The Effects Of Cigarette Smoking On Oral Health

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March 26, 2021

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It began in the early 19th century. Previously used only in pipes, cigars, snuff, and by chewing, tobacco was introduced in the United States in a form of a cigarette (2000 Surgeon General's Report Highlights: Tobacco Timeline, 2019). Two centuries later, it is the deadliest substance voluntarily consumed by millions of people in the world. I decided to dedicate my paper to cigarettes because I have encountered them in my life the most. I have come from Belarus, where cigars, water pipes, or electronic cigarettes were not common during my childhood. So, as a child, I have observed people smoking traditional cigarettes. In this paper, I will discuss the impact of cigarette smoking on oral health, explain the significance of providing smoking counseling during dental hygiene visits, and propose the possible scenarios of the conversation between an HCP and the patients.

To begin with, let's discuss what is the cigarette and the working mechanism behind it. The cigarette is composed of a tobacco blend and is rolled into a thin paper of cylindrical form for smoking (Wikipedia Contributors, 2019). Some cigarettes have a filter, while the other ones do not. Filters do not make cigarettes safer, as people tend to believe (Wikipedia Contributors, 2019). The cigarette is ignited at the tip, and the smoke is inhaled at the butt or filtered side. The main ingredient of the cigarette is nicotine (American Thoracic Society). It is the ingredient that makes cigarettes highly addictive. Upon inhalation, nicotine reaches the brain in six to ten seconds and stimulates the adrenal glands to release epinephrine (adrenaline)(American Thoracic Society). Epinephrine increases heart rate, blood pressure, and respiration, resulting in a sharper reaction and increased attention (American Thoracic Society). However, this effect is temporary and followed by nicotine withdrawal symptoms such as anxiety, irritability, depression, and difficulty feeling pleasure or concentrating (American Thoracic Society). Thus, the person smokes again to repeat the desired outcomes of smoking. It is the beginning of the vicious circle of the smoking habit.

Unfortunately, nicotine is not the only harmful component of the tobacco blend. Manufacturers use hundreds of different additives to enhance the flavor and absorption rate of nicotine (Smoking & Tobacco Use, 2020). The final tobacco smoke contains more than 7,000 chemicals, with at least 70 are known to cause cancer (Smoking & Tobacco Use, 2020). According to the Center for Disease Control (2020), some of "the chemicals are lead, ammonia, carbon monoxide, formaldehyde, arsenic, cadmium, benzene, polonium 210, butane, and many more." Generally, these chemicals are used for industrial purposes, such as the production of gasoline, paint, household cleaners, pesticides, and chemical weapons.

Nowadays, cigarette smoking is well-known to damage the systemic health of the individual. It is a risk factor for cancer, chronic obstructive pulmonary disease, lung diseases, heart diseases, decreased immune system, and other serious conditions (Gehrig & Willmann, 2013). Sadly, it causes harm to oral health too. The healthy oral cavity is inhibited with oral microbiota that begins after birth and lasts a lifetime (Ilankizhai & Leelavathi, 2018). There are ongoing interactions between these oral microbes and the host's immune system (Ilankizhai & Leelavathi, 2018). Microbial community imbalances decrease the immune system and increase the

susceptibility of the underlying tissues to the disease (Ilankizhai & Leelavathi, 2018). A cross-sectional study was conducted on a randomly selected sample of 20 adults 18-65 years old (Ilankizhai & Leelavathi, 2018). Subjects were divided into smokers and nonsmokers. A swab from the buccal mucosa was collected, and microbial analysis was performed. Ilankizhai & Leelavathi's (2018) study found the following:

> More microbes were recovered from the oral cavity of smokers than non-smokers. Staphylococcus and Bacillus species were the most prevalent bacterial isolate followed by Enterococcus and Micrococcus species among smokers, while Streptococcus was the most prevalent isolates among non-smokers followed by Enterococcus and Bacillus species. Candida species were found in only two of the test samples. (p. 2671)

The study proved that smoking does affect the number of oral microbes on the buccal mucosa. Further research with the increased sample size is imperative to collect more data on this subject (Ilankizhai & Leelavathi, 2018).

Smoking is a significant risk factor for the development of periodontal diseases. The paper "Periodontal disease and smoking: An overview" by Shah et al. (2016) discusses the impact of smoking on the periodontium. As was previously mentioned, nicotine stimulates the release of epinephrine, which exhibits the effect of fight or flight response. It constricts the blood vessels, thus reducing the blood flow to the gingiva (Shah et al., 2016). The reduction of blood supply consequently diminishes the diffusion of oxygen and nutrients to the tissue, decreases the healing processes, and increases the risk of sepsis (Shah et al., 2016). According to Shah et al. (2016), the changes in the periodontal tissue are paler tissue color, oxygen depletion, compromised immune response, gingival recession, increased inflammation, bleeding on probing, greater probing depth, bone and attachment loss, and impaired wound healing (p. 101). In addition to the previously mentioned study on the change in oral microflora, Shah et al. (2016) also suggested that "smoking creates a favorable environment for bacteria in the mouth like Porphyromonas gingivalis, Prevotella intermedia, and Aggregatibacter actinomycetemcomitans " (p. 99).

Petrovic et al. (2013) also conducted the study to evaluate the gingival changes in smokers and non-smokers and motivate health promotion. The data was gathered by performing and comparing the plaque index (PI), gingival index Löe-Silness (Gi), and the community periodontal index of treatment needs (CIPTN)(Petrovic et al., 2013). The sample consisted of 90 participants: 45 were men and 45 women. They were divided into group I-smokers, and group II-non-smokers. In every parameter, the results of smokers were higher than the results of non-smokers (Petrovic et al., 2013). A highly significant difference was identified in the Plaque Index (Petrovic et al., 2013). Furthermore, according to the researchers, the higher score of the amount of dental plaque among smokers was due to the low level of oral hygiene. Smoking produces dental deposits on the tooth surfaces, which makes it uneven, thus tooth surfaces become more susceptible to plaque adherence (Petrovic et al., 2013).

The research shows that smoking predisposes individuals to the development of periodontal diseases. So, every dental hygienist must provide smoking counseling to the patient during each dental hygiene visit. We can find a question about smoking in every medical health history. Often

smokers may not have a complete understanding of how harmful smoking can be to their oral health. They do not see immediate damage and believe that everything is fine. The fact is that the damage to the body from smoking does not happen overnight. It depends on the years of smoking, the number of cigarettes, and the current state of the individual's health (Gehrig & Willmann, 2013). The good news is that some of the damage to the lungs is reversible, so it is never too late to quit smoking (Gehrig & Willmann, 2013). Therefore, it is essential to assess the smoking status of the patient and assist with the smoking cessation program.

Now, let's consider two possible scenarios of smoking counseling with the patients. In the first case, the patient is a teenager who just started to smoke 2 months ago. There are several reasons why teenagers begin to smoke. It can be a rebel, to be considered cool, or simply to try new things. It can be challenging, because teenagers do not want to listen to anybody. The best way to approach the teenager is to treat him or her as a grownup. Saying that it causes CAD and COPD does not work, as they do not know what it is, and the future where they are old seems so far away. Since nicotine addiction is not developed yet, it is best to help the patient realize that smoking does not make him or her cool. The decision of quitting has to come from the teenager to be effective. To accomplish this, I would propose the patients write down what they truly have gained from smoking. This exercise can help to look at cigarette smoking from a different perspective.

In the second scenario, the patient is a 30-year-old adult who has been smoking for 12 years. This case is harder as adult patients with a 10-year history of smoking are already addicted to nicotine. First of all, I would determine if the patient wants to quit smoking. If the patient says yes, I would refer him or her to the support center where qualified counselors, who are often former smokers, will guide patients on this difficult journey. If the patient says no, I would advise quitting and provide thorough information on the detrimental damage of smoking. I would explain the damage that it causes to systemic and oral health, show images comparing healthy and unhealthy gingiva, and propose reaching out to 1-800-quit now line.

In conclusion, I believe that people smoke not only because of addiction, habit, or pleasure. The important reason for smoking is that it gives people a false sense of security and helps to cope with their troubles with the help of the cigarette. It is crucial to reach out for help because smoking harms not only the smoker, but surrounding people, animals, and the environment as well.

1. When reflecting on how I would handle the conversation with these fictionary patients I tried to look at the smoking cessation from a different perspective. I used to think like a regular person, now I have tried to think as a dental professional who is competent to contribute to someone's health. This assignment gave me a glimpse of the real-life situation in a day of the dental hygienist.
2. I find this assignment extremely beneficial. Educating the patients will be an important part of my future role as a dental hygienist. However, in order to provide proper and accurate information I need to have a good insight into the subject myself. After doing

my research and completing this assignment I certainly gained more knowledge, I feel more confident and prepared to educate the patients on the benefits of tobacco cessation.

3. I have a friend who is 35 years old and smokes for 15 years. I did try to implement different approaches covered in the book to help her to quit smoking. My thought on her case is that she is holding on to smoking for two reasons. The first one, she smokes to reduce stress, and the second is that she is scared to gain weight. I will keep on trying to register her for counseling as she is highly addicted and will not be able to quit on her own. If I succeed, it will be my accomplishment on the path of becoming a dental hygienist.
4. I do feel more comfortable to have a conversation with the future patient about smoking cessation. Truth be told, most people do not take the harm from smoking seriously. Often smokers may not have a complete understanding of how harmful smoking can be to their oral health. As a future dental professional, I will be responsible to make sure they are fully aware of the risks of smoking. I understand that it is not that easy, and probably most patients will refuse to quit. But even if I can help only one person, it is already an achievement.

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