

NEW YORK CITY COLLEGE OF
TECHNOLOGY
DENTAL HYGIENE DEPARTMENT

DEN 2413 – Introduction to Public Health
Service Learning Field Project Activity

Oral Health and Nutrition: Addressing obesity
in children and adolescents

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Table of Contents

1. Introduction: Page 3
2. Assessment: Pages 4-6
3. Planning: Pages 6-8
4. Implementation: Pages 8-9
5. Evaluation: Pages 9-10
6. Conclusion: Pages 10-11
7. References: Page 12
8. Participation form: Pages 13-15

Introduction

Childhood obesity has been a growing public health challenge in the United States and around the world. Obesity is defined as an excess of body fat. Childhood obesity can be linked to development of the body, genetics and the environment. It is imperative as an oral health care provider to promote nutrition and encourage both patients and their parents to maintain a healthy lifestyle and weight. The common cause of obesity is consuming more calories from non nutritious beverages and foods in combination with having a family history of weight gain. The damaging effects of childhood obesity can lead to adult obesity and in turn lead to systemic issues such as hypertension, type 2 diabetes mellitus, and obstructive sleep apnea.

According to an article in *DIMENSIONS OF DENTAL HYGIENE*, with one in three children in the US overweight or obese, early identification and intervention are critical. ¹ Studies have shown an increase of dental caries in obese children which is led to believe that the increased intake of sugars in beverages and foods are risk factors for both obesity and caries. Also stated in the article; the association between childhood obesity and periodontal disease has results demonstrating a correlation between them. ¹ Although there are many oral health care providers that do not feel comfortable addressing this issue, there have been studies revealing that parents are accepting and willing to better the lifestyles of their children in order to reduce the risk of childhood caries and obesity. The goal is to educate oral health care providers enough that they will implement it into an obese child's treatment plan and guide the parents to the right resources. In doing so, we could drastically help decrease childhood obesity and lead them into a healthier lifestyle which would be beneficial to them into adulthood. ¹

Assessment: Identify target population. What is the status of their oral health and what are their needs? What does the published literature indicate about their oral health status and needs?

Our target population is third graders in Brooklyn, New York. When asked about their oral hygiene regime, the majority of the third grade children stated that they only brush their teeth once daily, they do not floss or rinse, and they do not brush their teeth for the required two minutes, but rather “a few seconds to less than a minute.” Many of the children informed us that they have had dental caries and have at least 1 tooth restoration. In today's society, many children eat unhealthy & nutritionless snacks on a daily basis. It is very rare to find someone who eats carrots and apples for lunch rather than chips and cookies. Not only is unhealthy eating leading to dental caries, but it is also leading to an increase in obesity in very young children. My classmates and I did a survey with the children. We asked them what they eat for lunch on a daily basis. In a class filled with 20 children, 15 of the students said that they eat snacks like chips, cookies, nutella sandwiches, poptarts, crackers, etc. The other 5 students said they eat fruits, salads, yogurts, etc. These results indicate and prove the increase of dental caries and obesity amongst very young children. These children need to take care of their oral health by brushing twice daily for two minutes with a fluoridated toothpaste, rinsing, flossing, and going to the dentist every 6 months. It is crucial that these children also get sealants. Young children also should be assisted by their parents or guardians when they brush their teeth because children ages 5 years and less lack dexterity and need to be assisted to ensure that they are brushing their teeth the proper way. In regards to overall health, the parents of these young children need to monitor what they are eating as snacks. They need to limit sugary snacks and foods and implement more healthy snacks and foods into their diet.

According to an article that compared the oral health status and knowledge on oral health between two age groups of school children, in primary dentition, the surface that is most susceptible for dental caries is the occlusal surface. However, as the child transitions from

primary to mixed dentition, the surface that is most susceptible for dental caries are the proximal surfaces.² The transition from primary to mixed dentition is a crucial time period in a child's life because of the establishment of the contact areas. Now, the child has to begin flossing to ensure that the proximal surfaces are kept clean. According to an article published by the New York State Department of Health, tooth decay is the most common chronic disease among young children today. Tooth decay is five times more common in children than asthma and 20 times more common in children than diabetes. 44% of children have tooth decay by the third grade and 80% experience tooth decay by the end of highschool in New York State (NYS) alone.³

Although tooth decay and other oral diseases are preventable, not everyone benefits from these preventable measures. For instance, some poor individuals and communities do not have access to secure dental homes. Even more, only 40% of third graders in NYS have dental sealants, which are applied to the occlusal surfaces of teeth to prevent dental caries.³ Many of these children also have poor oral health because few dentists are willing to treat those who have medicaid. A lot of children also lack knowledge about the importance of oral health. These children need to understand the correlation between oral health and overall health.

Ensuring and promoting oral health among young children begins with the parents and guardians, as well as dentists, dental hygienists and other healthcare professionals.⁴ Parents and guardians should emphasize the importance of oral health by brushing their child's teeth with fluoridated toothpaste twice daily. This healthy behavior is most likely going to continue into adulthood, as well as promoting other things like healthy eating, and going to the dentist for regular dental checkups every six months. Dentists and dental hygienists can also educate parents and care-givers about the importance of oral health, as well as provide preventative services like dental sealants and fluoride varnish application. Education providers can also educate children in

school about the importance of oral health and overall health care by offering children healthy foods for lunch and snack, and teaching them to practice good oral hygiene. ⁴ With this said, our targeted population of third grade children need further education and promotion of oral health care and proper nutrition.

Planning: Develop specific goals and measurable objectives to meet the oral health needs of the target population. Based on the assessment findings, what type of health promotion/education program do you need to develop? How will you develop your program, including alternatives?

A lot of children, especially those from low-income families, rely a lot on school for their breakfast and lunch. Based on the assessment findings, the majority of children are eating chips and other unhealthy snacks on a daily basis. Children are in school five days a week, if we can replace their unhealthy snacks for healthy ones, I believe that there will be a reduction in oral caries as well as obesity. Schools need to start teaching students about the importance of a healthy diet at a young age rather than waiting until highschool or even college; I did not take a nutrition class until college and at that point I had grown accustomed to unhealthy eating habits which will be difficult to change. The goal of educating children about nutritious meals will help reduce childhood obesity, and at the same time, increase oral health. Educating children at a young age will help them know what a healthy meal looks like, they will take the information they learned home, and with the help of their parents, have nutritious meals as well.

With this said, our primary goals focus on educating the third grade children to prevent the occurrence of oral health conditions like dental caries and health conditions like obesity, in those that have not acquired them and in preventing the progression in those that already have presented with them. We want to focus on the importance of proper oral hygiene involving brushing, flossing and rinsing, as well as the importance of nutrition. We want to be able to measure the difference in this population's knowledge of oral hygiene and nutrition both before

and after our education program. We will develop the program using brochures and our poster board as visual aids for our population to learn the importance of oral hygiene and the proper techniques and steps to take when brushing, rinsing and flossing. Also these visual aids will stress the importance of nutrition and how unhealthy eating habits can lead to severe health complications like obesity and even diabetes. To ensure that the third graders are paying attention, we have a mouth model with a toothbrush as a hands on activity for the third grade children to learn the proper way of brushing their teeth. We will also give them an activity where they separate the healthy snacks from the unhealthy snacks. Our primary program goal was to educate the third graders on proper oral hygiene methods as well as educating them on nutrition. Our measurable objective for the population we worked with consisted of their level of knowledge in regards to oral hygiene and nutrition. This was evaluated before and after the education program when we discussed and asked questions to the children to help distinguish where their level of knowledge was about the proposed topics. This education program was chosen based on the oral health status of most third graders today.

An alternative to educating students would be to change school breakfasts and lunches to a more nutritious option; even swapping vending machine snacks for healthier ones. I have seen vending machines that sold fruits and vegetables. School breakfasts and lunches should be well-balanced and contain low-fat foods and drinks. Students should also only be allowed to drink water or low-fat milk in school. Juices are high in sugar and have little to no nutritious benefits. Removing sugary beverages will also aid in decreasing childhood caries. A majority of caries in children comes from the consumption of sugary beverages. Even more, gym teachers at the school should incorporate nutrition lessons at least twice a month as well as educate the children about oral hygiene. This way the children are learning the importance of both nutrition and oral

hygiene at home and at school. This will ensure that the children will be more knowledgeable about these topics and hopefully continue to implement what they learned in elementary school as they get older.

Implementation: How will the goals and objectives be met? What materials, activities and/or methods will be or can be used to accomplish the goals and objectives? What tools do you need (i.e. pamphlets; brochures; video; audio)? Where and how do you present your program?

Implementation is a crucial part in achieving the goals we have set forth. The way in which we bring this knowledge to light will impact how successful we are. Implementation must be simple enough for the target population to understand, convincing for them to improve their eating habits and it must be cost effective. We will present our program to a class of third graders in an elementary school in Brooklyn. The way we can get and keep a third grader's attention is to incorporate educational videos and games in our presentation. We will start off with teaching the students about cavities, what causes them, how to prevent them with good oral hygiene, as well as nutrition and how it plays a role in keeping not only them but their teeth healthy. We can show a video on how to brush teeth correctly, demonstrate on our typodonts how to brush and floss and pass them around the classroom. Playing games will also keep the children entertained while still teaching them. We can play a game that involves the kids naming healthy and unhealthy foods. Doing the presentations in this way will ensure that the students are not losing focus and are more likely to remember what is taught because it is interactive and they are having fun. We can send the children home with educational pamphlets for their parents to make sure they are informed. Children often emulate their parents, so it is important that the parents know how to practice good oral hygiene, are educated on what causes caries and they themselves have a proper nutritional diet. The pamphlet will list foods that are healthy and foods that should be limited. They will also show the statistics of childhood obesity and diabetes due to poor diet and

their correlation to the increase of dental caries. Doing this will increase the likelihood that the parents are feeding their kids a balanced diet that will in the long run decrease their risk of obesity and caries. The parents must also understand the importance of taking their children to the dentist for examination every six months and to have sealants placed. Child obesity and dental caries go hand in hand. We hope to have made a footprint in these children's health and in their smiles.

Evaluation: What available tools for program and project evaluation will you need? (i.e. surveys; tests; pre and post evaluations) How to measure effectiveness? How will the group conduct the re-evaluation of goals and measurable objectives? Did the program accomplish what was initially planned? If not, how to address the issues that arose?

The tools needed for this particular education program were tools that are measurable. These tools include surveys, and evaluations of both pre and post presentation. As previously stated, our audience, upon being asked about the nutritional value of food and beverages, as well as their knowledge of oral hygiene, showed very little knowledge of what was considered healthy versus what was considered unhealthy. One question that was asked was: Is drinking five cups of apple juice per day healthy? Five third grade children responded that yes it is healthy because it is apple juice. Another question was: How many times a day do you brush your teeth and for how long. One child stated that he brushes his teeth for a few seconds once a day and another child responded that she brushes her teeth for one minute twice a day. Also when asked if they use any form of interdental aid, everyone responded that they do not floss or even rinse after they brush their teeth. The questions that were asked to the third grade children gave us, health care providers, an idea on how limited knowledge these children have on both oral hygiene and nutrition. The effectiveness of our program is not just based on immediate numerical results, but on the retention of new and valuable information which will hopefully be brought home, presented and continuously implemented by parents and the children.

Though our presentation brought about immediate results, we hope that the long term effectiveness, one which we can not measure, will be as successful. At the end of our presentation, we provided the students with a re-evaluation which consisted of the same questions asked at the beginning of our education program and we are proud to say that a 100% success rate was achieved. All students were now able to identify which snacks were healthy and cavity friendly versus which were not. They were also able to answer the questions regarding oral hygiene. It is our goal that the pamphlet provided to the students will reach the homes and the hearts of their families and that a healthier lifestyle is followed as a result.

Conclusion

It is the role of the dental hygienist not only to clean patients' teeth but to also address other issues that the patient may have including the health effects of obesity. Dental hygienists must include a health care plan specific for each and every patient. Today, obesity is a huge issue and it can start from a very young age. Obesity can negatively affect a child's oral health and may lead to increased risk and occurrence of caries or even edentulism. Addressing obesity and healthy lifestyle changes including nutritious diets is crucial as a dental hygienist. With the help of hygienists, kids can make healthy lifestyle changes like eating healthier and getting more exercise. As stated previously, there is in fact a strong correlation between periodontal disease and obesity. Dental hygienists can motivate their patients to take better care of their teeth and motivate them to eat healthier foods. Children eat unhealthy snacks the majority of the time and do not take proper care of their teeth. However, with the help of the dental hygienists, we can change that and help the young children start taking care of themselves at an early age. Sometimes the child may not know that they have to brush their teeth twice a day for two

minutes as well as floss and rinse. This was proven in our education program when we asked the children how long they brush their teeth, how many times a day and if they floss and rinse. It is our duty and responsibility as health care providers to help educate both the child and adult during every hygiene appointment. Educating children and parents about healthy nutritious diets will help decrease obesity and increase oral health. Dental hygienists can help prevent and reduce dental decay, gingivitis, erosion, etc. by educating children and adults about oral hygiene instruction and healthy lifestyle changes. Motivation is key to optimal oral health for the patient, and we, as hygienists, can help our patients in this way. After interviewing the target population, there has proven to be a great lack of knowledge as to what a healthy diet is and a lack of awareness of how to properly take care of one's teeth. As dental hygienists we choose to educate the target population in these areas.

References:

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2. Geethapriya PR, Asokan S, Kandaswamy D. Comparison of Oral Health Status and Knowledge on Oral Health in Two Age Groups of Schoolchildren: A Cross-sectional Study. *Int J Clin Pediatr Dent*. 2017;10(4):340–345. doi:10.5005/jp-journals-10005-1462
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Participation Form 2019

Your Name: Sylvia Gines

Name of the Site: Public School 164 Caesar Rodney School

Address of the Site: 4211 14th Ave, Brooklyn, NY 11219

Date of Visit: March 9, 2020

Group Members: Huda Abuzahrieh, Rawan Abuzahrieh, Milana Vilotijevic, Sylvia Gines, Michelle Ramirez, Diana Shimonov

Your Responsibilities:

Written Report: Introduction

Oral Presentation: Slides 22-33

Your Name: Rawan Abuzahrieh

Name of the Site: Public School 164 Caesar Rodney School

Address of the Site: 4211 14th Ave, Brooklyn, NY 11219

Date of Visit: March 9, 2020

Group Members: Huda Abuzahrieh, Rawan Abuzahrieh, Milana Vilotije vic, Sylvia Gines, Michelle Ramirez, Diana Shimonov

Your Responsibilities:

Written Report: Assessment and proof-read the essay

Oral Presentation: Slides 7-8, & 10

Your Name: Huda Abuzahrieh

Name of the Site: Public School 164 Caesar Rodney School

Address of the Site: 4211 14th Ave, Brooklyn, NY 11219

Date of Visit: March 9, 2020

Group Members: Huda Abuzahrieh, Rawan Abuzahrieh, Milana Vilotije vic, Sylvia Gines, Michelle Ramirez, Diana Shimonov

Your Responsibilities:

Written Report: Planning

Oral Presentation: Slide 9, Organized entire powerpoint including the images, & worksheets

Your Name: Diana Shimanov

Name of the Site: Public School 164 Caesar Rodney School

Address of the Site: 4211 14th Ave, Brooklyn, NY 11219

Date of Visit: March 9, 2020

Group Members: Huda Abuzahrieh, Rawan Abuzahrieh, Milana Vilotije vic, Sylvia Gines, Michelle Ramirez, Diana Shimanov

Your Responsibilities:**Written Report:** Implementation**Oral Presentation:** Slides 3-6**Your Name:** Michelle Ramirez**Name of the Site:** Public School 164 Caesar Rodney School**Address of the Site:** 4211 14th Ave, Brooklyn, NY 11219**Date of Visit:** March 9, 2020**Group Members:** Huda Abuzahrieh, Rawan Abuzahrieh, Milana Vilotijevic, Sylvia Gines, Michelle Ramirez, Diana Shimonov**Your Responsibilities:****Written Report:** Evaluation**Oral Presentation:** Slides 14-21**Your Name:** Milana Vilotijevic**Name of the Site:** Public School 164 Caesar Rodney School**Address of the Site:** 4211 14th Ave, Brooklyn, NY 11219**Date of Visit:** March 9, 2020**Group Members:** Huda Abuzahrieh, Rawan Abuzahrieh, Milana Vilotijevic, Sylvia Gines, Michelle Ramirez, Diana Shimonov**Your Responsibilities:****Written Report:** Conclusion**Oral Presentation:** Slides 11-13

