Sana Shoaib

Prof. Davide

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Tobacco use is dated back over 8000 years, it’s cultivation began in 5000 BC. Initially it was used by native Americans in their religious ceremonies and for various therapeutical purposes. In the late 15th century Christopher Columbus was given tobacco as a gift from the Native Americans and this lead to its instant popularity in Europe too. Soon tobacco became a household item and by 17th century scientists started to discover the consequences of smoking tobacco. Tobacco products gained a major boost in the US around the Revolutionary War. Similarly cigarettes gained popularity during the first and the Second World War. Cigarette companies started advertising it for the soldiers and therefore a large number of addicted consumers resulted in this process. As the time progressed this process of tobacco advertisement and its attraction to common user never ended.

Preceding to the 20th century, tobacco was used as leaves kept between gums and buccal mucosa to be sucked and  occasionally being chewed too. Smokeless tobacco, also known as spit tobacco or chewing tobacco, is a product in which tobacco is not burned but consumed directly. Now in the 20th century we progressed to new forms of smokeless tobacco instead of directly using tobacco leaves. It is now available as Snuff or Chewing tobacco. *Moist* *Snuff* is cured(aged) and fermented tobacco which is processed into fine particles flavored with mint etc, available usually in pouches like teabags. It is dipped by placing a pinch between cheek and gums. This is the most commonly used form of smokeless tobacco in the US. On the other hand, chewing tobacco is larger grain tobacco leaves mixed with sugar and molasses that are usually twisted and come in paper packets or small cans, the juice is often spit in chewing tobacco. Another less common form is dry snuff in which the product is inhaled through the nostrils. The official website of FDA enlists the ingredients found in it as: Nicotine(an addictive drug), Polonium 210(a nuclear waste), formaldehyde(an embalming fluid), cadmium(used in car batteries), lead(nerve poison), nitrosamines(cancer-causing substance), arsenic and cyanide.

I chose this product because many treat it as a safe alternative to cigarette smoking.  Back in my home country smokeless tobacco is an integral part of our culture, it is very common in every household in South Asia. In Pakistan it is available in different forms: Pan/betel with tobacco, Naswar, Chalia/Supari, Ghutka. People in these third-world countries find it affordable and easily available. One of the most widely held misconceptions about smokeless tobacco is that it holds some medical significance. The erroneous belief that it is effective for toothache, headache and stomach ache is prevalent in society. Furthermore, it is not considered a taboo like cigarettes. All these and peer pressure adding on it is also a cause of its widespread use in South Asian countries. This spit or smokeless tobacco is culturally endemic to many regions of the United States too. In the US this form of nicotine consumption became more popular when in the 1970s U.S baseball players started using it and branding it as a safer alternative to smoking. Since then this trend hasn't died. Chewing tobacco transitioned from an old man chew to younger men. Before the 1980s, in the US smokeless tobacco was not considered a threat to health nor was it judged for causing any harm or disease. In 1981, the National Cancer institute found out that snuff causes oral cancer . In March 1981, “Snuff dipping and oral cancer among women in the southern United States”, a study of 255 cases and 502 controls was featured in the New England journal of medicine by Win and others from the national Cancer institute. They reported, ”the relative risk associated with snuff dipping among white non-smokers was 4.2% and among chronic users this risk approached 50-fold for cancers of gum and buccal mucosa….”(kozlowski,2018). The authors consider this study conclusive and “… the first to show a definite link”. In 1986 the federal government made it compulsory for all the companies to label their products with warnings on “mouth cancer”, “gum disease” and “tooth loss”.Therefore the smokeless tobacco products were asked to be labeled as “This product is not a

safe alternative to cigarettes”. Official website of the Centers for Disease Control and Prevention states in a survey that almost half of chew users are below 18 and now 50% of the users are young men.

Even now known cigarette brands advertise snuff as a safe alternative. Use of snuff as a harm reduction product has been in debate in the public health sector for years. Some debate that it has reduced mortality and morbidity but on the other hand it has been one of the biggest obstacles to tobacco cessation programs. It can even attract new users who would not use it and normalize the tobacco industry and tobacco usage. In 2006, two leading US cigarette companies RJ Reynolds and Philip Morris started advertising snuff as a safe alternative to cigarettes (Bahreinifar, 2013). It was promoted to be used in smoke-free areas like flights and restaurants. Later smokeless tobacco products were advertised as a line extension of known cigarette brands which led to dual usage of cigarettes and snuff. This led to an increased rate of mortality due to acute myocardial infarction and a huge decline in tobacco cessation programs. Federal Trade Smokeless Tobacco Report for 2019 states that in 2019, $576.1 million were spent on advertisement of smokeless tobacco products. Money making brands want to attract youth and portray these smokeless tobacco products as safe alternatives to cigarettes. Masses need to be educated that nicotine is present in all form of tobacco. This chemical is very addictive that triggers addiction after the first use. This concept that this is a safe alternative needs to be eradicated. It is as dangerous as smoking cigarettes, and leads to serious damage to the body. A research was done to compare the carcinogenic potential of smokeless tobacco and smoke tobacco in patients of oral leukoplakia. This study emphasized the role of tobacco-specific nitrosamine in the patients of oral leukoplakia and compared its effect in smokers and smokeless tobacco users. The results indicated that there is a significant amount of carcinogenic nitrosamines uptake in smokeless tobacco users and these products cannot be declared as a harmless alternative to cigarettes. Study showed that smokeless tobacco users are more prone to cancers. (Mohamed Anser & Aswath,2014).

Following figure 1 shows the amount of NNAL( byproducts of tobacco-specific nitrosamines) in significant amount in the samples of smokeless tobacco users.



**Figure 1: Showing the NNAL distribution in smokeless tobacco users and smokers.**

(Taken from: https://link-springer-com.citytech.ezproxy.cuny.edu/journal/12291)

The use of smokeless tobacco has insidious health effects. People who chew or dip ingest the same amount of nicotine as a smoker. It contains more than 3000 chemicals including 28 carcinogenic chemicals. Tobacco-specific nitrosamine is the main carcinogen and it is produced during curing of tobacco. These carcinogenic agents induce genetic mutation and hyper plastic transformation of the buccal mucosa. The main categories of oral mucosal soft tissue lesions are : Oral squamous cell carcinoma, Verrucous Carcinoma, Oral potentially malignant disorders(leukoplakia, erythroplakia, erythroleukoplakia), Tobacco pouch lesion, and Oral submucosal fibrosis(when the areca nut is mixed) (Muthukrishnan & Warnakulasuria, 2018).

 The evaluation of carcinogenic potency of smokeless tobacco by International Agency on Research for Cancer (IARC) states that main target of the carcinogenic chemicals is the oral cavity because the product is directly applied to oral mucosa. Oral cancers arise in the lining epithelium of oral cavity. Smokeless Tobacco contributes to 66% of oral cancers to tobacco chewers(Guha et. Al, 2014). Tumors in squamous cell carcinoma appear to a red granular area. The product is mostly placed in lower buccal sulcus or posterior buccal mucosa that causes this area to be prone to 80% of the cancer(Muthukrishnan & Warnakulasuria, 2018). Lateral margins of tongue and floor of mouth are also high risk areas because of the pooling of fluids.

Smokeless tobacco use is considered a major risk factor for Oral potentially malignant disorders. These disorders are not only a precursor to oral cancer but also have a debilitating influence on the quality of life in terms of pain and social disability. One of the most common oral potentially malignant disorder is leukoplakia, a type of oral lesion that usually arise at the site of placement and can often become cancerous. Leukoplakia is six times more common in smokeless tobacco users than smokers(Muthukrishnan & Warnakulasuria, 2018). It is clinically classified as Homogeneous and Non-homogeneous. Homogeneous Leukoplakia is flat and thin. On the other hand Non-homogenous can be nodular, speckled(white or red) or exophytic(wrinkled). Other oral effects include increased risk of dental caries, gum recession, staining of teeth, loss of tooth and alveolar bone, and composite restoration. Users can suffer from black and furry tongue along with gum recession. Epidemiology suggests that tobacco chewers have 67 percent tooth lose as compared to non-uses(Warnakulasuriya et. Al, 2010). The constant chewing of this coarse texture tobacco products leads to abrasion of tooth surface with time. These disastrous outcomes can deteriorate the dental hygiene of an individual and cause aesthetically unpleasant consequences.

 People believe that if they do not swallow the juice and instead spit it out, they save themselves from the harmful aftermath of nicotine. In reality, nicotine is absorbed through the gum pores and directly enters the bloodstream leading to the same side effects that nicotine will exhibit in other smokers. A smokeless tobacco user gets 3 to 4 times nicotine as compared to a smoker. An individual consuming 8 or 10 dips or chew per day gets an equal amount of nicotine as a heavy smoker smoking 30-40 cigarettes per day. Systemic effects such as nicotine dependency, transient hypertension and cardiovascular disease can also result from smokeless tobacco products.

During pregnancy, smokeless tobacco increases the risk of early delivery, stillbirth, and brain developmental defects(IARC, O. P, 2006). Research in India showed that chewing tobacco is one of the risk factors for Down Syndrome. They concluded that chewing tobacco interacts with the genetic components of oocytes causing a shorter telomere length, which ultimately leads to nondisjunction of chromosome 21 and subsequently giving birth to a child with Down syndrome. They further added that in India woman prefer chewing tobacco over smoking cigarettes as they consider it completely safe during pregnancy(Ray et Al., 2016)

Tobacco use has been normalized to such an extent that individuals involved in this substance abuse fail to realize that tobacco is harmful for them. Tobacco usage is the leading preventable cause of disability, diseases and death in the US. We as health professionals have an opportunity to provide counseling and change the life of an individual. Research shows that individual counseling is more effective than self-help efforts. Data shows that the majority of the tobacco users are under some sort of psychological issues or depression. Helping them fight this addiction not only helps them to get rid of this dependence but also motivates them to take a step towards better mental health.

The Clinical Practice Guidelines for Treating Tobacco Use and dependence recommends the FIVE As Model (Ask, Advise, Assess,Assist and Arrange) as the key components of comprehensive tobacco cessation counseling . Once the patient comes it should be part of our duty to ask him about his tobacco use status. If we find out that he is a tobacco user we should document all the details about his tobacco usage. According to the official website of the Centers of Disease Control and Prevention in 2015, 68% of adult smokers said that they wanted to quit smoking. Sometimes such individuals need proper guidance and few words of encouragement to take this step. At this stage, appropriate counseling by a professional can be a life change opportunity. This website also States that four out of every nine adult cigarette smokers who saw a health professional during the past year did not receive advice to quit. If a healthcare professional fails to ask the patient about tobacco use it gives an impression that tobacco poses no threat to their health and quitting it is not essential. In 2015, 57.2% of adult smokers who had seen a health professional in the last year reported receiving advice to quit. Even a very brief session of less than three minutes from a  professional improves cessation rate. Proper counseling provided by a dental hygienist can reduce the risk of premature death, improve health and also enhance the quality of life. It can benefit people who are already suffering from heart diseases or pulmonary diseases. It is of immense significance for the health of pregnant ladies and the fetuses. It also helps to reduce the financial burden that smoking causes to the people who smoke, healthcare systems, and our society. Sometimes individuals want to change their lifestyle but fail to do so without any proper guidance. A proper tobacco cessation counseling session with our patient can provide them with the life-changing opportunity of quitting this hazard.



**FIGURE 2: Percentage of adult smokers aged who recently quit smoking, by visiting a physician in the past year — National Health Interview Survey, United States, 2005–2009.**

(Taken from: [www.cdc.gov](http://www.cdc.gov))

Many people start smoking when they are in their teenage years. Most of them follow their parents, friends or just out of curiosity try it out. Tobacco industry spends billions on marketing such products. They portray them as fascinating, thrilling, and safe. Now this product is being shown on video games and television influencing our youth. A new form of tobacco e-cigarette and vaping are now a recent trend in the market. Nicotine is very addictive and many teenagers start it just to try but then fail to quit. If we as healthcare professionals interact with a 12 year who just started using smoking, we should talk about nicotine dependency. We should help the individual understand that no amount of tobacco is safe and it has long-term deteriorating effects. Talk to the patient that quitting tobacco at an early stage will be easier for him than quitting it in a later part of life. We can start with behavioral counseling and focus on the environmental factors that determine the individuals behavior. It is important to talk with the individual about how he started using cigarettes, sometimes it's just peer pressure and the user is open to quitting it. Ask his usage, current status and level of use to document it. After going through the reasons he started cigarettes we should advise him accordingly. Our advice should be very clear, strong and consistent. We can start by guiding the individual about the effects of tobacco products on our oral cavity and our overall health. During this conversation try to assess the willingness of the patient. We as healthcare professionals should assure our patients that we will assist them in quitting and provide them with our utmost support. If we find that the patient is stubborn and not at all willing to quit we should provide him with a brief motivational message and leave the door open for future conversations.This is a vulnerable age group, so try not to use any negative words or criticize the patient. Sometimes patients are open to quitting but an overdue criticism or negative comments made by a healthcare professional can make the patient step back. If the patient is ready to quit then we should encourage him and guide him about the coming challenges. Talk to him about withdrawal symptoms and urge to relapse. Ask the patient to set a quit date preferably within 1 to 2 weeks of the dental appointment. Guide the patient about subsequent withdrawal symptoms. Provide the patient with proper and adequate information on cessation programs, quit lines, websites and medications. Encourage the patient to opt for some healthy activities and also focus on a healthy lifestyle. One of the most important parts of cessation programs is follow up with the patient and try to keep the follow up meeting soon after the  quit date you committed with the patient. During follow up visits discuss with him about relapse and encourage him not to give up if he thinks he is going to give up. Sometimes this journey will ask him to dedicate several attempts. As a health care profession assure him that you will help him in this journey and

On the other hand, tobacco counseling with an adult and an old user can be a little different. Similarly start by asking questions about tobacco usage and status. Keep your questions open ended. You can start a conversation about how the patient started smoking. Ask them too about their current usage and status to document it. Try advising patients about how long term usage will have health damaging consequences. Discuss if you find any oral changes and explain to the patient how these findings will progress to get worsening. Show concern for their health and show a commitment to assist them in quitting. Advocate how smoking can be dangerous for not only the individual who is smoking but also the people around them. Talk with him about that research that has shown that smokers not only suffer as an individual but also have their families face long-term effects. Studies have shown that most of the time due to mental health problems patients seek refuge in smoking. Talk to him about different therapy programs and counseling sessions, which can help a patient quit smoking and also help them stabilize their mental health issues. Any patient using tobacco has developed addiction and will not be willing to give up. Most probably  you will find that the patient is stubborn and not at all ready to have any conversation about quitting, then convey to the patient in an affirmative tone that this habit will have disastrous consequences in future. Convey to the patient that he is on a train to destruction and he should be a close observer of his own oral health from now onwards. Convey to the patient that you are open to resolving their ambivalence. As a dental hygienist, document this habit of your patient. During all the following visits, be extra vigilant while doing an extra or intra-oral exam of your patient so that any deviation from normal can be caught at an early stage.  If at any stage you find that the patient is ready to have a talk with you or is open to quitting then provide him with all the required materials like the therapy programs, counseling programs, quit lines and medication details.

This assignment was a learning experience for me. I always knew that smokeless tobacco present in various forms is harmful for the human body. This assignment helped me explore various forms of this form of tobacco in much more detail. In developed countries, people are developing the concept that smokeless tobacco is not a safe alternative to cigarettes but in my part of the world it’s usage is increasing. People fail to accept it as a hazardous substance. I have spent my entire life with people who always thought that this is a harmless alternative to tobacco. I was astounded when a read an article in which Dr. Jatin Shah, from Memorial Sloan Kettering Cancer Center in New York, says “chewing tobacco is probably more harmful than smoking, because the carcinogen stay in direct contact with the lining of mouth”. While making this assignment I learned that betel nut/Paan is composed of hazardous ingredients. It is a normal custom to serve *Paan* afterweddings and events. Paan/betel with tobacco is a chewed mixture of Areca nut, tobacco, catechu and slaked lime wrapped in a betel leaf with sweetening agents. At every corner of  the street we will find a Paan shop, openly selling this hazardous smokeless tobacco and advertising it as a tobacco free product. I have consumed Paan too and almost every member of my family eats Paan, never realizing that it contains hazardous ingredients.

 Gutka is another form which is composed of sun-dried roasted, finely chopped tobacco, Areca nut, slaked lime and catechu mixed with flavors and sweeteners. People spit it out and I have witnessed my entire childhood on those red stained streets. I used to hate that look of my neighborhood. Government tried everything possible to eradicate this behavior but people failed to comply. People still don’t comply and consider Gutka as a harmless edible item. I found this assignment immensely helpful and beneficial because it helped me go through this product and it’s long-term effects in detail. I was able to go through several research papers and surveys which exhibited the catastrophic consequences of smokeless tobacco especially in our youth.

# This assignment enlightened me with the influences of celebrities on youth. Most of the youth start using such products under the influence of their favorite personalities.  If we are role models to people we should be cautious with our display of habits. In a 2015 BBC article ‘*Baseball's toxic tradition of chewing* *tobacco’* Ms. Nada Tawfiq writes down , “Once described as the nation's religion, baseball has a special place in American culture. But there is a darker side: the cancer-causing tradition of chewing tobacco, which has claimed the lives of some of its most celebrated players”. Moreover, she mentions further in her article how these celebrities mould young minds and naïve young boys copy them just to look like them. She again stresses upon it’s increasing trend in youth, “Almost every American baseball film depicts the habit - Tom Hanks spits out a mouthful in A League of Their Own, and the young players from The Sandlot Kids urge each other to dip because "all the pros do it."

Similarly, the advertising industry should not behave as a money-making mafia; instead, they should be a beneficial part of society. Portraying an item harmless and safer substitute of cigarettes should not be allowed by the authorities.

Recently, the government of Pakistan found out that there is a rise of smokeless tobacco usage in students. Students use Ghutka as hideous instead of cigarettes while they are in the institution. Studies showed that chewing tobacco is the most common form of tobacco used in Pakistani medical students(Imam,2007). During this surge of rising smokeless tobacco among students, one of my cousins was found using moist snuff. She was a medical student and was reported by college authorities for substance abuse. She claimed that it made her feel better and stress free. She started using it when she saw the majority of her class using it to cope up with the stress of the studies. They found it easier to use in the hostel as compared to cigarettes, as they were easier to use without being noticed. She knew it was a hazardous substance and was open to quitting it. She started with her family support and continued her therapy until she completely got rid of it. It was an emotionally tiring journey for her family but she was lucky to have a supportive family. Similarly, her family was fortunate because she was receptive to advice.  She is still part of several therapy and counseling groups and clubs. She openly discussed her journey with others and encouraged them to eliminate the use of tobacco.

I feel much more confident about discussing this product with my family and others around me using it daily. This assignment motivated me to have a conversation with my future patients. I understand that I should be respectful to the patient's freedom of choice but being a healthcare professional I must assure that I am trying my best to convey my message. Several strategies discussed during the counseling journey will help me during this process. As a professional, I must realize the significance of having an empathetic, reflective and supporting style leading to positive treatment outcomes. Moreover I have a better understanding that this journey requires a lot of effort from the patient. There will be several failure and exit attempts but as a healthcare professional I have to stay steadfast with my patient. It is my duty to help them step up every time they feel this journey this is impossible.

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