

Oral Health Care and Nutrition of Preschool
Aged Students with Special Needs

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Introduction

Proper dental education during childhood is a pivotal step in helping children establish good oral hygiene home care. Establishing routines can help prevent early childhood caries (ECC) which has become a widespread issue among children from birth to 71 months of age [1]. ECC can lead to other problems such as toothache, swelling, abscess, or premature loss of primary teeth [1]. Negligent dental care for children can also affect their physical and emotional development [6]. However, research has shown that proper tooth brushing, nutritious eating habits, and regular dental check-ups are effective in preventing the development of ECC [1].

It can be challenging to establish oral care routines with children with special needs as their physical, mental, sensory, behavioral, emotional, and chronic medical conditions require additional care and attention [1]. It is important for parents and caretakers of special needs children to assist them with oral home care so that it can be carried out effectively. Studies have shown that parent-led tooth brushing is more effective than independent toothbrushing [2]. Additionally, dental caries cannot occur without sugar, which can be found in many processed foods [3]. As such, modification in a child's diet through parental education can play a significant role in reducing the risks of ECC [3]. Regular visits with the dentist can improve parent's oral health education which can help with the prevention of ECC [3].

With consideration of these research data in mind, we set out to conduct a public health project for special needs children with three goals in mind:

1. Teach them to identify foods that are healthy or bad for their oral health

2. Educate them on the ADA recommended frequency of toothbrushing [4]
3. Teach them the Fones method of toothbrushing through hands-on demonstration

Since parents were unable to be present for the presentation, a colorful brochure was designed to be sent home with the children along with an age-appropriate toothbrush. The brochure contained a letter to the parents, informing them of what was taught during the presentation and dietary recommendations from the ADA. The presentation would be given to children between the ages of 2 and 5, at a child development center designated for low and high-functioning special needs children. The presentation period would last 45 minutes, with 30 minutes designated for three goal-oriented activities and 15 minutes for introduction and conclusion.

Assessment

The target population is the students with special care needs aged 2 to 5 years old from East River Child Development Center. The center provides educational and therapeutic services to children. Most children in this age group need parental support for tooth brushing and flossing. Moreover, those students with special health care needs may be taking certain medications. Research shows that children with special needs have poorer oral health status [1]. Their conditions may limit their ability to perform oral hygiene care. The medications they are taking may also have an effect on their oral health.

According to the National Survey of Children with Special Health Care Needs,

“15.1 percent of U.S. children, or 11.2 million children, have special health care needs, and 23.0 percent of households with children include at least one child with a special health care need. These rates represent a slight increase from the percentages reported in 2005-2006, which, in turn, represented an increase from 2001.” [5]

It is important to use vivid but simple methods to demonstrate and emphasize the daily oral hygiene care to the students. In addition, dental caries is a severe international public health challenge. Children with ECC are at higher risk of subsequent caries in both the primary and permanent dentitions [3]. Although ECC is not self-limiting, it is preventable and can be avoided and managed. Poor nutrient intake and unhealthy dietary habits will increase the risk of ECC [3]. Based on the fact that they are young children with special care needs and their parents and caregivers play an essential role in their oral health care [6], it is critical to make oral health educational materials available and appropriate to

families and other caregivers. Thus, their families and caregivers can have a better understanding about the children's oral health care needs and improve their skills like brushing, flossing and picking up healthy foods for the children. Furthermore, they can share the educational materials they got from dental professionals with other people who need those information as well. In that case, more people can benefit from those information.

Planning

The first goal focused on promoting healthy snacks. The measurable objective was: By the end of the healthy foods activities, 25% of students will be able to identify one food that is healthy for teeth and one that is unhealthy.

The second goal aimed to increase proper brushing habits. Measurable objectives included: By the end of the toothbrushing activity, 50% of students will be able to correctly state that they should brush teeth twice a day. By the end of the toothbrushing activity, 50% of students will be able to describe and demonstrate small circles while brushing a large model of teeth.

According to the assessment findings, a hands-on, age-appropriate, interactive health education program about healthy foods and toothbrushing should be utilized. Increasing children's awareness of these two topics will foster healthy habits as they grow, and will improve their oral health. Given that most children require parental support for these tasks, there should be a component that educates caregivers as well.

To develop this program, engaging and educational ideas were researched online. Games were selected that would accomplish the goals and entertain the children. To create a vivid and memorable experience, we elected to wear costumes throughout the activities. At the same time, we developed a brochure and letter to parents educating them about healthy foods and toothbrushing.

Implementation

The goals and objectives were met through hands-on activities and show-and-tell demonstrations in a classroom setting at the East River Child Development Center. This facility offered a pre-school program to children with special needs between the ages of 2 and 5. Two classrooms of twelve children each were merged for this project.

Three activity stations were set up to accomplish the project goals. Two stations focused on helping the children identify foods that are beneficial towards oral health and foods that may cause caries. One of the two stations utilized a coloring worksheet where the goal was to differentiate the good food from the bad food by drawing a line of separation and coloring the foods. The other station employed a memory game strategy where the children were supposed to find matching pairs of good foods and bad food. There were four pairs of junk food cards, six pairs of healthy food cards. The repetition of flipping over cards and making matching pairs helped to strengthen children's memories of what foods were introduced. A brief discussion of each pairs of food helped to reiterate the good and bad category to which the foods belonged.

The third station utilized paper mâché teeth and large toothbrushes to teach the children to brush using the Fones method of circular brushing and to educate the children on brushing their teeth twice daily. For reinforcement, they also played a game and asked the students to practice Fones brushing skills by using the large toothbrushes to remove plaque and food debris sticking to the paper mâché teeth.

Prior to the start of the activities, the classrooms of 24 children sat around a circle and were introduced to the student presenters. The children, along with their teacher and assistants, were informed of the goals of the three activities. Then they were randomly separated into three groups of eight which rotated from one activity station to the next, spending approximately nine to ten minutes at each activity station. Each group of eight had various number of high-functioning and low-functioning children identified according to the Center. The children were encouraged to participate in each activity on their own and participation was rewarded with stickers. Lack of participation was disregarded, and the children were still rewarded with stickers for listening and observing.

After all groups completed their rotation to the three activity stations, the children were seated in a circle once again and asked what was learned from the activities. This further reinforced the goals of the activities. Goodie bags containing age appropriate toothbrushes were given to the teachers to distribute to the children and a colorful brochure to take home to their parents. The brochure contained a letter to the parents informing them of what was taught to their children, how they can play a role in encouraging nutritious foods, and how they can assist their children with toothbrushing.

Evaluation

The group of children we visited are in the range of 2 to 5 years old with developmental disabilities. We divided them into 3 small groups. We focused on the tell-show-do. We showed them how to properly brush their teeth by demonstrating it with a large model of teeth and a big toothbrush. 17 out of 24 (about 70.8%) children knew how to brush in circles and were able to answer they brush their teeth twice a day. Most of them were enthusiastic and showed their beautiful/sparkly teeth. We gave them worksheets for coloring and played cards to identify the good and bad foods. Since they were not fully functioning, only 11 out of 24 (about 45.8%) children were able to follow instructions such as connecting the good food to the healthy tooth and connecting the bad food to the unhealthy tooth. They still seemed to enjoy participating, especially during the coloring part. Everybody was rewarded with stickers for participating. We also dressed up like tooth fairies with crown, wings and wands to attract children's attention. They were so excited when they saw us and started touching our crowns and wings. The initial goals were accomplished. It was a positive experience to work with the children. Their learning skills were less developed compared to children without disabilities, but they were attentive and cooperative.

Conclusion

Our public health project which was planned and executed at the East River Child Development Center was effective because we had achieved our initial goals of the project. From our assessment of the children's responses, we could see that more than half of the 24 children were able to grasp the concepts that we were trying to teach. Approximately 11 out of 24 children (25.8% of the group) were able to identify, without assistance, one food that is healthy and one food that is harmful for dental health. Approximately 17 out of 24 children (70.8%) were able to recall the need to brush their teeth twice a day and brush in small circles (Fones method). These findings reflect more than the amount of anticipated receptive responses.

The extent to which we were able to help the children with special needs was limited because this was a one-time visit. We are unable to follow up with these children to verify whether oral home care routine was implemented and whether parents established a more nutritious diet for their child(ren). It is our hope that dental homes will be or have been established for these children, and that they will be reminded repeatedly about preventative dental measures.

Children with special needs may be challenging dental patients. However, they and their caregivers can be educated on how to maintain dental health and prevent ECC. These patients will benefit most from an interdisciplinary health care team approach that would include the assistance and consultation of the dental care team and preventative treatment from dental hygienists.

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