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Identification of Teacher Ability and Implementation of Dental and Oral Health Practices in Mental Retarded Children: Pilot Study

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ABSTRACT

Introduction: Empowerment of teachers in maintaining oral hygiene is urgently needed to increase the value of mentally retarded dental and oral hygiene.
Objective: This study aims to identify teacher abilities and implementation of dental and oral health practices in mentally retarded children.
Materials and Method. The design of this study is an observational descriptive pilot study in the context of developing a learning model for dental and oral health in mentally retarded children. The research population was teachers and mentally retarded children at Special Schools in Jambi City. The research was conducted on teachers in 4 (four) special schools (SLB). Data are presented as numbers and percentages for categorical variables.
Results: Before giving the Learning Model for maintaining oral health for mentally retarded children, the respondents had medium-high level knowledge. After the intervention, their knowledge increased to a high level. The dental and oral health learning model is routinely taught in schools. The teacher routinely teaches how to brush teeth; the teacher routinely guides tooth brushing practices; the teacher routinely practices tooth brushing in children. The frequency of carrying out tooth brushing at school is at most once a week.
Conclusion: Most of the teachers' knowledge of mentally retarded children in SS is Poor, and implementation of dental and mouth health practices in Mentally Impaired Children is still low.

Keywords: mentally retarded, dental and oral health, teacher

INTRODUCTION

Children with special needs have physical and mental limitations, including physical conditions, development, and behavior or emotions [1]. Children with special needs are one of the Indonesian nation's human resources whose quality must be improved so that they can play a role not only as objects of development but also as subjects of development [2]. These children need to be identified and identified from groups of children in general because they need special health services, such as medical services, special education, and certain exercises that aim to reduce limitations and dependencies due to disorders they suffer and foster independence in social life [3–5]
The condition of the disorder experienced will have an unfavorable impact physically, psychologically, and psychosocially, ending in a delay in the development of children in empowering their life functions [6]. Children with special needs problems are related to primary needs such as food, clothing, shelter, social skills, and the ability to care for themselves independently. Taking care of oneself is important for normal children and children with special needs to maintain their health and hygiene independently [7].
Research results [8] show a high prevalence of caries and poor dental hygiene in children

with special needs, 83% in Albania. Research by Tegelsir and team (2013) shows that the high rates of caries and OHI-S in children with visual impairments in Sudan affect their quality of life. Tulangow et al. (2015) conducted a study to describe the status of dental caries in children with special needs at SLB YPAC Manado. The results showed that the status of dental caries in children with special needs was at the DMF-T index of 4.4, which was included in the moderate category. Dental health behavior in children with special needs also greatly affects oral health. Previous research [9] showed significant differences in oral hygiene before and after teeth brushing education for blind students at SLB-A Bandung.

Besides blind children, children with mental retardation also experience tooth decay [10]. Mental retardation has an IQ index of less than 70. A low IQ index causes slow motor development, resulting in movement limitations that require skill [11,12]. Movement in brushing teeth requires skills and ways to make teeth clean and freshen the mouth, and more importantly, to prevent oral diseases. The inability to maintain oral hygiene is one of the main factors influencing the high prevalence of dental disease in mentally disabled children [13,14].

The lack of ability of mentally retarded children to brush their teeth causes an increased risk of caries and periodontal disease [15,16]. The results of a study [17] show the influence of tooth brushing behavior in children with mental disabilities in Guangzhou, China, on the risk of caries. For this reason, the importance of promoting or educating dental health is suggested. Brushing teeth is a self-care activity for mentally retarded children. This activity is carried out daily, such as bathing, eating, and sleeping. Toothbrushing skills for children with mental retardation are an obligation. The study's results [18] showed that training on brushing teeth using the Individual Learning Program (PPI) approach affected improving dental and oral hygiene in children with moderate mental retardation. Research [14] states that the success of the tooth brushing program in children with intellectual disabilities (mentally impaired) requires the role of teachers and school employees and has been proven to be able to improve the dental and oral hygiene of mentally retarded children.

The studies above show that teachers of mentally retarded children can be involved in efforts to increase their students' dental health knowledge. Teachers for mentally retarded children have an advantage in approaching and teaching mentally retarded children, while health workers or dental therapists need time to approach mentally retarded children. Besides that, teachers understand more about the psychology and conditions of the children they teach. Mentally retarded children also know and obey teachers better than health workers they have just met. This research wants to find a learning model that will be used by mentally retarded teachers. The results of this study are expected to be useful for teachers of children with mental retardation in teaching about oral and dental health so that mentally retarded children have knowledge and skills in maintaining their dental health.

Based on this phenomenon, the authors are interested in conducting a pilot study that aims to identify the ability of teachers and the implementation of dental and oral health practices in mentally retarded children.

METHOD

Study Design

The design of this study is an observational descriptive pilot study in the context of developing a learning model for dental and oral health in mentally retarded children.

Population of study

The research population was teachers and mentally retarded children at Special Schools in Jambi City. The research was conducted on teachers in 4 (four) special schools (SLB), of which three schools were in Jambi City (SLB Prof. Sri Soedewi Maschun Sofyan, SLB Unggul Sakti, and

SLB Harapan Mulia), and one other school was in Banda Aceh city (Banda Aceh State SLB). Respondents involved in this study were 21 SS teachers.

Variables

The variables in this study were the teacher's knowledge, Tooth-brushing Practices that were Difficult for Mentally Disabled Children, and the Teacher's Dental and Oral Health Learning Model. All variables are measured using a questionnaire. Each variable consists of five questions; with a score range for each variable is 0-5. The scale used for the questionnaire on each variable is the Guttman scale. The Guttman scale has an important feature where it is a cumulative scale and only measures one dimension of a multidimensional variable; therefore, this scale is dimensionless. The data obtained are interval data or dichotomous ratios (two alternatives)[19].

STATISTICAL ANALYSIS

Data are presented as numbers and percentages for categorical variables. Continuous data were expressed as mean ± standard deviation (SD) or median with Interquartile Range (IQR).

Ethical Consideration

No economic incentives were offered or provided for participation in this study. The study protocol matched the Declaration of Helsinki ethical guidelines for clinical studies. This research has been approved by the Health Research Ethics Commission of the Health Polytechnic of the Jambi Ministry of Health with the number LB.02.06/2/118/2021.

RESULTS

The distribution of respondents based on age, gender, years of service, and level of education can be presented in table 1.

Table 1. Respondent Demographic Data

Characteristics	N	%
Age		
25-29	5	23.8
30-34	16	76.2
Gender		
Man	0	0.0
Woman	21	100
Length of working		
≤ 1 year	8	38.1
2-10 year	9	42.6
> 10 year	3	14.3
Level of education		
Associate	0	0.0
Bachelor	21	100
Master	0	0.0

Table 1 shows that all respondents are female, most of them have worked for 2-10 years as much as 42.6%, and all respondents have a bachelor's level of education.

Table 2. Teacher Knowledge Before and After the Learning Model Training on Dental and Oral Health Care for Mentally Disabled Children

Knowledge	Pretest
Good	11 (53%)
Moderate	10 (47%)
Poor	0.0

Table 2 shows that before giving the Learning Model for maintaining oral health for mentally retarded children, the respondents had medium-high level knowledge. After the intervention, their knowledge increased to a high level.

Table 3. Difficult Tooth Brushing Practices for Mentally Disabled Children

Activities	N	%
Holding a toothbrush	6	15
Lubricate toothpaste	7	17
Move toothbrush	12	30
Gargling Spit / secrete water after gargling	8 6	20 15

Table 3 shows that the majority of mentally retarded children experience difficulty moving a toothbrush by 30%.

Table 4. Dental and Oral Health Learning Model by Teachers

Learning Models	Criteria	N	%
The teacher gives self-development material about brushing teeth	Yes No	20 1	95.2 4.8
The teacher teaches how to brush teeth	Yes No	20 1	95.2 4.8
The teacher guides the practice of brushing teeth	Yes No	20 1	95.2 4.8

Table 4 To Be Continued…			
Teachers routinely practice tooth brushing in children	Yes No	15 6	71.4 28.6
Frequency of toothbrushing at school for mentally retarded children	Daily 3 x a week 1 x a week 2 x a week	4 1 9 1	

Table 4 shows that the dental and oral health learning model is routinely taught in schools. The teacher routinely teaches how to brush teeth; the teacher routinely guides tooth brushing practices; the teacher routinely practices tooth brushing in children. The frequency of carrying out tooth brushing at school is at most once a week.

DISCUSSION

Dental and oral health knowledge of mentally retarded teachers is in the high category, which might be because most teachers have attended training on oral and dental health. Dental and oral health knowledge as capital for teachers to teach mentally retarded children. The curriculum for developing the specificity of the self-development program for mentally retarded children includes self-care, including brushing their teeth.

Self-development learning for mentally retarded children is not solely the task of parents but also the task of teachers at school. Self-development learning is a specific subject for mentally retarded children, which contains many components, including self-care and self-protection [12]. Therefore, the teacher as curriculum implementer must teach self-development following the needs and potential of mentally retarded children so that mentally retarded children can carry out their activities properly without relying much on the people around them, especially on parents at home [11].

Based on the analysis of each question item regarding tooth brushing technique, most teachers know that horizontal and vertical tooth brushing techniques are more appropriate for use in mentally retarded children than the roll technique. This result follows previous research [20], which stated that the horizontal technique was more effective in reducing dental plaque in mentally retarded children than the roll technique. This technique is also simpler and can be performed by mentally retarded children with fine motor disorders.

In the analysis of the question items about the need for guidance from the teacher when children brush their teeth, most (90.5%) stated that it was necessary considering the abilities of mentally retarded children and their limitations. Problems were related to self-care and health. Seeing the limited condition of children in their daily lives, they experience many difficulties, especially those classified as severe and very severe. Maintenance of daily life is in dire need of guidance. Therefore schools are expected to be able to provide training and habituation to students to take care of themselves. The problems that are often encountered include; how to eat, brush teeth, wear clothes, wear shoes, and others[3,6]

The results of the research on the learning model applied by teachers for the maintenance of dental and oral health of mentally retarded children in the form of self-development activities following the curriculum of the 2014 special self-development program for mentally retarded children, where self-development activities include daily self-care, including bathing, wearing clothes, wearing shoes, brushing teeth and others[1,2].

The learning model uses direct learning techniques, where the teacher teaches mentally retarded children through pictures. The teacher demonstrates the stages of how to brush their teeth, which is done repeatedly to mentally retarded children [10]. The direct learning model is effectively used by mentally retarded children due to their intellectual limitations and adaptive behavior. Through the direct learning

model, this self-development program is intended to provide adaptive behavioral skills for children. Through mastering adaptive behavior skills, it is hoped that they will be able to behave according to their age in the social and cultural context in which mentally retarded children live, starting with the functional materials that children need in their daily activities [4,5].

Direct learning has stages that must be passed, including orientation, demonstration, structured training, guided training, and conducting independent training [1,7]. The teacher's role is to provide direct experience and involve children actively in every activity [2,21]. One form of direct learning that can be done is brushing teeth. This teeth-brushing learning exercise can develop children's adaptive behavior in terms of communication, self-development, and social and movement aspects in each phase of their activities [16].

The results showed that in the practice of brushing teeth carried out by the teacher, several activities were found difficult for mentally retarded children, including holding a toothbrush, moving the toothbrush, and gargling. This difficulty is due to fine motor disorders in mentally retarded children making it difficult to hold and move a toothbrush, and also disorders of the mouth muscles, especially in moderate to severely mentally retarded children. Moderate mental retardation children have lower self-care abilities than the mild group, which is caused by fine motoric weakness and stiff hand muscles[18].

Studies show that the most obvious reason for poor oral hygiene of mentally retarded people is their inability to clean the oral cavity adequately due to possible motor, sensory and intellectual disabilities (Shyama et al., 2003). The tooth brushing technique trained by the teacher for mentally retarded children is a horizontal and vertical technique. According to the teacher, the horizontal tooth brushing technique is easier for children because they only move the toothbrush to the right or left and back and forth for the surface of the teeth to use for chewing. Besides that, for mentally retarded children with motor impairments, this technique is easier for them to do.

The self-development curriculum guide for mentally retarded children does not explain in detail about brushing their teeth and the tooth brushing technique for mentally retarded children [9,10]. Teachers teach children to brush their teeth based on books and personal experiences. However, the lack of training for teachers causes them to focus less on maintaining the oral health of mentally retarded children.

The study results show that the dental health learning model carried out by SS teachers only emphasizes children's ability to brush their teeth. Tooth brushing learning material is included in the self-development curriculum at SS. Self-development activities include brushing their teeth, opening and putting on their clothes and pants/skirts, sweeping, and making beds. All respondents (100%) stated that there was material about brushing teeth in lessons at SS. Respondents taught mentally retarded children how to brush their teeth and practiced it in class. The practice of brushing teeth directly by mentally retarded children whom teachers guide is only routinely carried out every day by only four respondents (19.04%), once a week by five respondents (23.8%), once every month, there is one respondent (4.76 %). Some have never been at all, ten respondents (47.61%).

Teachers' learning to maintain dental and oral health is still limited to the ability of children to brush their teeth according to the curriculum. Lack of knowledge by teachers and limited time at school so that most mentally retarded teachers do not routinely practice brushing their teeth. Hence, the impact of improving dental and oral health for children is not too significant. The absence of guidelines for teachers and the lack of training causes teachers to hand them over to the parents of mentally retarded children.

Children with mental retardation tend to be unable to direct themselves, so everything

that happens to them depends on the direction from the outside. Given these personality conditions, it is necessary to have a service program that starts from the simple and can be achieved by children. Such a program is expected to provide experience to children and motivate them to direct themselves and control their behavior in a better direction. Guidance from the closest people (parents and teachers) is very important in self-regulating mentally retarded children.

CONCLUSION

Most of the teachers' knowledge of mentally retarded children in SS is Poor, and implementation of dental and mouth health practices in Mentally Impaired Children is still low.

Declaration by Authors

Ethical Approval: Approved

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