 girls and 15 boys with an age range of 6-20 years old. The majority of parents aged 31-40 years with the last level of education being Senior High School.

Based on Figure 1, it shows that the majority of parents' knowledge about dental and oral health is in the moderate category of 17 people (53.1%) and at least 6 people's knowledge of the low category (18.8%). Based on Figure 2, it shows that the majority of quality of life related to oral health for children with Down syndrome in SLB Banjarmasin City is in the moderate category as many as 17 people (53.1%) and the least is the quality of life related to poor oral health as many as 3 people (9.4%).

Based on Figure 3, it shows that in low-knowledge parents there are children with a low oral health-related to quality of life (1; 3.1%) to moderate (5; 15.6%) and no children with a good oral health-related to quality of life (0; 0%). Most knowledgeable parents are having children with

moderate oral health-related to quality of life (9; 28,1%), good (6; 18,5%) and poor (2; 6,3%). Parents with high knowledge had moderate (3; 9.4%) to good (6; 18.5%) quality children and no children with poor oral health-related quality of life (0; 0%) were found.

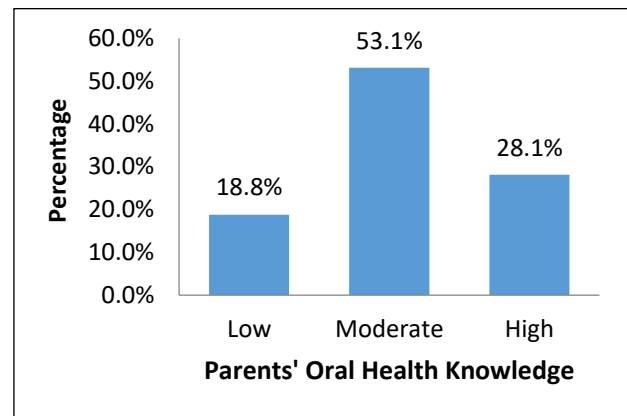


Figure 1. Parents' Oral Health Knowledge

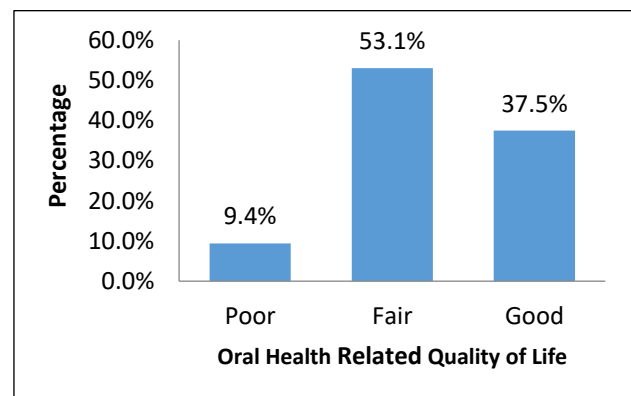


Figure 2. Oral Health Related Quality of Life

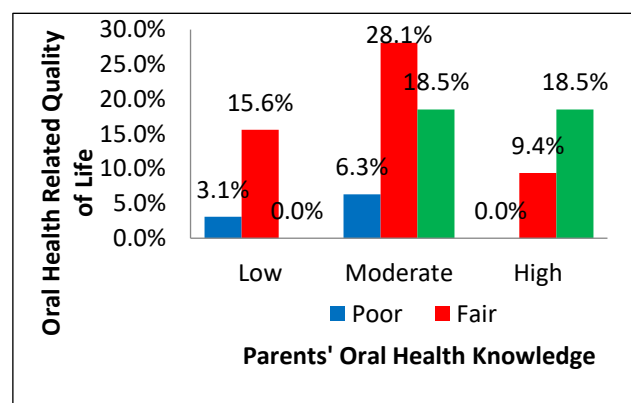


Figure 3. Cross distribution of parents' oral health knowledge on the oral health related quality of life with Down syndrome in SLB Banjarmasin

Table 1. Data Analysis using Spearman Correlation Test

			Oral Health Related Quality of Life
Spearman's rho	Parents' Oral Health Knowledge	Correlation Coefficient Sig. (2-tailed) N	.466** .007 32

**Correlation is significant at the 0.01 level (2-tailed)

Based on Table 1 of Spearman's analysis, a significance value of 0.007 ($P < 0.05$) can be interpreted to mean that there is a correlation between parental knowledge about dental and oral health related to the quality of life in children with Down syndrome in SLB Banjarmasin. The relationship between the two variables is moderate with a correlation coefficient value of 0.466 and a positive value, so it has an unidirectional relationship. The higher parents knowledge about dental and oral health, the better of oral health related quality of life children with Down Syndrome.

DISCUSSION

Oral health is an essential integral part of general health. Poor oral health can have far-reaching consequences for overall wellness. The diseases in children can cause 1) infection, 2) disruption of daily activities, 3) the onset of pain, and 4) growth and development disturbances. According to FDI (Fédération Dentaire Internationale) World Dental Federation, problems that commonly occur are tooth decay, gingival disease, and cancer.¹¹

Knowledge is the foundation of parental behavior that will affect children's knowledge, attitudes, and behavior. Parents with low knowledge of oral hygiene are a predisposing factor to behavior that do not support dental and oral health in children and cause dental and oral health problems, such as caries.^{2,12} Poor oral conditions will interfere with the function and

activity of the oral cavity so that it can affect nutritional status and have an impact on the quality of life of children. Parents need to know the specifics of the dental and oral conditions of children with Down syndrome and know how to maintain daily oral and dental hygiene. This is done in an effort to prevent dental and oral problems in children with Down syndrome and improve the quality of life related to oral health.^{7,12}

Parental knowledge can be influenced by age and education factors. Age is one of the factors that determine a person's thinking maturity in maintaining dental and oral health. The age of 31-40 years is a productive and mature age in carrying out their role as parents. As we get older, the more one's thinking maturity, comprehension, and mindset will increase, so that the knowledge gained will improved.¹³ Education also affects parents' knowledge about dental and oral health. Through the educational process, a person will gain higher knowledge, understanding, expertise, and insight, so that the higher a person's education, the more knowledge he acquired.¹² This is in line with the results of this study which found that parental knowledge about dental and oral health in the "moderate" category is most commonly found in parents with Senior High School education. Parental education factors can influence attitudes in determining the dental health status of children, because as parents need to teach their children how to care for and brush their teeth properly and regularly take their children to the dentist to check their dental health status.¹⁴

According to the results of the questionnaire, the majority of parents incorrect statements about the importance of treating caries in deciduous teeth and the ideal time for a visit to the dentist. The lack of knowledge about dental caries causes parents' awareness to be low to treat caries in deciduous teeth. This is because parents think that deciduous teeth are only temporary and will be replaced by permanent teeth, so damage to deciduous teeth

is considered not a problem. This is accompanied by low parental knowledge about dental health check-up every 6 months to the dentist. According to Utami (2018), this can be due to the experience of parents in taking care of their teeth and mouth just by brushing their teeth without regularly checking to the dentist. The existence of parents' habit to consider that caries is not a disease but rather just a matter of course and does not require further treatment shows that children's dental health problems have not been a major priority. This is due to the lack of socialization, media, and understanding of the importance of maintaining dental and oral health which will affect the growth and development and children's quality of life.¹⁵

Assessment of the quality of life related to oral health in children with Down syndrome based on parental perception is related to how much the child's quality of life decreased quality of life and normal children's activities as a result of dental health. Poor oral and dental health, such as periodontal disease, dental caries, gingivitis, and xerostomia have a significant influence on quality of life. The assessment of oral health related quality of life involves four aspects, such as oral cavity complaints, functional disorders, emotional disorders, and social disorders.⁶

Based on the results of the questionnaire, it was obtained that in the aspect of oral cavity complaints, children with Down syndrome often experience food stuck in their teeth. This result is in line with Ulfah (2019), which states that children with disabilities such as Down syndrome often experience pain and food that gets stuck due to caries. This can be caused by poor oral and dental hygiene as well as the lack of skills of children with Down syndrome in brushing their teeth so that brushing activities become less effective and still leaves an accumulation of plaque and debris on the teeth.⁶ In the aspect of functional limitations, parents report that children with Down syndrome have a long meal time. The impact of caries can cause children with Down syndrome to have difficulty

chewing food into a bolus, thus extending the duration of eating. This functional limitation can also be caused by the lack of coordination of the movements of tongue so that food is often retained in the mouth without being chewed, which ultimately increases susceptibility to dental caries.^{6,16}

In the emotional aspect, dental and oral health problems also affect the feelings of children with Down syndrome by feeling upset/frustrated due to toothache. Children with Down syndrome will show pain behavior by crying, not wanting to talk, stopping laughing, and getting angry as a sign of having a toothache and trying to convey that it affects their mood. This has an impact on the child's psychology and makes him quiet and close to his social environment. These problem will interfere with daily activities such as doing homework, school, disrupting sleep, and limiting eating activities.¹⁷

However, according to Aljameel (2020), parents still find it difficult to recognize the potential impact of the oral health of children with Down syndrome on aspects of their lives.¹⁸ This is based on the results of the study which showed on social aspect, that parents assess that the impact of dental and oral problems still have little impact on the child's situation to smiling/laughing, playing, and going to school. The same results were found in Elfari's (2016) study, which stated that only a few parents reported that their child had refused to play, smiled/laughed because of dental and mouth problems. Nasia's research (2022) also supports that dental and oral health problems do not have much impact on school attendance.^{19,20} This can be influenced by the clinical condition of the teeth, because the more severe the level of tooth decay, the more pain will increase so it will interfere comfort when eating, sleeping, playing, and going to school.¹⁶

This research found that the majority of parents is in the "moderate" category with the oral health related quality of life of children with Down syndrome in the "fair" category (28,1%). Sufficient knowledge of parents still does not

guarantee good dental and oral hygiene if it is not applied or carried out in daily life, as well as low levels of knowledge will affect inappropriate actions in maintaining dental and oral hygiene.²¹ In addition, lack of knowledge about dental caries causes parents' awareness to be low to treat dental caries. According to Rahina (2019), parents believe that dental health care for children is important, but concern for dental care with caries is still low. The dental treatment includes dental fillings, tooth extraction, and examinations to get medication and control.²²

According to Table 1, it can be seen that there is a relationship between parental knowledge about dental and oral health on the oral health related quality of life in children with Down syndrome based on the Spearman correlation test with a significance value of 0.007 and a positive correlation coefficient of 0.466. That is, the higher the level of parental knowledge about dental and oral health, the better the quality of life related to the oral health of children with Down syndrome. These results are in line with the research of Shavazi (2020), that knowledge can affect the quality of life related to oral health through the behavior of maintaining oral health. Someone with high knowledge will have a more positive attitude to practice maintaining oral hygiene which will ultimately improve the quality of life related to better oral health.^{23,24}

According to the theory of H. L. Blum, a person's health status is influenced by behavior. Lawrence Green revealed that the behavior is determined by predisposing factors of knowledge, attitudes, and practices. Knowledge is a very important domain for the formation of practice or action. Parents' knowledge will be the first step in changing children's behavior to maintain oral health, because they act as motivators, educators, and facilitators children's daily oral health.²⁵ On the other hand, low parental knowledge will shape attitudes and behaviors that ignore oral health maintenance which causes oral health problems so that it has

a negative impact on the child's oral health related quality of life.²⁶

The results of this research conducted at the Special School in Banjarmasin City found that parents of children with Down syndrome still received little attention on dental and oral health. This can be seen from the results of the research obtained, although the knowledge of parents is in the moderate category or knows enough about dental and oral health, the majority of children with Down syndrome still feel the impact/influence of dental and oral health problems on their daily lives. The parental knowledge of the "moderate" category is still not able to guarantee good dental and oral health of children with Down syndrome. This is because the knowledge of parents is still at the "know" level, so it has not yet reached the "application" level, namely the level where parents know how to use the material that has been studied in real (actual) conditions. This can also be caused by several factors, including busy parents so it is difficult to accompany children to brush their teeth, there is no time for regular check-ups to the dentist, difficulty controlling children for dental care, economic status, attitude of children who uncooperative, family factors, and social environmental factors. Changing positive attitudes into positive practices also takes time to achieve a quality of life related to good oral health.²⁷

Based on the results of this study, the level of parental knowledge of children with Down syndrome in SLB Banjarmasin City has the majority of knowledge in the moderate category. The majority of oral health related quality of life of children with Down syndrome in SLB Banjarmasin City based on the perception of parents is in the fair category. In this study, there is a correlation between parental knowledge about dental and oral health on the oral health-related quality of life in children with Down syndrome in SLB Banjarmasin City with a moderate positive correlation which means that the higher parental knowledge about oral health,

the better of oral health related quality of life children with Down Syndrome and vice versa.

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