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Section OL10
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Smoking cessation counseling - electronic cigarettes

Part 1: Literature review

Briggs, K., Bell, C., & Breik, O. (2021). What should every dental health professional know about electronic cigarettes? *Australian Dental Journal*.
<https://doi.org/10.1111/adj.12818>

Natto, Z. (2020). Dental Students' Knowledge and Attitudes About Electronic Cigarettes: A Cross-Sectional Study at One Saudi University. *Journal of Dental Education*, 84.(1), 27–33. <https://doi.org/10.21815/JDE.019.162>

Tomar, S., Fox, C., & Connolly, G. (2015). Electronic cigarettes: The tobacco industry's latest threat to oral health? *The Journal of the American Dental Association*, 146.(9), 651–653. <https://doi.org/10.1016/j.adaj.2015.07.002>

Part 2: Essay

Tobacco has been part of human culture for ages. Maya people in South America have a history of smoking and using tobacco for sacred and religious rituals around the first century BC. In North America, “shamans” used it for their ceremonies and also as a medicine for diseases like asthma, earaches, bowel problems, fever, sore eyes, depression, insect bites, burns, etc. After that, tobacco has been present and widely used across the world. Nowadays there are many tobacco products that are being consumed; one of the most recent tobacco products is the electronic cigarette (E-cigarettes). These are battery-powered electronic devices which heat liquid (E-liquid) and produce an aerosol inhaled by users. Since patented internationally in 2007 the use of electronic cigarettes is popular among conventional tobacco smokers as a cessation tool, pregnant women and young people due to the marketing as a healthier, safer and more socially acceptable alternative to other tobacco products. Natto’s (2020) article state that:

“In the U.S., for example, there was a sixfold increase in the number of people who reported ever using e-cigarettes (past and/or present) from 2010 to 2013, and the number of current users more than doubled in those years. Of particular concern is use by young people, which has increased sharply. In 2018, 3.63 million middle and high school students were current users, and the prevalence was between 11.7% and 20.8% for high school students (a 78% increase from 2011) and between 3.3 and 4.9% for middle school students (a 48% increase from 2011).” (p.27)

There are many companies that manufacture this product, in general all often contain ingredients such as propylene glycol, glycerol, ethylene glycol and polyethylene glycol mixed with concentrated flavours, and optionally, a variable percentage of nicotine. Besides the main ingredients, “a number of other organic substances can be found in liquid formulated products and/or the vapour phase produced by an e-cigarette unit. These include tobacco specific nitrosoamines (TSNA)...or tobacco-specific impurities such as cotinine, anabasine and myosmine.” (Hahn et al., 2014, p.2) Some of these ingredients even though similar to the ones in a conventional cigarette are found in lesser quantities. One of the concerns is regarding the different manufacturers and the scarce regulations of this product around the world. Some studies have found inconsistency in the amount of nicotine and the labelling of them. E-cigarettes that are labelled as nicotine free may contain the substance, on the other hand some of them did not contain nicotine regardless of being labelled as containing a percentage of the substance.

E-cigarettes are a tobacco product that raise concern in me because in the past years it has become certainly accepted but we do not have an extensive period of time consuming it to understand what are the real consequences of its use and the effect on the systemic and oral health is largely unknown. “A number of global tobacco control researchers have stated that e-cigarettes are less harmful than combusted tobacco; however, the impact of e-cigarettes on public health is unclear. This presents specific challenges as jurisdictions determine how to regulate these products.” (Kennedy et al., 2017, p.1) Just in 2016 the FDA finalized a rule extending CTP’s (Center for Tobacco Products) regulatory authority to cover all tobacco products, including electronic cigarettes; meaning that since launched into market in 2007 until 2016 there was little or no regulation over the sell and use of these electronic nicotine delivery systems (ENDS)

because there was no concrete evidence if it poses a threat to the health of their consumers.

Even though it has been stated that electronic cigarettes are less harmful than conventional cigarettes, they still can have a negative impact on our oral and systemic health. According to Mathur (2018), "Public Health England has stated that e-cigarettes are '95% safer' than conventional cigarettes, given the reduction in carcinogen load." (p.349), but it is important to know there is still a possible harm associated with them. Many studies have stated that a variety of effects were seen on the mouth and throat of E-cigarette consumers. The article "What should every dental health professional know about electronic cigarettes?" in the Australian Dental Journal written by Kathryn Briggs states some of the health consequences of the consumption of electronic cigarettes. The author explains that dental patients commonly reported symptoms like dryness, burning, irritation, bad taste, bad breath, pain, oral mucosal lesions, black tongue and burns. Also Briggs's (2021) article explains the following:

"specific impacts relating to E-cigarette flavours were noted. Menthol and cinnamon were associated with higher levels of mouth irritation, and throat symptoms were greater with citrus, sour, cola and custard. Nicotine increases short-term blood flow to mucosal tissues, with the suggestion that menthol might act to mask airway irritation likely caused by high nicotine levels." (p.4)

Signifying that manufacturers may use menthol flavor on E-liquids to disguise irritation created by high levels of nicotine contained in that specific liquid.

Additionally, throat symptoms have been detected in E-cigarette users, like tonsillitis, tonsilloliths, uvulitis, para-tracheal oedema and laryngitis. Other common manifestations are throbbing, itching, numbness, throat clearing, choking sensation, lump in throat sensation, difficulty swallowing, burnt sensation, tenderness and hoarseness. Also has been found to have an effect on periodontal health. In 2018 a study noticed that E-cigarette users had increased plaque index, probing depths, bone loss, volume of gingival crevicular fluid and localized inflammatory markers, common symptoms equally observed in conventional smokers. Other symptoms seen are caries, tooth discoloration, hypersensitivity, abscess or infection, tooth loss, alveolar osteitis, etc. The WHO identified heated propylene glycol, one of the main ingredients of E-liquid, to be carcinogenic. The temperatures of the aerosols in e-cigarettes varies from 130 to 350 °C, the high temperatures can cause oxidative stress and have been associated with pre-cancerous nicotine stomatitis.

All the symptoms stated before are similar to the ones a conventional smoker can have the difference is e-cigarette smokers present them less severely. Despite the possibility of being harmful for health, E-cigarettes are a useful tool for smoking cessation. Studies have shown that "smokers who switch to solely vaping would be expected to reduce their cancer risk, as they limit exposure to >70 known carcinogens in conventional tobacco smoke. The cancer potency of e-cigarettes has been estimated to be <0.5% than that of smoking tobacco." (Mathur et al., 2018, p.349). Also would have decreased rate caries, bone loss, abscesses, hypersensitivity, less percentage of presenting periodontal disease, or mouth and throat manifestations. As a result, as a smoking cessation tool E-cigarettes might potentially be effective if they are combined with a structured quit smoking plan. This requires combining the use of E-cigarettes with other behavioural therapies and counselling.

The most important issue with this tobacco product is the increased use of it by young people. As expressed before, in 2018 3.63 million middle and high school students were consuming electronic cigarettes. This increase can be as a result of the marketing that electronic cigarettes are healthier than conventional tobacco products and are more socially accepted around the world. Besides all the health risk that this product entails there is also the danger of addiction to the nicotine of the E-liquids and also to the act of smoking. For young non-smokers an electronic cigarette can be the “starter” product to the world of tobacco. “The ‘gateway hypothesis’ suggests that young people become sequentially involved in drugs in stages. There has been some concern about the potential of e-cigarettes to act as a gateway into young people smoking.”(Mathur et al., 2018, p.349). They can start consuming a more socially accepted tobacco product and exposing themselves to that cultural act and then have more exposure to try other types of tobacco products.

Dental hygienists as a primary health provider and an accessible healthcare professional have the ideal position to provide patients a tobacco cessation service. There has been evidence that after patients are exposed to smoking counseling have better chances of quitting smoking. Dental hygienists have the duty to explain to their patients the effects of smoking on their oral and overall health. “Smoking may be responsible for more than half of the cases of periodontal disease among adults in this country. Tobacco use is therefore one of the most significant risk factors in the development and progression and successful treatment of periodontitis.”(Gehrig, 2018, p.625). As said previously, electronic cigarettes can cause similar conditions on the patient's mouth and should be addressed to the patient in the same way as a conventional smoking, although long-term research is not yet available for healthcare providers. For example, a dental hygienist can explain to a 30 year old patient who has been smoking for the past 12 years the oral findings of the smoking this patient is presenting, that can be from periodontal disease to bone and tooth loss to oral cancer. Then explain that quitting smoking can help improve the oral health significantly. One recommendation to this patient could be the use of E-cigarettes as an aid of smoking cessation; e-cigarettes are still harmful but in less amount than conventional cigarettes. With the use of e-cigarettes and counseling from a professional in the field can be a good method to help that patient. On the other hand, a teenager who just started smoking in the past 2 months does not have oral manifestation of smoking because it has been a short period of time, nevertheless a dental hygienist should educate the patient explaining the effects of smoking and using resources to convey the point. Also ask if the patient is willing to quit and if the answer is yes, refer to a specialist for further help.

In conclusion, currently electronic cigarettes are popular among smokers that use it to quit smoking and mostly among young people and teenagers, middle and high school students. The popularity of the tobacco product also brought a variety of electronic cigarettes release into the market with few regulations there were found some irregularities with the ingredients the e-liquids have, however evidence has shown the main ingredients such as nicotine and propylene glycol to be a risk for the oral and systemic health of the consumers. Some of the risks are periodontitis, caries, carcinogens elements found in saliva, throat and mouth manifestation, such as irritation, tonsillitis or laryngitis. The symptoms are similar to conventional cigarettes but less severe. This means that for some individual electronic cigarettes can be a useful tool to quit smoking conventional cigarettes if used as indicated by a specialist, but for other individuals that are non-smokers the consumption of e-cigarettes poses a threat for their

health. Dental hygienists as a primary healthcare practitioner need to deliver information about the different tobacco products to the patients and help them understand the dangers of it. Also as new information on e-cigarettes appears, dental professionals need to continue to be informed of any evidence related to it.

Reference list

- Briggs, K., Bell, C., & Breik, O. (2021). What should every dental health professional know about electronic cigarettes? *Australian Dental Journal*.
<https://doi.org/10.1111/adj.12818>
- Gehrig, J. (2018). *Patient Assessment Tutorials: A Step-By-Step Guide for the Dental Hygienist* (4th ed., p. 625). Burlington: Jones & Bartlett Learning.
- Hahn, J., Monakhova, Y.B., Hengen, J., et al. (2014). Electronic cigarettes: overview of chemical composition and exposure estimation. *Tobacco Induced Diseases*, 12(23). <https://doi.org/10.1186/s12971-014-0023-6>
- Kennedy, R. D., Awopegba, A., De León, E., et al. (2017). Global approaches to regulating electronic cigarettes. *Tobacco Control*, 26.(4), 440-445.
<http://dx.doi.org/10.1136/tobaccocontrol-2016-053179>
- Mathur, A., Dempsey, O. J. (2018). Electronic cigarettes: a brief update. *Journal of The Royal College of Physicians of Edinburgh*, 48.(4), 346-351. DOI: 10.4997/JRCPE.2018.415. PMID: 30488894.
- Natto, Z. (2020). Dental Students' Knowledge and Attitudes About Electronic Cigarettes: A Cross-Sectional Study at One Saudi University. *Journal of Dental Education*, 84(1), 27–33. <https://doi.org/10.21815/JDE.019.162>

Part 3: Reflection

1. What have you learned from this assignment?

From this assignment I have learned how popular the electronic cigarettes are. I had an idea that they were consumed by many people but I did not know they were so popular among young people. I find concerning the fact that 3.63 million middle and high school students in 2018 used E-cigarettes. How can society accept young people to smoke E-cigarettes, but not conventional ones? Is a question that has not been completely answered for me; maybe was because of the marketing that electronic cigarettes are a healthier option or maybe because it is still relatively a new tobacco product and people did not have enough information about it. Another thing learned from the assignment is all the effects e-cigarettes have on our health, both systematic and oral. Even though there is not sufficient information about it, as a society, we should have more restrictions about its distribution and use.

2. Did you find this assignment beneficial or not and why?

The assignment is necessary for every dental hygiene student to be informed and understand the effects of tobacco in the patients health and also ours. I hope that if there is any dental hygiene student that consumed any form of tobacco with this assignment they can realize how bad it really is for them. Also it is important to have all the information so in the future we can convey it to our patients and be an influence to help them quit.

3. Do you know of a family member or friend who uses this tobacco product or used in the past?

Both my father and mother smoked conventional cigarettes since they were 15 years old. Tobacco has been part of my life since I have a memory. My father quit smoking in 2016; he said that it did not taste good anymore and never had a cigarette after that. My mother on the other hand still smokes a whole pack of cigarettes a day. I hope with this now information that I have acquired I can explain to her the effects of tobacco on her health and if she is willing to quit we can find a specialist that helps her.

4. Do you feel more comfortable to have a conversation with future patients about smoking cessation?

This assignment gave my more information about different tobacco products and with that new information also comes more confidence to convey that information to my future patients. As I said before, now I can be an influence for them to help them stop the use of tobacco products.