ORAL HYGIENE STATUS AMONG CHILDREN WITH SPECIAL NEEDS AT SLB NEGERI 2 SAWAHLUNTO

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Abstract

Oral hygiene remains a challenge among children with special needs, including children with intellectual disabilities and hearing impairments. Limitations in cognitive, motor, and communication abilities may affect their ability to maintain oral hygiene. This study aimed to describe oral hygiene status based on the debris index, calculus index, and Oral Hygiene Index-Simplified (OHI-S) among children with special needs at SLB Negeri 2 Sawahlunto. This descriptive study used a quantitative approach. The study population comprised all children with special needs at SLB Negeri 2 Sawahlunto. The sample consisted of 31 students, including children with mild intellectual disabilities, moderate intellectual disabilities, and hearing impairments who met the inclusion criteria. Data were collected through direct oral examinations using the OHI-S and analyzed descriptively using frequency distributions and percentages. The results showed that the debris index was predominantly in the moderate category, involving 23 students (74.2%), while 8 students (25.8%) were in the poor category. The calculus index was also predominantly moderate, involving 26 students (83.9%), followed by the poor category in 3 students (9.7%) and the good category in 2 students (6.4%). Overall, OHI-S was predominantly in the moderate category, involving 23 students (74.2%), while 8 students (25.8%) were in the poor category. No student had good OHI-S status. These findings indicate that the oral hygiene status of the respondents was predominantly moderate and not yet optimal, highlighting the need to strengthen oral health education, assistance, and the involvement of teachers and parents in maintaining oral hygiene among children with special needs.

Keywords: Oral Hygiene; OHI-S; Intellectual Disability; Hearing Impairment; Children With Special Needs.

1. INTRODUCTION

According to Law of the Republic of Indonesia No. 17 of 2023, health is defined as a state of being healthy physically, mentally, and socially, rather than merely being free from disease, enabling individuals to live productive lives. [1] In addition to general health, oral health also requires attention because oral health can affect overall health. Maintaining oral health is one of the ways to improve health. The mouth is not merely an entry point for food and beverages; it has broader functions, and many people are not fully aware of the important role of the mouth in health and well-being. [2]

Oral hygiene is very important. Several oral health problems may occur because children are still developing and require assistance from parents or family members to guide them in maintaining oral hygiene. Children with special needs may have a particularly high risk of oral hygiene problems because of their functional limitations. [3]

Based on the 2018 Basic Health Research (Riskesdas), the proportion of the population in West Sumatra Province experiencing dental and oral health problems was 43.87%, while in Sawahlunto City it was 40.55%. The 2023 Indonesian Health Survey (SKI) reported that 61.1% of the population in West Sumatra Province experienced dental and oral health problems. This indicates an increase of 17.23% in West Sumatra. The 2018 Riskesdas reported dental and oral health problems among children with

special needs of 3.29% in West Sumatra and 5.52% in Sawahlunto City. The 2023 SKI reported a prevalence of 1.1% among children with special needs in West Sumatra. [4,5]

Children with special needs are a group requiring particular attention to oral health maintenance. Intellectual, motor, communication, and self-care limitations may affect their ability to maintain oral hygiene. Consequently, they may require greater assistance and supervision from parents, teachers, and health professionals. Social challenges among children with special needs include limited knowledge, particularly regarding oral health. They require more attention than children without such limitations because some may have difficulty independently cleaning their oral cavity, thereby increasing the risk of poor oral hygiene. [6-10]

In children with intellectual disabilities, difficulty understanding instructions and performing toothbrushing movements systematically may reduce the effectiveness of tooth cleaning. In children with hearing impairment, communication barriers may prevent health information from being received optimally when education does not use appropriate visual media or communication methods. [7-9]

Oral hygiene status can be objectively assessed using the Oral Hygiene Index-Simplified (OHI-S). The OHI-S was developed by Greene and Vermillion and assesses two main components, debris and calculus, on six index tooth surfaces. [11] This examination provides an overview of an individual's oral hygiene condition. Calculus is a mineralized deposit that cannot be adequately removed through toothbrushing alone. In children with special needs, limitations in self-care may result in suboptimal oral hygiene maintenance. [6-10]

Previous studies involving children with special needs have also indicated that oral hygiene remains a concern. A study among students with intellectual disabilities found an association between oral health maintenance behavior and oral hygiene status. [12] Another study among students with intellectual disabilities and hearing impairment reported oral hygiene conditions ranging from moderate to poor. [13]

SLB Negeri 2 Sawahlunto serves children with special needs classified as type B (hearing impairment) and type C (intellectual disability). According to preliminary information from the school, there were 31 students, and no previous study had assessed their oral hygiene status. Preliminary data from 10 students showed that 3 students had poor OHI-S status and 7 had moderate OHI-S status. The school has a canteen selling sweet foods and snacks, including candy, snacks, and fried foods. There were 6 students with severe hearing impairment, 22 students with moderate intellectual disabilities, and 3 students with mild intellectual disabilities.

Based on these conditions, this study was conducted to describe oral hygiene status based on the debris index, calculus index, and OHI-S among children with special needs at SLB Negeri 2 Sawahlunto.

2. METHODOLOGY

This study used a descriptive design with a quantitative approach. The study was conducted at SLB Negeri 2 Sawahlunto, West Sumatra Province. The study population comprised all 31 students at SLB Negeri 2 Sawahlunto. A total sampling technique was used. Inclusion criteria were students who agreed to participate, were cooperative during the examination, had parental permission, and were present at the time of data collection.

Primary data were obtained through direct oral hygiene examinations using the Oral Hygiene Index-Simplified (OHI-S). The instruments included an OHI-S examination form, mouth mirror, dental explorer, tweezers, kidney dish, disclosing agent, rinsing cup, gloves, mask, cotton, alcohol, and stationery. Secondary data were obtained from the school regarding the number and basic characteristics of students.

The OHI-S examination used six index tooth surfaces: tooth 16 buccal, 11 labial, 26 buccal, 36 lingual, 31 labial, and 46 lingual. Debris and calculus were each scored from 0 to 3. The criteria for debris and calculus were good (0.0-0.6), moderate (0.7-1.8), and poor (1.9-3.0). OHI-S was categorized as good (0.0-1.2), moderate (1.3-3.0), and poor (3.1-6.0).

Data processing included checking completeness, coding, data entry, and data cleaning. Univariate analysis was performed to generate frequency distributions and percentages for each debris, calculus, and OHI-S category. Because the study was descriptive, it was not intended to test causal relationships or the effectiveness of an intervention.

3. RESULTS

A total of 31 students underwent the oral examination. The respondents consisted of 3 students with mild intellectual disabilities (9.7%), 22 students with moderate intellectual disabilities (70.9%), and 6 students with hearing impairment (19.4%).

Table 1. *Distribution of debris index by respondent group.*

Group	Good n (%)	Moderate n (%)	Poor n (%)	Total
Mild intellectual disability	0 (0)	2 (66,7)	1 (33,3)	3
Moderate intellectual disability	0 (0)	17 (77,3)	5 (22,7)	22
Hearing impairment	0 (0)	4 (66,7)	2 (33,3)	6
Total	0 (0)	23 (74,2)	8 (25,8)	31

The debris index was predominantly in the moderate category, involving 23 students (74.2%), while 8 students (25.8%) were in the poor category. No respondents were in the good category. Among students with moderate intellectual disabilities, 17 of 22 students (77.3%) were in the moderate category.

Table 2. *Distribution of calculus index by respondent group.*

Group	Good n (%)	Moderate n (%)	Poor n (%)	Total
Mild intellectual disability	1 (33,3)	2 (66,7)	0 (0)	3
Moderate intellectual disability	0 (0)	19 (86,4)	3 (13,6)	22
Hearing impairment	1 (16,7)	5 (83,3)	0 (0)	6
Total	2 (6,4)	26 (83,9)	3 (9,7)	31

The calculus index showed the largest proportion in the moderate category, involving 26 students (83.9%). Three students (9.7%) were in the poor category and 2 students (6.4%) were in the good category. Among students with moderate intellectual disabilities, the moderate category accounted for 86.4%.

Table 3. *Distribution of OHI-S by respondent group.*

Group	Good n (%)	Moderate n (%)	Poor n (%)	Total
Mild intellectual disability	0 (0)	3 (100)	0 (0)	3

Moderate intellectual disability	0 (0)	16 (72,7)	6 (27,3)	22
Hearing impairment	0 (0)	4 (66,7)	2 (33,3)	6
Total	0 (0)	23 (74,2)	8 (25,8)	31

Overall, OHI-S was moderate in 23 students (74.2%) and poor in 8 students (25.8%); no students were in the good category. All students with mild intellectual disabilities were in the moderate category. Among students with moderate intellectual disabilities, 16 students (72.7%) were moderate and 6 students (27.3%) were poor. Among students with hearing impairment, 4 students (66.7%) were moderate and 2 students (33.3%) were poor.

4. DISCUSSION

The results showed that most respondents had a moderate debris index. Twenty-three of 31 students (74.2%) were in this category, while 8 students (25.8%) were in the poor category. The absence of respondents in the good category indicates that oral hygiene among the respondents was not yet optimal.

Debris accumulation may be related to an individual's ability to clean the oral cavity. In children with intellectual disabilities, understanding instructions, maintaining attention, and performing structured motor movements may present challenges during toothbrushing. [6-9] Therefore, simple and repetitive instructions accompanied by demonstrations may be used as part of an approach to maintaining oral hygiene.

Among students with moderate intellectual disabilities, 17 of 22 students (77.3%) had a moderate debris index. This finding indicates that most students in this group still require attention in maintaining oral hygiene. Previous studies have also shown that oral hygiene status among students with intellectual disabilities remains a concern requiring attention. [12,13]

The calculus index in this study was also predominantly moderate, involving 26 students (83.9%). Calculus is a mineralized deposit and differs from debris, which is relatively easier to remove through mechanical cleaning. [11] This finding highlights the importance of regular dental examinations and professional care when calculus cannot be removed through toothbrushing.

The OHI-S examination showed that 23 students (74.2%) were in the moderate category and 8 students (25.8%) were in the poor category. None of the respondents had good OHI-S status. This pattern is consistent with the high proportions of moderate debris and calculus indices. OHI-S combines these two components and therefore provides an overall description of oral hygiene. [11]

The findings of this study are consistent with previous studies indicating oral hygiene problems among children with special needs. Children with intellectual limitations may experience difficulties in self-care, whereas children with hearing impairment may experience barriers to receiving information when communication methods are not adapted to their needs. [8,9]

For children with hearing impairment, visual communication can be an important component of oral health education. Toothbrushing demonstrations, step-by-step images, videos, and other visual communication formats can be used to clarify information. For children with intellectual limitations, simple instructions, concrete examples, repetition, and supervision can be applied. [14,15]

The involvement of teachers and parents is also important in maintaining oral hygiene among children with special needs. Oral health interventions for this group require not only information delivery but also practice and continuous monitoring of oral health behaviors. [6,7,14]

From a community oral health perspective, the findings can serve as baseline data for developing school-based oral health programs. Such programs may include periodic oral examinations, small-group education, toothbrushing demonstrations, behavior monitoring, and coordination among schools, parents, and health professionals. [14,15]

5. CONCLUSIONS

The oral hygiene status of students with special needs at SLB Negeri 2 Sawahlunto, based on examinations conducted in 2025, was predominantly moderate. A moderate debris index was found in 23 students (74.2%), a moderate calculus index in 26 students (83.9%), and moderate OHI-S in 23 students (74.2%). Eight students (25.8%) had poor OHI-S status, and none had good OHI-S status. These findings indicate the need for sustainable oral hygiene maintenance programs tailored to the communication needs and abilities of children with special needs.

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