A Collective Tooth Brushing Activity With Special Needs Children Using A Motor-Skill Toothbrush

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Abstract. This collective toothbrushing activity aims to improve the dental and oral hygiene of SLB N 1 Bantul by practicing independent toothbrushing activity in maintaining their oral and dental health. It started with a dental hygiene screening, followed by training on collective toothbrushing and making squishy according to the students’ creativity attached to each toothbrush. The collective toothbrushing was supervised by the class teacher and service team. Furthermore, the simple scoring after the activity was conducted. Significant changes were identified in the students' oral hygiene after brushing their teeth. The spirit of brushing teeth properly and correctly appeared along with the students’ happiness in making squishy creations attached to their toothbrushes.

1 Introduction

Indonesian people still lack knowledge about dental and oral health care. According to 2018 RISKESDAS data, the number of cavities reached 45.3%. Children with special needs have a worse risk of oral hygiene than normal children, with a more dominant number of caries and gingivitis (Rachmawati, 2019). Moreover, children with special needs have a fairly high number of caries, reaching 82.6% [1].

A beautiful smile rises from neat and clean teeth. A child's health is not only fulfilled by nutritional and protein needs, but also by their dental and oral health. Children with Special Needs (CWSNs) refer to children whose growth processes do not align with the growth and development of children in general, either physically, mentally, intellectually, socially or emotionally [2].

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Children with Special Needs (CWSNs) have physical and psychological limitations compared to normal children in general [3]. In contrast to children in general, CWSNs require specific services. CWSNs have several specialization sections depending on the condition of the disability. Mental retardation is one of the limitations included in the CWSNs category. One of the special needs is that mentally disabled children have deficiencies in the form of below-average intelligence barriers and are characterized by an inability to adapt during the growth period [4]. The dental and oral health of children with special needs is still relatively low; around 86.2% of them have caries [5]. Untreated caries can cause tooth loss and cause several impacts, such as nutritional deficiencies and a general decline in condition. Therefore, we carry out this activity to increase interest in brushing teeth for mentally disabled children.

Children with special needs have complex teeth-brushing problems. They have a dependence on their surroundings. For example, mental retardation is an individual who has problems with Intelligence Quotient (IQ) with a below-average level covering cognitive, affective, and psychomotor aspects characterized by an inability to adjust to doing things independently [6]. Currently, the classification of mental retardation is divided into 3, namely mild (IQ: 50-70), moderate (30-50), severe and very severe (IQ below 30) [2]. This inability causes mentally disabled children to have difficulty caring for themselves, one of which is brushing their teeth.

The toothbrush is a product that is very common and is used every day by everyone. However, some parents with mentally disabled children need more effort to get them interested in brushing their teeth and maintaining their oral and dental health. There is a need for innovative media for tooth brushing for mentally disabled children to attract their interest in brushing their teeth and maintaining their oral and dental health [7, 8].

Therefore, efforts to raise interest in brushing teeth in children with special needs must be pursued to improve oral and dental health. Brushing teeth while playing is one of the efforts made. The use of squishy modifications on toothbrushes will trigger children with special needs to play with these modified toothbrushes and are expected to increase their interest in brushing their teeth and improving children's motor skills. Children with special needs make squishies according to each child's interest, and then attach them to their toothbrushes. SLB N 1 Bantul, located in Jalan Wates, is a school of students with special needs that offers various specializations depending on the special needs of their students. Devotion to helping increase interest, awareness and independence in maintaining dental health needs to be carried out and transmitted, so partnering with SLB N 1 Bantul is expected to be able to spread to all students and other schools the method to increase interest in brushing the teeth of children with special needs. This service aims to
improve the dental and oral hygiene of SLB N 1 Bantul by practicing collective toothbrushing activity in maintaining oral and dental health.

2 Methodology

2.1 Problem Analysis
Children with Special Needs (CWSNs) have physical and psychological limitations compared to normal children in general. Unlike children in general, CWSNs require specific services. CWSNs have several specialization sections depending on the condition of the disability. [3]. Untreated caries can cause tooth loss and cause several impacts, such as nutritional deficiencies and a decrease in general condition. Therefore, we carried out this activity to increase interest in brushing teeth for children with special needs.

Partners in this community service were SLB Negeri 1 Bantul, located at Jalan Wates Km 3 No 147 Senopakis Lor, Ngestiharjo, Kasihan District, Bantul Regency, Yogyakarta Special Region.

2.2 Partner Issues
1. There are High rates of dental caries in students with special needs.
2. There are no experts to guide the implementation of dental and oral health.
3. There are limited abilities of children with special needs who need encouragement, guidance and motor stimuli in maintaining oral and dental health.
4. There are limited supporting facilities for dental and oral hygiene in children with special needs.

2.3 Problem Solutions and Implementation Methods
Counseling and training were conducted to maintain good and correct oral health and toothbrushing activity for children with special needs supervised by their respective class teachers and caregivers. Counseling was conducted using an interesting method by inviting children to sing a song whose lyrics depicted how to maintain oral health and brush their teeth properly (Figure 1). Hence, they easily understand and memorize.

The next step was making toothbrushing an interesting activity so that the students could be proud of what they had put into the activity by playing together to make squishies according to each other's creativity. Furthermore, they learned to put the squishy made by CWSNs on each toothbrush (Figure 2.).
The collective brushing teeth activity was guided by the FKG UMY community service team outside the room with mineral water for rinsing, non-fluoride toothpaste and squishy to modify children's toothbrushes (Figure 3). Before brushing the teeth, a simple score of dental hygiene was carried out. Afterward, the toothbrushing activity was re-scored to identify the effect of the toothbrush that had been carried out.

Implementation Methods:
Tools and materials needed:
- Child's toothbrush
- Non-fluoride toothpaste
- Mineral Water
- Bucket
- Diagnostic tool
- Individual scoring card
- Squishy maker set

Implementation:

a. The activity was carried out at SLB Negeri 1 Bantul by implementing the Health Protocol with a total of 48 students involved.

b. The first step was counseling on how to maintain healthy teeth and how to brush teeth properly using tooth dolls and songs whose lyrics contained how to maintain healthy teeth and how to brush teeth properly.

c. The next one was making squishy according to children's creativity with a squishy maker kit accompanied by a class teacher according to their special needs and a community service team.
   - Use gloves
   - Pour liquid A and B into a bowl, with a 5:1 ratio using a plastic spoon.
   - Add the dye to the bowl
   - Mix the dough using a wooden spoon for 10 seconds
   - Then pour the dough into the mold
   - Pour the dough ⅕ of the mold
   - Leave it for 5 minutes
   - Give decoration to the squishy using embossed coloring or sprinkles
   - Insert the toothbrush in the middle of the dough
   - Leave it for 20 minutes until it dries and expands
   - Remove the squishy from the mold
   - Squishy modified toothbrush is ready to use
d. The next step was carrying out early simple examination/scoring of dental hygiene.

e. The next one was conducting a collective tooth brushing activity outdoors with non-fluoride toothpaste and mineral water for gargling accompanied by class teachers according to their special needs and Community Service Team.

f. Final scoring after tooth brushing is done for evaluation.

g. Giving souvenirs in the form of squishy toys and non-fluoride toothpaste for CWSNs.

Fig. 1. Counseling and training of good toothbrushing and Fig 2. The making of toothbrush modified squishy

Fig 3. Collective tooth brushing activity outdoors
3 Results and Discussion

In the implementation of the service, the joy and enthusiasm of children with special needs can be seen. They listened and followed a good example.

Of the 48 CWSNs, all attended counseling, made squishes and brushed their teeth together. However, the dental hygiene score examination before and after toothbrushing could only be identified from \((48 - 15 = 33)\) 33 students. 15 students did not have scoring data for various reasons, including not wanting to have their teeth examined for cleanliness.

Of the 33 students who were able to retrieve oral hygiene scoring data, the results are shown in Table 1.

Table 1. Results of CWSNs dental hygiene scoring

<table>
<thead>
<tr>
<th>No.</th>
<th>Special needs</th>
<th>The number of students</th>
<th>Checked amount</th>
<th>Initial scoring</th>
<th>Final scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blind, deaf, mute</td>
<td>21</td>
<td>10</td>
<td>Bad: 7 Moderate : 3 Good : 0</td>
<td>Bad: 0 Moderate : 0 Good : 10</td>
</tr>
<tr>
<td>2</td>
<td>Mentally disabled</td>
<td>13</td>
<td>12</td>
<td>Bad: 3 Moderate : 9 Good : 0</td>
<td>Bad: 0 Moderate : 0 Good : 12</td>
</tr>
<tr>
<td>3</td>
<td>Autism</td>
<td>5</td>
<td>4</td>
<td>Bad: 1 Moderate : 3 Good : 0</td>
<td>Bad: 0 Moderate : 2 Good : 2</td>
</tr>
<tr>
<td>4</td>
<td>Quadriplegic</td>
<td>9</td>
<td>7</td>
<td>Bad: 3 Moderate : 4 Good : 0</td>
<td>Bad: 0 Moderate : 0 Good : 7</td>
</tr>
</tbody>
</table>

Children with special needs have special limitations according to the deficiencies they experience. It affects the maintenance of their oral and dental hygiene. They are likely to need help from other people in brushing their teeth. Difficulty in brushing their teeth can reduce enthusiasm for maintaining healthy teeth, although toothbrushing is a simple method that is quite effective in reducing plaque and the occurrence of gingivitis [9,10]. In addition, social problems in children with special needs also affect the level of dental and oral health. A lack of dental and oral health knowledge can decrease motivation to brush teeth. Furthermore, insufficient knowledge...
about maintaining dental health will increase carries rates in children with special needs [11,12].

Table 1 shows the results after brushing teeth that almost all children went well. There were 2 that remained moderate in the group of autistic students, while the other groups turned better. Autism is a state of complex neurobiological development disorder. Autistic children usually behave repetitively, have social interaction problems especially communicating, and not being focused when communicating [13,14]. It might affect the post-toothbrush scoring results because tooth brushing was done collectively with other friends with special needs. Teachers also have to guide autistic students one by one. This autism class was also supported by 3 teachers who supervised 5 children.

This study’s results show that children with special needs who were blind, deaf, speech impaired and mentally disabled increased their scores to be in a “good” category when they brushed their teeth collectively. Interesting modifications and innovations are needed in conducting dissemination about maintaining healthy teeth with a method that can make CWSNs happy, enthusiastic and confident. The joy of being able to play and be creative and learning how to maintain healthy teeth together, as well as doing a collective tooth brushing activity, increase children's enthusiasm to listen and imitate the correct way to brush their teeth [15,16]. It is expected that It will become a habit that CWSNs continue to do. Meanwhile, disabled people need assistance in brushing their teeth.

4 Conclusion

Innovation in dental health education methods by playing, being creative, and conducting a collective brushing teeth activity has increased the motivation of children with special needs to maintain healthy teeth, and develop their knowledge and self-confidence with their creations.

References


