“Oral Health is A Mirror to General Health”

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**Introduction**

Education of oral health care in the elderly people is often underappreciated, health care educators usually neglect this group of people especially oral health care educators. They focus more on education and prevention of elementary school children and teenages. In fact, there are a couple of systemic diseases that are related to the oral diseases, such as diabetes and cardiovascular disease are related to the periodontal disease, and HPV is related to the oral cancers and respiratory diseases are related to oral bacteria in elderly people. Diabetes is strongly related to the periodontal disease, diabetes change blood vessels become thickening which lower the ability of the blood vessels carrying nutrients to the oral tissues. Diabetes affects the ability of the white blood cells to fight infection. Diabetes also causes dry mouth which increases the oral cavity. Study has shown that individuals with type 2 diabetes in some oral conditions exhibited poorer health and a more comprehensive need for certain oral prevention and treatments than did their age- and gender-matched controls without diabetes.1

Poor oral hygiene and combination with systemic disease will affect oral health, and oral health impacts the overall health. Initial caries treated in early stages will reduce the bacteria multiply and into the system cause respiratory disease and infection. Mild periodontitis is preventable if patients maintain good oral hygiene, periodontitis treat in the early stages can prevent the tooth loss. Regular oral cancer screening can detect oral cancer in the early stage.

Residents of nursing homes are the biggest group of elderly people in the US. According to the researches, Older adults have poorer oral health care than other age groups and have the lowest rates of receiving dental care compared with all other segments of the US population.2 Registered nurse and nursing assistant are long-term staff in the nursing home. Compared to dental hygienists, the nurse and nursing assistant have less knowledge of oral health care. Basic oral health knowledge and further training in oral hygiene procedures among nursing staff have shown good results in oral care in the nursing home.3 Our oral healthcare education program aims at nursing staff and residents of nursing homes both.

**Assessment**

 For the Service Learning Project, the key target population is elderly people who live in nursing homes. This group of people have severe systemic diseases, such as diabetes, hypertension, cardiovascular disease, Alzheimer’s disease, and incidents of cancer are also higher than younger people. Due to those chronic diseases related to oral health, our focus was on assessing periodontal status and oral cancer screening. The target group is Rego Park Health Care, they have 200 bed total and 140 bed residents.

Residents of Rego Park Health Care have some particularity, including no ability to self-care, speak and walk, fully in bed and Alzheimer’s so the assessment method should be simple and effective. We only targeted 80 residents, excluding the fully in bed and no ability to self-care. Our Examinations and inspections(screenings with follow-up referrals) is the method we select for assessment, screening with tongue depressor and available illumination is the least expensive but effective one. Nursing assistants can help dental hygienists perform in the resident’s own room with a flashlight, and cotton rolls can be used for drying the focusing area. Oral cancer screening and Gingival Index(GI), also follow oral health instruction. Toothpick replaced periodontal probe and 6 teeth including:3,7,12,19,23 and 28.

**Planning**

Our plan was divided into three parts. First of all, we educated both nursing assistants and geriatrics to have a better understanding of how our oral health and systemic health connects to each other, this lecture cost around 10 minutes. Secondly, we demonstrated the daily oral care routine to both nursing assistants and geriatrics, this would cost less than 5 minutes. At the end, we provided type IV, the least expensive examinations and inspections in the cafeteria after lunch time, and we had 3 minutes to provide the screening to every elderly person. Our main goal is to educate the elderly the importance of oral health, and in addition to improve their systemic health. To do that we will provide handbooks with simple pictures and words for daily oral care routine to the nursing assistants, so that they can remind the elderly to follow the instructions daily.

 Periodontal disease has a significant impact on general health and systemic diseases. Periodontal disease of elderly patients is often interlaced with systemic diseases, which makes the condition more complex and increases the difficulty of diagnosis and treatment. For example, periodontitis and diabetes can interact with each other. If inflammation escalates, bacterial toxins increase, and diabetes worsens. Periodontal disease may also be an independent risk factor for cardiovascular disease. There is also a strong link between oral health and pneumonia because of the risk of inhaling airborne pathogens in the lungs after tooth defects. In addition, tooth loss or serious caries, will affect the masticatory function, and Alzheimer’s disease is also associated with periodontal disease. Therefore, the elderly should pay attention to oral health care.

The measurable objective of “Rego Park Health Care” was that at least 50% of the elderly will follow the oral care routine. We divided them into two groups, one was a denture group, the other one was a non-denture group. For a denture group, we demonstrated for them the appropriate way to clean the dentures and remaining teeth. For the non-denture group, we demonstrated a simple oral care routine, which was flossing, brushing, oral rinsing. At the end of the presentation, we gave each of them a goodie bag with toothbrush, floss (Fixodent and Efferdent for the denture group), toothpaste, and oral rinse. The last part was oral screening; we used tongue depressors, flashlights, cotton roll to dry up the exam areas, and toothpicks to check the bleeding points. We documented the bleeding points, and referrals were given if needed.

**Implementation**

 We first introduced ourselves and the reason we were there. We also asked them some questions, for example “who has diabetes?” “Do you know the oral health is connected to your systemic health?” “Do you know that if your oral health improves, your systemic health will improve as well?” After asking these questions, we started our lecture on the importance of oral health and why dental health promotes overall health. We talked about cardiovascular disease, diabetes, and pneumonia, and how these diseases affect our oral health, in addition the connection between oral health and these systemic diseases. We also talked about the main root of the dental diseases and the processes of healthy gums and teeth to advanced periodontitis. We noticed that people who were diabetics were more motivated and interested in the lecture. After the lecture, we demonstrated the appropriate oral care routine with a tell-show-do method. We asked the nursing assistants to help us walk around the audience to see if they need any help or adjustments. At the end, we did the oral screening for all of them. When they finished the oral screening, we gave them a goody bag. After we finished the oral screening, we gave each nursing assistant two mini handbooks. One was for the denture group, the other one was for the non-denture group. They all seemed to enjoy the presentation and were happy to receive the goodie bags.

**Evaluation**

 Our group revisited the “Rego Park Health Care” after two weeks for re-evaluation. One to one interview survey was performed on each patient who participated followed by post evaluation to collect data and their responses. Post-evaluation was performed within the similar methods as pre-evaluation. Tongue depressors, toothpicks, and flashlights were mainly used for assessment.

Each member of our group did intra intra-oral examination on all 80 participants to see if there have been any improvements or if there is any evidence that can differentiate a condition compared to the initial evaluation. Two of us worked on a non-denture group and one of us worked on a denture group. Nursing assistants helped escort patients and helped us to record any findings related to the periodontal pocket bleeding point upon using the toothpick.

 We chose and performed one to one interview for the survey because all participants were geriatrics and had difficulties in reading questions and writing their responses for individual thoughts. Our group members asked each question verbally and the answers from all participants were recorded by nursing assistants. The questionnaire was mainly focused on their ability to follow instructions that were taught to maintain good oral hygiene as well as their willingness to continue in the future, their understanding of the link in between oral health and systemic disease such as diabetes or cardiovascular disease, the factors that can negatively affect to the oral health, and how they feel after our lesson on the importance of maintaining healthy oral hygiene as well as the correlation between oral health and overall health throughout the whole body.

 The result has proven that out of 80 geriatric participants, 63 participants were able to follow oral hygiene instructions including brushing technique, flossing, and denture care by themselves or with nursing assistant’s help, 57 participants have experienced improvement on their oral health, 42 participants understood the correlation between oral health and body health, and 60 participants showed positive response to follow our lesson on the importance of oral health and interest in dental care.

 However, 17 participants answered they had difficulties following the oral hygiene care and responded no interest in getting education on the correlation between oral health and systemic diseases and were not willing to follow the instructions to maintain good oral hygiene since they have not experienced any improvement. 6 out of 9 patients who received referrals had been seen by a dentist, and the other 3 patients were also able to make an appointment with a dentist with getting helped by a nurse or nursing assistant at the nursing home. The program accomplished our initial plan which was to get at least 50% to follow our lesson as 60 participants had shown their positive attitude toward our lesson.

**Conclusion**

 The Service-Learning Project was a very invaluable experience to all of us. We could have indirectly experienced the achievement as a dental hygienist as we had performed designed assessment, planning, implementation, and evaluation which demonstrated the result of improvement on each patient’s oral health. It was very pleasurable to see their motivated and positive attitude to follow the instructions that we had taught them to maintain good oral hygiene. All participants were cooperating with our lesson. Especially, we successfully achieved a measurable objective which was at least 50% geriatrics to follow our lesson and motivated us to give our skills, knowledge, and education to improve people’s oral health and their quality of life.

 It was also a great experience to share our knowledge and work with nurses and nursing assistants. As the geriatrics maintain good oral health which includes maintaining good oral hygiene, reducing bacteria in the mouth that can cause systemic diseases, improving mastication function by getting restoration or using dentures properly, and regularly visiting dental offices will improve their overall health and quality of life as well.

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