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# Audio visual musical rhythm movement on the ability to brush teeth of intellectually impaired children

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**ABSTRACT**

Background: Maintaining dental and oral health in children with mental retardation is usually still relatively lacking, one of which is in patients with mentally retarded children. Children with mental retardation need to be given more effort to maintain the dental health of mentally retarded children so that they remain healthy. Objective: This study aims to determine the effect of counseling using audio-visual movements to musical rhythms on the ability to brush the teeth of mentally retarded children in SLBN cineam, Tasikmalaya district. Method: Quasi-experiment design with one group pre-test and post-test design. Sampling was taken using a saturated sampling method where the entire population was used as a sample of 30 people. The measuring tool uses an observation sheet. Data analysis using the Wilcoxon test. Results: after being given counseling using audio-visual movements to the rhythm of music, the average ability to brush the teeth of mentally retarded children increased from 3.60 (Fair) to 2.85 (Good). Wilcoxon test results obtained p value = 0.000 (<0.05) . Conclusion: there is an influence of counseling using audio-visual movements to the rhythm of music on the ability to brush the teeth of mentally retarded children at SLBN Cineam, Tasikmalaya Regency.

## INTRODUCTION

Physical and spiritual health is an important part for humans. Based on the WHO definition, health is a perfect condition, both physical, mental, and social and not only free from disease and disability (Ridha, 2019). According to Health Law No. 36, 2009, it is a person's ability to live a productive life, apart from that he looks perfect physically, and can socialize well without any mental disorders. Dental and oral health is related to systemic health. Enamel, dentin, pulp and periapical tissue are part of the tooth layer, where the pulp tissue contains nerve fibers and blood vessels which can spread germs or bacteria to other body systems. Dental and oral health is currently still not in the spotlight (Rikesdas, 2018). A common problem that some people suffer from is cavities (caries). Various diseases can start because of dental and oral diseases (Nismal, 2018).

The mouth is not only a place for food and drink to enter, not many people are aware of the great use of the mouth for a person's health and well-being (Notoatmodjo, 2012). Human health can be supported by dental and oral health (Riyanti et al., 2015). The results of the 2018 riskesdas data recorded that 57.6% of the percentage of dental and oral cases, medical personnel only handled these cases was 10.2%. The percentage of correct toothbrush habits is only 2.8% (Rikesdas, 2018).

Children of elementary school age and preschool age must continue to maintain dental and oral health, apart from that, children with mental retardation status must also maintain healthy teeth and mouth. Usually, dental hygiene in cases of mentally retarded children is still considered lacking (Hanifah, 2018).

Extension is a process of providing material by showing processes, methods, and actions (Alwi, 2008). Counseling is an element of a health program, so it must adhere to the program that is being implemented (Purnama et al., 2022). Dental and oral health education is an effort that aims to change the habits of an individual, or many people, so that they are able and used to live a healthy life in the field of dental and oral health (Putri, 2012)

Mental retardation is a group of children with special needs. Barriers in mental, language, motoric, emotional, and social abilities are indicators of mentally retarded children. 7-10% of children in the world

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experience disabilities, this data was obtained from WHO in 2011, while the National Statistics Agency in 2007 stated that around 10% of the child population in Indonesia suffers from disabilities. Mental retardation is in the second highest position, namely 30,460 children, based on the results of the 2011 Social Protection Program Data Collection (PPLS) research which states that the largest proportion is on the island of Java (J. D. Pratiwi & Rokhman, 2017).

Children with special needs are different from normal children, environmental factors can be one of the causes of obstacles in the learning and development of children with special needs (Motto et al., 2017). Republic of Indonesia Ministry of Education and Culture Regulation Number 157 of 2014 concerning the Special Education Curriculum Article 4 there are 10 groups of children with special needs, namely the blind, the deaf, the speech impaired, the mentally retarded, the quadriplegic, the hearing impaired, have difficulty learning, study for a long time, autism, have motor disorders. The level of dental and oral health for ABK is lower than that of normal children. The incidence of caries, calculus and debris is caused by low knowledge regarding dental and oral health. Children with special needs are more likely to experience dental disease (Motto et al., 2017).

Special Schools (SLB) are a place of learning for people with mental retardation specifically. Mental retardation is a nickname for children with a level of knowledge below standard (Desiningrum, 2016). As many as 30% of mentally retarded people have problems with their dental and oral health, this is higher than ordinary children (Rikesdas, 2018). 2010 Ministry of Health data. For mentally retarded sufferers, the prevalence of dental caries is quite high, the percentage is up to 82.6%. The mental age of mentally retarded children is lower than their original age. This clearly affects the development of cognitive and psychomotor abilities, ultimately resulting in these functions becoming limited. This makes it difficult for mentally retarded children to care for themselves, especially when it comes to oral and dental hygiene (Pratiwi et al., 2019).

Dental and oral health problems in mentally retarded children can be done by providing dental and oral health material at a toothbrush event for mentally retarded children, but because the intelligence of mentally retarded children is limited, receiving the information provided will be difficult due to a lack of cognitive function which includes perception, ability. recall, idea development, evaluation, and reasoning. Mental retardation based on an IQ value of 50-70 means it is still mild, an IQ value of 30-50 means moderate and if the IQ < 30 means it is very severe.

A person is classified as mentally retarded if he is not good at socializing, his mentality is different from children in general, his level of intelligence and maturity is hampered.

Adaptive media such as audio-visual can be effective learning in dental health for mentally retarded children (Fatmasari et al., 2019). Elementary school students watch and listen to instructions when practicing toothbrushing, eventually the information will be easy to accept. Stimulation given to the five senses will make information easier to accept (Notoatmodjo, 2012). The eyes are the five senses that often channel sources of knowledge to the brain with a percentage of 75% to 87%, while 13% to 25% of human knowledge is generated and provided through the other five senses. As much as 20% of the information will be saved if the information is delivered via audiovisual media and 70% if it is done directly (Notoatmodjo, 2012).

Verbal memory can be improved through music, mentally retarded children have difficulty remembering verbal information from visuospatial information on a short memory test (Ardina, 2017). Research with a sample of 145 people conducted at the Social Rehabilitation Center for Bina Grahita Kartini, Temanggung, explained that the mentality of mentally retarded children is better honed by the provision of music. Shy children become willing to perform, quiet children become active, then children's psychomotor skills also develop more and more every day, children become able to pronounce the appropriate words because of the songs they sing, so that every utterance can be heard clearly (Ardina, 2017). An alternative for mentally retarded children to improve their ability to brush their teeth can be through music and songs, so that their ability to maintain oral hygiene can improve from poor or moderate status to good.

Benefits of songs as learning resources. One song becomes a linguistic resource, and the song also becomes a means of introducing and strengthening language or vocabulary. Basically, children like things that make them happy, such as listening to music or singing. Children's atmosphere becomes happy because of music, apart from that, music plays an important role in children's IQ (Intelligent Quotion) and EQ (Emotional Quotion) scores.

A child is required to carry out independent daily activities, namely in thinking or acting, the same goes for mentally retarded children. To be accepted in society, mentally retarded children must be independent. Including doing everything independently, (changing positions, standing) (Alwi, 2008). Toothbrushing is an activity to make the teeth and mouth clean from food waste and debris in the hope that diseases of the hard fingers and soft tissue in the mouth can be avoided. According to (Fatmasari et al., 2019) who examined the tooth brushing skills of elementary school students using audio visuals on mogigu

models, it has been proven that the senses of hearing and seeing are stimulated when receiving information, resulting in an increase in the level of knowledge, good attitudes will be formed, and skills will emerge when brushing teeth in elementary school students.

Researchers are interested in the problem of conducting research because toothbrushing in mentally retarded children also needs a solution so that it can be improved. Movement to the rhythm of music is one effort that can be done for learning. Movement to the rhythm of music is a method that trains motor skills accompanied by music that makes you happy. The ability to brush teeth pleasantly is expected to increase after implementing musical rhythmic movements in learning (Alwi, 2008).

Cineam Special School, Services at this school include special schools A (blind), B (deaf), C (impaired), C1 (moderately impaired), D (impaired), and F (impaired). The number of mentally retarded children is 33 people. There are 5 people in class 1, 3 people in class 2, 10 people in class 3, 3 people in class 4, 5 people in class 5 and 7 people in class 6. The initial survey was conducted on Monday 18 January 2022 among 30 mentally retarded children. Researchers assessed dental and oral hygiene, ultimately the dental and oral hygiene score was 1.8-4.0 with moderate to poor criteria. These results show that the oral and dental hygiene of mentally retarded children varies. Researchers hope that by providing counseling using audio-visual media to the rhythm of music, the ability to brush the teeth of mentally retarded children can increase and it is hoped that it can also provide entertainment for mentally retarded children.

## METHOD

This research is all experimental (quasi experiment) with one group pre-test and post-test as the research design. This design does not involve group comparisons, but a first observation has been carried out which has the opportunity to test changes after the experiment (Notoatmodjo, 2012). Population is a subject that has certain values and characteristics that have been determined by researchers to draw conclusions (Masturoh & Anggita, 2018). The sample is part of the number and characteristics of the population that was originally researched, and conclusions were drawn. Saturated sampling technique is the basis for sample selection, that is, if all members of the population are sampled. Saturated sampling technique is used when the population is 30 people (Masturoh & Anggita, 2018). The sample was 30 mentally retarded children from Cineam SLB-C.

Observation sheets and questionnaires were used to obtain primary data, which was used to see the ability to brush teeth in mentally retarded children in SLBN cineam. Secondary data was obtained from previous research journals and books related to the title of this research, as well as data obtained from schools such as general descriptions of schools and parents/guardians of mentally retarded children. The data was processed using the Excel application and displayed in the form of a frequency distribution. The data was analyzed using the Wilcoxon test with the help of the SPSS 26 program.

## RESULT

**Table 1.** Sample Frequency Distribution Based on Gender

| Gender | Total | % |
|---|---|---|
| Man | 21 | 70 |
| Woman | 9 | 30 |
| Total | 30 | 100 |

Table 1 explains that the gender of the children who were research respondents was dominated by 70% male.

**Table 2.** Frequency Distribution by Age

| Age | Total | % |
|---|---|---|
| 8 – 12 | 13 | 43 |
| 13 – 15 | 5 | 17 |
| 16 – 20 | 12 | 40 |
| Total | 30 | 100 |

Table 2 explains that the age of the children who were research respondents ranged from 8-20 years, with the largest number being elementary school age (8-12 years) with 13 people (43%).

**Table 3.** Frequency Distribution Based on Class

| Criteria | Total | % |
|---|---|---|
| 1 – 6 Elementary School | 20 | 67 |
| 7 – 9 Junior High School | 4 | 13 |
| 10 – 12 Senior High School | 6 | 20 |
| Total | 30 | 100 |

Table 3 explains that respondents fall at the equivalent level of elementary school (SD), namely grades 1-6, 67%, SMP (grades 7-9) 13% and SMA (grades 10-12) 20%.

**Table 4.** Frequency Distribution of the Ability to Brush Teeth of Intellectually Disabled Children Before Being Given Counseling with Audio Visual Movement to the Rhythm of Music

| Criteria | Total | % |
|---|---|---|
| Very Good | 0 | 0 |
| Good | 2 | 6.7 |
| Enough | 15 | 50 |
| Less | 13 | 43.3 |
| Total | 30 | 100 |

Table 4 explains the results that the ability to brush teeth before being given counseling using games with audio-visual movements to the rhythm of music is at most sufficient criteria, namely (50%).

**Table 5.** Frequency Distribution of the Ability to Brush Teeth of Intellectually Disabled Children After Being Provided with Audio Visual Counseling Musical Rhythm Movement

| Criteria | Total | % |
|---|---|---|
| Very Good | 12 | 40 |
| Good | 10 | 33.3 |
| Enough | 8 | 26.7 |
| Less | 0 | 0 |
| Total | 30 | 100 |

Table 5 shows the results that teeth brushing skills after being given counseling using the truth or dare game are mostly in the good criteria, namely (40%).

**Table 6.** Wilcoxon Test Results for Toothbrushing Knowledge

| Variable | Total | p-value |
|---|---|---|
| Pretest-posttest knowledge | -3.638[b] | 0.000 |

Table 6 shows the results of the Wilcoxon Test on the ability to brush the teeth of mentally retarded children before and after being given dental and oral health education using audio-visual movements to the rhythm of music. P value = 0.000 <0.05. on the ability to brush the teeth of mentally retarded children.

## DISCUSSION

The research results obtained from research which was carried out from 7 March 2022 to 28 March 2022 on mentally retarded children at SLBN Cineam, Cineam Village, Cineam District, Tasikmalaya Regency, had the aim of finding out the impact of dental health education using audio-visual on the ability to brush the teeth of mentally retarded children at SLBN Cineam.

Men are the dominant characteristic of respondents based on gender. Boys are usually hyperactive, where this gender has something to do with children's aggressiveness (Muliyani, 2018). Elementary school children were the respondents based on the highest level of education. Years of schooling have an influence on a child's abilities and experience. Children's memory is influenced by knowledge and experience.

The development of a dental health education model using audio-visual movements to the rhythm of music using audio-visual media was carried out in stages to produce promotional media that was suitable for use. Motion audio-visual media can be accessed anywhere and at any time and can become an alternative for teachers or parents in teaching dental and oral health education, especially how to brush your teeth and mouth properly and correctly. Audio-visual media is suitable for use as an outreach medium based on the results of expert analysis. Music is the right means for mentally retarded children to develop knowledge and motor or movement abilities (Primawati, 2019). The Effect of Dental Health Education Using Audio Visual Media on Improving the Teeth Brushing Ability of Intellectually Disabled Children.

Toothbrushing is recommended to keep the surface of the teeth and gums clean, toothbrushing is preventative for optimal dental health. The respondents in this study were mentally retarded children, where mentally retarded children generally experience short-term memory, which causes them to need activities with movement to train their motor skills (Primawati, 2019).

Dental health education using audio-visuals given to research respondents with a duration of 21 days has the hope of making an impression on the memory of mentally retarded children so that it can improve the ability of mentally retarded children to brush their teeth. The results of the toothbrushing ability of mentally retarded children after being given dental health education using audio-visual with poor criteria decreased from 43.3% and the toothbrushing ability of mentally retarded children in the very good category increased by 40% from the original 0%. Statistical analysis calculations based on table 4.7 show a difference in meaning between the ability to brush teeth before and after being given dental health education using audio-visual media with movements to the rhythm of music. The influence of audio visuals on the abilities of mentally retarded children is caused by the learning process of mentally retarded children, where mentally retarded children see and hear, where the sense of hearing and vision of mentally retarded children are stimulated so that children absorb information and produce increased knowledge which then gives rise to behavioral changes in the ability to brush teeth Notoatmodjo, (2012 ), explains that the ability to interpret material correctly is based on knowledge where mentally retarded children remember material that has been studied previously. Research conducted at SLBN Cineam, Tasikmalaya Regency showed that the results of using audio-visuals were that the knowledge of mentally retarded children became more refined, children who were previously shy became willing to perform, children who were previously passive became active, then the children's psychomotor skills also developed further with the accompaniment of movement. When brushing their teeth, mentally retarded children will see, hear, and carry out the practice of brushing their teeth. As much as 20% of information can be remembered if it is given via visuals, 50% if it is given via audio-visual media and 70% if there is a demonstration (Notoatmodjo, 2012).

This research is in accordance with research carried out by Chintyasari (2018) on a sample of 30 children with mild and moderate mental retardation who obtained significantly different results ($p < 0.05$). The results of the analysis after the intervention showed a factor that influenced the reduction in plaque index. The most influential factor is the difference in the plaque index decline in male subjects being slower than in female subjects. Audio-visual media uses songs with musical accompaniment and rhythm to show someone is more enthusiastic and motivated (Kunto et al., 2017).

The results of music and audio visuals can stimulate rejuvenation and strengthen the desire to learn whether consciously or even unconsciously. Brain waves and heart rate are influenced by the rhythm of movements and the harmonious beats of music. Students brush their teeth consciously or unconsciously when they hear music. Apart from that, the advantage of audio media is that it can summarize and explain again or remember the information that has been given (Fatmasari et al., 2019).

## CONCLUSION

According to these results, it can be concluded that audio-visual movements to the rhythm of music influence the teeth brushing skills of mentally retarded children at SLB Cineam, Tasikmalaya Regency. It is hoped that the audio-visual counseling media for rhythmic movements can be used as an alternative promotional media for dental health workers in increasing students' knowledge and teeth brushing skills.

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