ABSTRACT

SMOKELESS TOBACCO AND COLLEGIATE BASEBALL PLAYERS

by Ryan Williams

Smokeless tobacco has grown to become a popular substance in the sports industry. Smokeless tobacco is a way to get nicotine without smoking a cigarette. Baseball has become a popular sport for using smokeless tobacco. In this research study, I will examine collegiate baseball players to see whether the Social Cognitive Theory determines the use of smokeless tobacco. Determining if the environments, either social or built, and their personal beliefs influence them to use smokeless tobacco. Also, whether knowledge about smokeless tobacco influences them to use smokeless tobacco. Participants are 45 collegiate baseball players who use smokeless tobacco and will take a Smokeless Tobacco Survey for Collegiate Baseball Players to see what influences them to use smokeless tobacco. The results showed that built environments influences the majority of the collegiate baseball players to use smokeless tobacco. Social environment was high but not as significant as built environment.
SMOKELESS TOBACCO AND COLLEGIATE BASEBALL PLAYERS

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Chapter One

Introduction

Smokeless tobacco is popular in the 21st century because consumers view it as a safer alternative to smoking a cigarette. However, in 1986, the U.S. Surgeon General stated that smokeless tobacco use was not a safe substitute for smoking cigarettes (Monson & Beaulieu, 2011). This is why focusing more on smokeless tobacco and how it is being used in today’s society should be a concern. Smokeless tobacco users need to become more aware of the harmful risks that are associated with smokeless tobacco and that it is as bad as smoking a cigarette, if not worse!

Statement of the Problem

Baseball players use smokeless tobacco during games and practices because they believe that is what baseball players do as part of the game. Baseball players observe their peers and/or role models, Major League Baseball players, use smokeless tobacco (Cooper, Ellison, & Walsh, 2003). Most baseball players do not know the risks involved in the use of smokeless tobacco or why they use smokeless tobacco (Cooper, Ellison, & Walsh, 2003). The problem is to find out why the use of smokeless tobacco is high among collegiate baseball players and whether these athletes know the risks that are associated with smokeless tobacco.

Purpose of the Study

The purpose of this study is to focus on male athletes, who play baseball at a collegiate level, in order to determine if their behaviors and surrounding environments influence them to use smokeless tobacco. I hypothesize that the environments surrounding collegiate baseball players are a major influence on the use of smokeless tobacco.

Significance of the Study

In 1994, the National Collegiate Athletic Association (NCAA) placed a ban on smokeless tobacco during games and practices. However, 40% of collegiate baseball
players are still using smokeless tobacco on a regular basis (NATA, 2013). In 2001, smokeless tobacco prevalence among baseball players in the NCAA was 41% (Gansky et al, 2005). In 2003, investigators reported that 45% to 55% of collegiate baseball players were heavy smokeless tobacco users (Cooper, Ellison, & Walsh, 2003). Current data indicated that the prevalence rate for collegiate baseball layers in Division I, II, & III universities are 40%, respectively (NATA, 2013).

**Research Questions and Hypotheses**

There are three main research questions to explore with this thesis: 1) What influences a collegiate baseball player to use smokeless tobacco, 2) Do collegiate baseball surrounding environments increase the chances of using smokeless tobacco? And 3) Does smokeless tobacco knowledge change collegiate baseball players beliefs and behaviors toward smokeless tobacco use?

I hypothesize that collegiate baseball players surrounding environments like: the dugouts, baseball fields, games, practices, and teammates are a major influence on them to use smokeless tobacco. This research will investigate the knowledge and beliefs of baseball players toward smokeless tobacco. In turn, knowledge and beliefs may influence whether collegiate baseball players use smokeless tobacco.

Social Cognitive Theory will serve as the theoretical framework for determining how knowledge, beliefs, and environments influence smokeless tobacco behaviors.

**Definitions**

Smokeless tobacco is defined as either snuff or chewing tobacco. Snuff is a finely ground tobacco packaged in cans or pouches and sold as moist or dry.

Moist snuff, used by placing a pinch, dip, lipper, or quid, between the lower lip and gum of the person’s mouth, is absorbed through the mouth tissues (Monson & Beaulieu, 2011). Dry snuff is a dry powdered form that is used by inhaling or sniffing it up the nostrils (Ebbert, Montori, Erwin, & Stead, 2011).
Snuff also comes in other forms like, Snus. Snus is a finely ground form of moist snuff made of air-cured tobacco, water, salt, and flavorings that comes from Sweden and Norway (Borland et al, 2012). Snus comes in small pouches but can also be loose moist snuff. Chewing tobacco comes as long strands of loose leaves, plugs, or twists of tobacco. The chewing tobacco is placed between the cheek and gum or teeth, which produces salvia that needs to be spit out (Gansky et al, 2005). According to the American Cancer Society (2013), there are 3.6 milligrams of nicotine in dip and 4.5 milligrams in chewing tobacco compared to 1 to 2 milligrams from a cigarette. Nicotine in smokeless tobacco gets absorbed through the mouth and is carried throughout the body fairly quickly. The nicotine could stay in the body for about three to four days.

**Gender and Smokeless Tobacco Use**

Smokeless tobacco is a product that users put into their mouth, which then generates saliva that needs to be spit out by the user (Cooper, Ellison, & Walsh, 2003). Women typically do not spit in our society, but men are more attractive to the use of smokeless tobacco. A study conducted by Monson & Beaulieu (2011) showed that 22% of males and 2% females used smokeless tobacco.

**Behaviors and Smokeless Tobacco Use**

Smokeless tobacco contains nicotine, which is an addictive drug that will influence a person to use and may alter players’ behaviors toward the use of smokeless tobacco. Collegiate baseball players have different types of tobacco use behaviors when it comes to situational and contextual cues of playing baseball. One type of tobacco use behavior would be using after the National Anthem is played or an infielder would put dip in his mouth before the start of every game. Other types of smokeless tobacco behavior would be that the individual uses dip within 30 minutes after waking up (Monson & Beaulieu, 2011).

**College Baseball Players and Smokeless Tobacco Use**

Male baseball players have been known to be heavy users of smokeless tobacco (Cooper, Ellison, & Walsh, 2003). Collegiate baseball players who use smokeless
tobacco are high users compared to the use of smokeless tobacco by the rest of the college-age population (Walsh, Hilton, Ernester, Masouredis, & Grady, 1994). Walsh et al. (1994) found studies reporting of 39% and 34% of baseball players are to be heavy smokeless tobacco users.

**Environment and Smokeless Tobacco Use**

The different environments that people are surrounded by usually affect their health behavior. Approximately, 41% of smokeless tobacco users use dip or chew in rural areas compared to 29% from a large city (Monson & Beaulieu, 2011).

**Conclusion**

In general, the current research interest is to find out why the use of smokeless tobacco is high among collegiate baseball players and to determine the athletes’ awareness of the risks associated with smokeless tobacco. This study will investigate different factors associated with smokeless tobacco like: knowledge, behaviors, and environments to recognize what factors makes a contributing difference to changes in smokeless tobacco related behaviors.
Chapter II

Review of Literature

The purpose of this study is to find out why collegiate baseball players use smokeless tobacco, what behaviors influence them to use smokeless tobacco, and when & where do they use smokeless tobacco (SLT). Baseball players more than any other sports use smokeless tobacco today (Monson & Beaulieu, 2011).

This chapter will address Knowledge about Smokeless Tobacco; Behaviors and Beliefs Associated with Smokeless Tobacco; Harmful Risks of Smokeless Tobacco; Cancers Associated with Smokeless Tobacco. Additional sections will include Transition from High School with Smokeless Tobacco; Social Environments Surrounding Smokeless Tobacco; Role Models and Smokeless Tobacco; and lastly, Social Cognitive Theory and Smokeless Tobacco.

Knowledge About Smokeless Tobacco

The use of smokeless tobacco in the United States of America was a dominant form of tobacco use until cigarettes industry came in 1918 (Boffetta, Hecht, Gray, Gupta, & Straif, 2008). In 1970, moist snuff was developed and made an intensive campaign against cigarettes, which resulted in an increase sale and brought smokeless tobacco back into the tobacco industry against cigarettes in the United States of America (Boffetta, Hecht, Gray, Gupta, & Straif, 2008). In 2000, it was reported that 4% of males in the USA were current users of smokeless tobacco and 0.3% were women (Boffetta, Hecht, Gray, Gupta, & Straif, 2008).

Smokeless tobacco users see the warning labels on the container but do they really know what those warning signs mean? Smokeless tobacco users ignore the obvious warning label emphasizing the harmful consequences of smokeless tobacco because without smoke, no danger is anticipated or expected (Monson & Beaulieu, 2011). When kids are going through grade school being taught that smoking is bad for their health, teachers do not reflect on how bad smokeless tobacco is in comparison to cigarettes. Back in 1986, the Surgeon General states that smokeless tobacco is not a safe alternative
to smoking a cigarette (Monson & Beaulieu, 2011). Cooper et al. (2003) reported 96% of professional rookie baseball players were aware of the ban on the use of tobacco products enforced by Minor League Baseball. In fact, smokeless tobacco contains more nicotine than a regular cigarette. A pinch of dip contains about 3.6 milligram of nicotine in it compared to 1 milligram of nicotine in each cigarette. During a study about knowledge of smokeless tobacco, 74% of users believed that smokeless tobacco was harmful to their health and participants were four times more likely to say that smokeless tobacco was a safer alternative (Monson & Beaulieu, 2011).

This survey shows that even though these smokeless tobacco users had some knowledge that smokeless tobacco was harmful, they still thought it was a safer alternative than smoking and it shows that knowledge is needed to have society understand the risks that smokeless tobacco provide (Monson & Beaulieu, 2011).

Despite the fact that Major League Baseball players are using smokeless tobacco, other baseball players like little league, high school, and collegiate baseball players think that it will enhance their performance ability to play better baseball. In fact, there is no evidence to date that supports the idea smokeless tobacco will physically or mentally enhance a baseball player’s ability to play better (Cooper, Ellison, & Walsh, 2003).

Some baseball players do not know where to find information, like clinics or support, on how to quit the use of smokeless tobacco. Although knowledge about the dangers of smokeless tobacco is important, one must have the resources to quit. In a study by Cooper et al. (2003) researchers explained that Minor League Baseball and collegiate baseball players, should have the knowledge and resources relevant to quitting smokeless tobacco and/or cigarettes. It is difficult to quit because most of collegiate baseball players are unsure on how to quit and which route is best for them, highlighting the important role of athletic trainers and others medical personnel to provide the knowledge and skills to the athletes on how to quit (Cooper, Ellison, & Walsh, 2003). The many different ways that baseball players can help themselves quit using smokeless tobacco is the same way smokers would help themselves quit using cigarettes. A nicotine patch along with behavioral changes will benefit the athlete greatly because they are still slowly getting their nicotine as well as changing the ways they are using smokeless
tobacco. Other players may appreciate nicotine gum, as the better choice because it still fulfills the nicotine needs as well as providing an oral stimulation (i.e. something to chew). But it could also lead to them using it more than the nicotine patch and could result into bringing back the smokeless tobacco behavior (Cooper, Ellison & Walsh, 2003). Along with nicotine patches and gum, baseball players need to know that there are other ways to help them prevent the addiction, like cessation classes. Cessation classes are where the individual will go to talk about quitting and it also provides them knowledge on what the tobacco product is doing to their body and ways to prevent from using tobacco products. Also shows athletes that they are not alone in this process as there are many other users there as well who are trying to fight the sensation of tobacco.

**Behaviors and Beliefs Associated with Smokeless Tobacco**

Behavior can be defined as an action or reaction of a person in response to an internal or an external stimulus. When talking about behaviors or beliefs towards an addictive product like smokeless tobacco, there can be many reasons to use. Monson & Beaulieu (2011) reported two main reasons smokeless tobacco users had a strong influence to use smokeless tobacco including preferences and stress relief. Relieving stress is a type of belief and behavior. About 68% of smokeless tobacco users reported that they believed smokeless tobacco use relieved their stress (Monson & Beaulieu, 2011). Hence, the feeling of stress motivated athletes to use smokeless tobacco (Monson & Beaulieu, 2011). About 29% of smokeless tobacco users, within a social environment, start using smokeless tobacco because they are around other smokeless tobacco users or in that specific environment (Monson & Beaulieu, 2011).

In a study that surveyed 146 high school students about smokeless tobacco, 38% participants reported relaxation as the primary reason for continuing use and 17% reported enjoyment as their reason to engage in smokeless tobacco use (Marty, McDermott & Williams, 1986). Relaxation and enjoyment are associated with beliefs. The reasons that 38% of high school students are using smokeless tobacco is because they find it relaxing to them and athletes will continue to do this behavior for the outcome that it brings. Similar to relaxation, athletes will keep doing the behavior, using smokeless tobacco, because of the enjoyment that it brings. Another behavior that was
found in this study was 16% of athletes reported that smokeless tobacco tastes good (Marty, McDermott & Williams, 1986).

Since baseball athletes are a more popular demographic to use smokeless tobacco, they tend to have more beliefs and different behaviors towards smokeless tobacco. A different belief on why baseball athletes use smokeless tobacco is because it is satisfying and they have not found a better substitute. Walsh, Ellison, Hilton, Chesney, & Ernster (2000) reported that 66% out of 131 baseball athletes did believe that it was satisfying and they did not find a better substitute for smokeless tobacco. Walsh et al. (2000) also discovered that 64% of baseball athletes believed that it helped them with boredom and 64% said that they do it without thinking too much about it. These findings definitely indicate that baseball athletes’ behavior toward smokeless tobacco is high if they are using when they are bored or they are doing smokeless tobacco without thinking too much about it. Another type of behavior that was reported by Walsh et al. (2000) was that 55% of baseball athlete started using smokeless tobacco because baseball season started back up again. This is a behavior that 55% of baseball athletes do because in their mind, they associate baseball season and smokeless tobacco together and when baseball season starts up, they feel the urge to use smokeless tobacco. Other beliefs that Walsh et al. (2000) found on why baseball athletes use smokeless tobacco is because it helps them handle stress at school better (34%), it helps them handle personal life problems better (21%), and it helps them keep their weight down (21%). Walsh et al. (2000) also found that 13% of baseball athletes believed that smokeless tobacco help improved their athletic performance.

**Harmful risks of Smokeless Tobacco**

With any type of drug, there will always be harmful risks toward your body. In 1986, the U.S. Surgeon General made a clear association between oral cancer and smokeless tobacco (Sinusas & Coroso, 2006). This report was linked to other types of harmful diseases like gingival recession, tooth decay, oral leukoplakia, and nicotine dependence. Other studies have suggested that coronary artery disease, peptic ulcers, peripheral vascular disease, hypertension, and fetal mortality and morbidity can be a contributing role (Sinusas & Coroso, 2006).
Oral leukoplakia is considered to be a thickened, white patches form on your gums either inside your cheeks, bottom of your mouth, or on your tongue. One of the things that you can identify if it’s leukoplakia is that the white patches cannot be scraped off and it cannot be removed by abrasive forces and can be characterized by change in color as well as increasing degree of wrinkles and thickness (Waterbor, Adams, Robinson, Crabtree, Accortt, & Gilliland, 2004). The reason for leukoplakia is highly considered to be associated with any type of tobacco product but is mainly associated with snuff. Leukoplakia patches are considered noncancerous, which is called benign but some will show early signs of cancer (Goldstein, 2013). Leukoplakia patches are classified as grades. Grade I would be classified as a superficial lesion with color similar to the surrounding mucosa with slight wrinkling and no obvious thickening. Grade II is classified as superficial whitish or reddish lesion with moderate wrinkling and no obvious sign of thickening. Grade III, which is the most severe, is red or white lesion with intervening furrows of normal mucosal color, obvious thickening, and wrinkling (Sinusas & Coroso, 2006).

In a study conducted by Sinusas and Coroso (2006), they examined 2266 mouth examinations over a 10-year study. Each year they had a sample size ranging from 190 to 259 baseball players. If a baseball player, during spring training, had his mouth examined and the examiners found leukoplakia, then the player was given information regarding the dangers of leukoplakia as well as information on smokeless tobacco cessation (Sinusas & Coroso, 2006). After their 10-year study with baseball players, Sinusas and Coroso (2006), found that the overall prevalence of leukoplakia declined from 23% in 1991 to 9% in 2000.

A study that examined 3,051 U.S. Air Force basic military trainees were examined for leukoplakic lesions. Out of the 3051 trainees that were examined, 119 (34%) men were identified as having leukoplakic lesion who were current smokeless tobacco users compared to the 2% of men who did not use smokeless tobacco but had a leukoplakic lesion (Waterbor, Adams, Robinson, Crabtree, Accortt, & Gilliland, 2004).

Another harmful risk that is associated with smokeless tobacco would be nicotine. On every can or pouch of smokeless tobacco there is a warning label that states that smokeless tobacco is addictive. One reason that smokeless tobacco is addictive is because
of the nicotine. Nicotine in smokeless tobacco can elevate blood pressure because the nicotine content in smokeless tobacco is equivalent to smoking eight to nine cigarettes (Benowitz, Porchet, Sheiner & Jacob III, 1988). In a study conducted by Benowitz et al. (1988), they examined the comparison of nicotine absorption and cardiovascular effects on ten volunteers to find out if cigarettes, smokeless tobacco (chew and snuff), and nicotine gum had any relation. During this study, they found out that all nicotine products that were used did increase heart rate and blood pressure but the nicotine gum had less cardiovascular response (Benowitz, Porchet, Sheiner & Jacob III, 1988). According to Asplund (2003) also confirmed that smokeless tobacco can cause an increase in blood pressure levels because of the amount of nicotine and nicotine replacement therapy can cause the same effect. Asplund (2003) reports that it could increase the systolic ranging from 10 to 20 mm Hg and the diastolic from 6 to 12 mm Hg and that their heart rate increased by 10-20 beats per minute. With the effects of nicotine from cigarettes, the nicotine would go into the blood within 5 minutes of smoking a cigarette and would decline after 12 minutes but smokeless tobacco nicotine would enter the blood within 5 minutes and it would slowly decline within 90 minutes of using and after 120 minutes the body goes back to normal baseline (Benowitz, Porchet, Sheiner & Jacob III, 1988). This study shows how nicotine can be dangerous to the cardiovascular system. The longer the nicotine is in the body the better chance a person has to have cardiovascular problems and could become more serious.

Gingival recession is where the gums that protect the roots and nerves of teeth are exposed. In a study conducted by Offenbacher and Weathers (1985) where they examined 565 males who used smokeless tobacco to see if they had gingival recession. They found out that the prevalence of gingival recession was significantly elevated in people who use smokeless tobacco and smokeless tobacco user were known to have 9 times greater chance of having gingival recession than those compared to healthy non-users (Offenbacher & Weathers, 1985).

**Cancers Associated with Smokeless Tobacco**

Cancer is defined as “abnormal cells that divide without control and are able to invade other tissues” (National Cancer Institute, 2013). Cancer cells can spread to other
parts of the body through the way of blood or the lymph system (National Cancer Institute, 2013).

Lung cancer is associated with smoking tobacco products and oral cancer is associated with smokeless tobacco because the smokeless tobacco products are being used in the mouth, typically in the cheek or the lip. According to Boffetta et al. (2008) there are 30 cancer-causing carcinogens in smokeless tobacco products. Some of these carcinogens are volatile, tobacco-specific nitrosamines, nitrosamino acids, polycyclic aromatic hydrocarbons, aldehydes, and metals (Boffetta, Hecht, Gray, Gupta, & Straif, 2008). Since the 1970s when carcinogens were contaminated in smokeless tobacco, especially oral snuff, are more sustainable to get cancer and there have been studies on lab rats were they were given cancer-causing carcinogens and these carcinogens were known to attack targeted tissues in the body. The target areas were known to be oral cavity, esophagus, the pancreas, and could potential reach the lungs (Boffetta, Hecht, Gray, Gupta, & Straif, 2008).

According to an epidemiological table (Appendix A) in Boffetta et al. (2008) study, the exposure frequency data are shown of smokeless tobacco use and cancer risk of the oral cavity, esophagus, pancreas, and lung in the USA and northern Europe. In the USA in 1977-84 (just men), there were four cases of esophageal cancer and the four cases were mainly using snuff tobacco. In 1982 (men and women), smokeless tobacco use, there were 755 cases of oral cancer (mouth and tongue cancer) and most of these records came from cancer controls and hospital data. In 1985-93 (men only), there were 146 cases of pancreatic cancer due to chewing tobacco. In 1986-89 (men and women), smokeless tobacco use, there were 130 cases of pancreatic cancer. In 1982-2000, (men only), current spit tobacco use; there were 46 cases of oral and pharyngeal and 396 cases of lung cancer.

Cancer risk in human beings that use smokeless tobacco is high because in the USA, they have a higher concentration of nitrosamine in their tobacco products compared to other countries, like Asia and Europe (Boffetta, Hecht, Gray, Gupta, & Straif, 2008). In a study by Winn and colleague, they did a case study on USA women and smokeless tobacco and found out that mainly dry snuff tobacco was associated with risk of cancer of the gum and buccal mucosa compared to other parts of the body like lungs or pancreatic
(Boffetta, Hecht, Gray, Gupta, & Straif, 2008). Based off of Winn’s study, the populations studied were 50 times more likely to get oral cancer than nonusers (Waterbor, Adams, Robinson, Crabtree, Accortt, & Gilliland, 2004). This makes sense in the fact that dry snuff tobacco mainly goes between the lip and the gum of the mouth and it would cause cancer to the gums and buccal mucosa. Eight percent of smokeless tobacco users who use snuff are likely to get lesions in the buccal mucosa (Waterbor, Adams, Robinson, Crabtree, Accortt, & Gilliland, 2004). Oral cancer is a big part of smokeless tobacco that users do not realize. According to Cooper et al. (2003) data for a study indicated smokeless tobacco users are four times more likely to get oral cancer than non-users. It is 50 times greater for smokeless tobacco users to get cancer of the gum and cheek because it is where smokeless tobacco users place the tobacco product while using. Also if the user started using smokeless tobacco before the age of 14 then they are 20 times more likely to get throat cancer and if they are frequent users then they are 4 times more likely to get throat cancer (Cooper, Ellison, & Walsh, 2003). Just because a smokeless tobacco user is not inhaling a tobacco product in a “smoke form,” they feel like it will not damage their body and less likely to get cancer.

**Transition from High School with Smokeless Tobacco**

High school is a vulnerable time for a teenager as they face the transition of going from a teenager to an adult, as well as completing in high school to go onto college or to find a job straight out of high school. It is also a stressful time for student athletes because they want to be a star athlete at their choice of university and many different universities are pushing them to attend their university. With all of the pressure on them, they are striving every moment to be the best that they can be at their sport and that is where peer pressure, as well as other factors, can influence an athlete to start using smokeless tobacco or other tobacco products.

Adolescents tend to be curious about products that are strictly labeled for adults like cigarettes, alcohol, drugs, and smokeless tobacco. They will try the substance at least one to see how it feels or just for a rebellious side of themselves. Tobacco products have been increasing among adolescents (Davis, Arnold, Nandy, Bocchini, Gottlieb, George,
& Berkel, 1997). In a study that was conducted about transition from high school, it was reported 23% of 12 to 17 year old males were users of smokeless tobacco (Baranowski, Cullen, Basen-Engquist, Wetter, Cummings, Martineau, Prokhorov, Chorley, Beech, & Hergenroeder, 1997). According to Davis et al. (1997) two-thirds of the adolescents in the United States have tried smoking and one-fourth have smoked in the last 30 days and more than 20% of white male adolescents have used some sort of smokeless tobacco products. Davis et al. (1997) researched on whether tobacco use was significant among high school athletes than non-athletes.

Davis et al. (1997) researched at a high school in Louisiana on male high school students only and questioned whether they used cigarettes, snuff, or chew tobacco as well as what sport they played. In the study they classified sport intensity as being low (golf and hunting), medium (baseball, football), and high (soccer, basketball). Davis et al. (1997) found out 41% used more than one tobacco product and 11% used all three (cigarettes, chew tobacco, and snuff tobacco). Researchers found that medium to high intensity athletes were less likely to be medium to heavy tobacco users than compared to non-athletes (Davis, Arnold, Nandy, Bocchini, Gottlieb, George, & Berkel, 1997). For chewing and snuff tobacco, use had significantly higher rates by athletes at every intensity level and medium to high intensity level of athletes were the highest probability of using chew or snuff tobacco (Davis, Arnold, Nandy, Bocchini, Gottlieb, George, & Berkel, 1997).

In a 1990 survey conducted by the National Youth Risk Behavior Survey, they stated if a high school athlete plays an interscholastic sport then they were less likely to use tobacco products than a person who does not play sports (Davis, Arnold, Nandy, Bocchini, Gottlieb, George, & Berkel, 19997). Assuming that interscholastic athletes are more occupied with their studies and their sport then tobacco products will be less on their mind than those who are not. On the other hand, the NCAA found that 57% of baseball players use smokeless tobacco and the majority of them started before they were accepted to play in college. From 1985 to 1989 the NCAA saw a jump of 40% in athletes that were users of smokeless tobacco (Davis, Arnold, Nandy, Bocchini, Gottlieb, George, & Berkel, 1997). Between the two races (Whites and African-Americans) they
discovered that Whites were more likely to use chew or snuff tobacco than African-Americans were and Whites were high on using smokeless tobacco across all the intensity levels of sport (Davis, Arnold, Nandy, Bocchini, Gottlieb, George, & Berkel, 1997).

Davis et al. (1997) stated earlier in their research that 11% of males used all three of the tobacco products, but half (42%) were heavy smokers, which means heavy smokers smoked greater than or equal to a half a pack of cigarettes a day. The reason that this stat is significant is because adolescent’s cigarette smoking is popular in the high school setting. Once they reach collegiate level and start getting busier with their academics and athletic performance then the trade off with cigarettes will be smokeless tobacco because it is “okay” to use smokeless tobacco during baseball. Seeing that Baranowski et al. (1997) reports that 21% of males started to use smokeless tobacco between the ages of 19 to 21 and 48% of males ages 18 to 25 use it most days of the week. In one study, it stats male high school athletes are heavy users in smoking cigarettes and another study indicates 48% of male athletes use smokeless tobacco on a weekly basis. These stats shows the transition from high school to college with tobacco products is more towards smokeless tobacco than cigarettes even though it starts more with cigarettes.

Social Environments Surrounding Smokeless Tobacco

Social environments are a key role in why people use smokeless tobacco because it is usually affects a person’s use by a social norm factor. In a study done by Cooper et al. (2003), they stated social-norm factors include family members, high school experiences, collegiate experience, and little league coaches. If a member in a family is using smokeless tobacco than another person is more likely to follow in their footsteps. Seeing an authority figure using smokeless tobacco would make another individual feel like it was okay to use because their family member is using around them. A questionnaire was handed out to 616 minor league baseball players who were smokeless tobacco user and other tobacco products, 95% of them said family member use of smokeless tobacco was high (Cooper, Ellison, & Walsh, 2003). High school students reported 52% of friends were the primary reason for them to use smokeless tobacco followed by a relative (not
parents) at 13% and teachers and coaches came in at 6% each (Marty, McDermott, & Williams, 1986). In a study conducted by Walsh, Ellison, Hilton, Chesney, and Ernester (2000) out of their sample of 1,226 high school baseball players, 36% of those players’ fathers were users of smokeless tobacco compared to 13% of who were not. They also found out 22% of their coaches were using smokeless tobacco and 55% of them said their best friend were users of smokeless tobacco on a regular basis and 36% said their best friend used smokeless tobacco on occasional basis (Walsh, Ellison, Hilton, Chesney, & Ernester, 2000).

Social environment plays a big role in the use of smokeless tobacco by where an individual lives, like rural or urban area. Urban is defined if the location is in a city. Urban places are like large cities. Rural is defined by whether the place is a country or lake area. According to Monson & Beaulieu (2011) they found out in their study that out of 34 users that identified that they used smokeless tobacco, 41% of them had a permanent address in rural areas, lake, or small town, 29% from a moderate town or city, and 29% from a large city, suburb, or metropolis. According to Walsh, Ellison, Hilton, Chesney & Ernester (2000) they discovered out of 1,226 high school baseball players that 19% of high school baseball players used smokeless tobacco in rural areas compared to 12% in urban areas and that 22% of non-Whites used smokeless tobacco in rural areas compared to 6% in urban areas. Showing rural areas are more likely for athletes to use smokeless tobacco than in urban areas because of their environmental setting. In a more rural area, you are free to “spit” your chewing or snuff tobacco freely unlike in an urban where it is more socially restricted on where you can use smokeless tobacco.

Seeing that smokeless tobacco is popular among people who live in rural area and family members and other people who are close to them but another social environment that will influence them to use smokeless tobacco is a baseball field or baseball, in general. A baseball atmosphere can cause a baseball player to have the urge to use smokeless tobacco. With the combination of other baseball players using smokeless tobacco and the history of them seeing close personnel using it during baseball, it will trigger them to use smokeless tobacco. During a study where they did a mouth examination on 2,266 professional baseball players and asked them about their smokeless
tobacco use, they found out that one-third of the current users of smokeless tobacco only used smokeless tobacco when they were playing baseball (Sinusas & Coroso, 2006). Sinusas & Coroso (2006) figured there must be something about the culture of baseball that makes baseball players want to use smokeless tobacco during the season of baseball or just baseball itself. Using smokeless tobacco on the baseball field will be more socially acceptable for baseball players and by their peers because nobody is there to enforce the rule of using smokeless tobacco plus a baseball field is where players use smokeless tobacco (Walsh, Hilton, Ernster, Masouredis & Grady, 1985).

The media is also a big social factor in the use of smokeless tobacco. With athletes looking at magazine advertisements that promote smokeless tobacco and how “fun” everyone is having while using a smokeless tobacco product (Cooper, Ellison, & Walsh, 2003). Other events such as the rodeo, baseball games, car-racing events will enhance the awareness of athletes and spectators on smokeless tobacco products (Cooper, Ellison, & Walsh, 2003). According to Cooper et al. (2003) smokeless tobacco manufacturers spent a record $150.4 million dollars on smokeless tobacco promotions that promote their product to consumers. The media in today’s society is the biggest communication this current generation has. Smokeless tobacco manufacturers are on every social media possible like Facebook, Twitter, and Instagram that makes it easier for all of these social media companies to promote their smokeless tobacco product to make it more marketable to the younger generation. Other companies will make products that will act as smokeless tobacco, like shredded beef jerky that comes in a smokeless tobacco dip can or candy cigarettes that are designed like cigarettes with a red tip on the end but is made out of complete sugar (Cooper, Ellison, & Walsh, 2003).

**Role Models and Smokeless Tobacco**

Role models influence kids everywhere, from firefighters, police officers, military personnel, and even professional athletes. Kids look up to these people and one-day dream of becoming what they do because they believe that that job is what they want to do when they grow up. To reach that goal, the kids will imitate what these people to do achieve that dream job. It is important for all role models to be on their best behavior
because they never know when someone is watching them or doing a behavior that they have portrayed.

Major League Baseball (MLB) players are a particular group of role models that kids look up to become. Major League Baseball players are seen live in person, live on television, and sometimes outside of the field, so it is important for them to be a positive role model.

In 2001, baseball players were known to be high users among smokeless tobacco like snuff tobacco and chewing tobacco (Cooper, Ellison & Walsh, 2003). Since baseball players are high users of smokeless, it was reported that 40% of professional baseball players and 55% of collegiate baseball players were regular smokeless tobacco users (Cooper, Ellison & Walsh, 2003). In a study done by Cooper et al. (2003) Athletic Trainers surveyed 616 professional rookie baseball players, which contained questions regarding 1) smokeless tobacco use such as current or within the past 30 days of using snuff or leaf tobacco, 2) factors that are associated with smokeless tobacco like a) other tobacco use such as current cigarette or cigar smokers, b) social-norm factors such as role models, high school/college peers, family members, or any coaches use smokeless tobacco, c) environmental cues such as media, sporting events, and d) intention to engage in risky behaviors such as using legal supplement even though they knew that it was harmful to their body. The findings in this study were that 96% knew about the ban that was placed on the use of tobacco products in the minor leagues, 31% used a smokeless tobacco product within the last thirty days, and that 82% of baseball players were using snuff products and 18% of players were using chewing (leaf) tobacco product (Cooper, Ellison & Walsh, 2003). These findings show that even though these professional baseball players know that they could not use tobacco products that out of 616 players who took the survey that 82% and 18% of them were using some sort of smokeless tobacco product. According to Cooper et al. (2003) they found that social-norms were a significant part of these players becoming a smokeless tobacco user. During the survey, the profession baseball players were asked whether their little league baseball coach used a smokeless tobacco product and 43% confirmed that their coach did use smokeless tobacco (Cooper, Ellison & Walsh, 2003). Little kids look up to their coaches as role models so seeing them use a smokeless tobacco product at that age would make them
think that smokeless tobacco products will eventually help them be more knowledgeable about the game. Thirty four percent of professional baseball players said that they have witnessed some kind of smokeless tobacco product during a high school experience and that 35% reported that they have seen smokeless tobacco product during a college experience as well as 60% have family members that are smokeless tobacco users (Cooper, Ellison & Walsh, 2003).

Social Cognitive Theory and Smokeless Tobacco

The Social Cognitive Theory was developed by a guy name Albert Bandura in 1989. The reason behind inventing the social cognitive theory is to explain how people acquire and maintain certain behavioral patterns (Glanz, Rimer, & Lewis, 2002). This theory shows how a behavioral change depends on the different factors like environment, cognitive, and the behavior (Glanz, Rimer, & Lewis, 2002). In appendix B, the Social Cognitive Theory is described at Bandura’s Triadic Reciprocal Determinism. The picture illustrates that there are many factors that influences one decision to take action on a particular behavior. Behavioral factors are where an individual would start using smokeless tobacco. Personal factor would be whether an individual feels like it is giving them some type of gratitude. An example of that would be that smokeless tobacco makes them feel less stress about their situation. Final one would be environment factors, where the individual is more likely to attempt their behavior at or what influences them. An example of environment factor would be a family member or best friend who use smokeless tobacco or every time they start driving that they need to put a piece of smokeless tobacco into their mouth.

There are other factors that go along with the Social Cognitive Theory like self-efficacy. Self-efficacy is whether individuals have confidence in themselves to perform a particular behavior. Self-efficacy has to be high in order for an individual to change their behavior (Bandura, 1986). If they feel that they have confidence in themselves then they will have a positive change but if their self-efficacy is low, then the behavior change is less likely to happen. Another factor that will also affect an individual’s behavior change would be outcome expectations. Outcome expectations will help the individual’s belief
about what consequences will ensue if they perform that particular behavior. This is important to the Social Cognitive Theory because their individual’s decision will be based on whether the actions they take will better their outcome (Bandura, 1986). To help an individual with their behavioral change, they have to feel like they are getting a positive outcome of doing the behavioral change. If they feel like that there is not a positive outcome for changing the behavior than they won’t change.

In a study conducted by R.M.P. Van Zundert et al. (2009), where they were testing Social Cognitive Theory to predict smoking relapse among daily smoking adolescents, they talk about how self-efficacy, outcome expectations, and intentions are core concepts of how to get smokers to quit smoking. They found out that adolescents that see smoking as having high advantageous and quitting to have low advantageous then they are the ones that relapse (Van Zundert et al. 2009). That statement is related to the outcome expectations because the adolescents view smoking as a positive behavior and see quitting as a negative. Van Zundert et al. (2009) hypothesized that adolescents would score high on pros of smoking and low scores on pros of quitting as well as having a low self-efficacy to resist smoking. In this study, they focused on the pros of smoking and the pros of quitting. Some sample questions that Van Zundert et al. (2009) used were: “Smoking helps to cope with stress”, and “Smoking helps me concentrate” (p.283). These two example questions are considered to be in the personal factor (cognitive) because it is what they feel personally that helps them perform the behavior. Self-efficacy played a big part in this study because they wanted to find out about the adolescents’ confidence to resist smoking in tempting situations (Van Zundert, Rimer, & Lewis, 2009). Sample questions that Van Zundert et al. (2009) included in their survey were: “When you have quit smoking, how easy or difficult would it be for you to not smoke in the following situations?” or “When you were watching television” (p.283). Different situations that an individual encounters while trying to resist smoking will challenge their self-efficacy because it puts them in that situation where they have to have the confidence in resisting the behavior.

In the findings of this study, Van Zundert et al. (2009) found out that during a quit attempt, self-efficacy was low, they increased the urge to smoke, and that pros of
smoking were major factors. This shows how important self-efficacy is to any type of behavior because if that individual does not have high self-efficacy than it will be difficult for them to change their behavior. Also, they found that more adolescents found that there were more pros of smoking than pros of quitting (Van Zundert et al. 2009). In the Social Cognitive Theory, the pros of a behavior falls under personal factors because it is where an individual believes or personally feels that the behavior benefits them.

**Summary**

This chapter presented a review of the literature related to smokeless tobacco. There were many factors that correlate with smokeless tobacco like knowledge, behaviors and beliefs, other harmful risks, social environments, different types of cancers, role models, the transition from high school, and the Social Cognitive Theory. Literature reports people who use smokeless tobacco are usually aware of the how harmful smokeless tobacco is but they still believe it is a safer alternative than smoking cigarettes. Smokeless tobacco users also believe that smokeless tobacco relieves stress and provides a feeling of relaxation. Literature states that athletes who live in the rural area are more likely to use smokeless tobacco than athletes who do not (Walsh, Ellison, Hilton, Chesney & Ernester, 2000). Finally, literature reports that baseball has been subjected to use smokeless tobacco more than any other sport (Cooper, Ellison, & Walsh, 2003; Sinusas & Coroso, 2006).
Chapter III

Methodology

The purpose of this study is to focus on male athletes, who play baseball at a collegiate level, in order to determine if their behaviors and surrounding environments influence them to use smokeless tobacco. I hypothesize that the environments surrounding collegiate baseball players are a major influence on their use of smokeless tobacco, especially when the players are participating in their collegiate sport at least five to six days a week.

The three main research questions to be explored with this thesis are 1) What personal factors influence a collegiate baseball player to use smokeless tobacco? 2) Do collegiate baseball surrounding environments increase the chances of collegiate baseball players using smokeless tobacco? 3) Does smokeless tobacco knowledge change collegiate baseball players beliefs and behaviors?

Social Cognitive Theory will serve as the theoretical framework for determining how knowledge, beliefs, and environments influence smokeless tobacco behaviors.

Specifically, my research will investigate the knowledge and beliefs of collegiate baseball players toward smokeless tobacco. In turn, knowledge and beliefs may influence whether collegiate baseball players use smokeless tobacco.

Research Design

Since the research expresses a strong correlation between smokeless tobacco and athletes who play baseball, there will be different factors in this study on how knowledge, beliefs, and the environments influences these athletes to perform the behavior (Cooper, Ellison, & Walsh, 2003; Marty, McDermott, & Williams, 1986; Monson & Beaulieu, 2011). My independent variable will be collegiate baseball athletes and my dependent variables will be the environment, knowledge, and beliefs.
Subjects

The subjects that for my study will be collegiate baseball players who play baseball in four different places: Miami University Oxford campus, Miami University Hamilton campus, Miami University Middletown campus, and Miami University Club – Oxford campus. There are currently 33 baseball players on the Miami University varsity team, 25 baseball players on the Miami University Hamilton team, 17 baseball players on the Miami University Middletown team, and 25 baseball players on the Miami University Club team. The age ranges of these athletes are from 18-22. They are all enrolled at their respected colleges and are eligible to play.

Currently, the different environments for the prospectus participants can be described as:

- Miami University Oxford baseball team is located in Oxford, Ohio. Miami University Oxford plays in a rural area and they are in Division 1 National College Athletic Association (NCAA) team and are a member in the Mid-American Conference (MAC).
- Miami University Hamilton baseball team is located in Hamilton, Ohio who plays in a suburban area and they are member of the Ohio Regional Campus Conference (ORCC).
- Miami University Middletown baseball team is located in Middletown, Ohio who plays in a suburban area and is a member of the Ohio Regional Campus Conference.
- Miami University Club baseball team is located in Oxford, Ohio who plays in a rural area and is a member in the Great Lakes Region of the National Club Baseball Association.

Procedure

The procedures of the study are described below. After approval from the Miami’s Institutional Review Board, I will contact the athletic directors or president of each collegiate baseball team to see if they will give me permission to talk to their coach to see if they are willing to participate my research study. Once I receive permission from
the athletic director or president of each team, then I will contact the coach to see when I can set up a time and place for the collegiate baseball athletes to take the survey (Appendix C). After the coach and I agreed on a time and place (place will be in a classroom setting where they feel comfortable at), I will meet them at the location and found out how many of the players are willing to participate in my study.

Once the players agree to participate in the research study, I will read the script found in Appendix D to explain what the players should do with the survey once it is passed out (Appendix D). I will then have the coaches and other upper baseball personal leave the room. I will stay in the room to answer any questions from the players, and each player will place their own survey into the manila envelope when they are finished.

**Instrumentation**

Participants will complete one questionnaire called the *Smokeless Tobacco Survey for Collegiate Baseball Players*. I will be using a Multivariate Analysis of Variance (MANOVA) design, as I will be comparing the four collegiate baseball teams to each other. The survey is comprised of four parts, which are explained below:

1. **Youth Risk Behavior Survey Questions on Tobacco** – developed by the United States Centers for Disease Control and Prevention.

2. **Inquiry-Based Skill Assessment for Tobacco Prevention (IBSA-TP)** – developed by researcher based on the Habits of Health and Habits of Mind Model (Ubbes, 2008).


4. **Confidential Player Survey** – developed by Dr. Margaret Walsh (1994).

The *Youth Risk Behavior Survey Questions on Tobacco* ask 9 questions about tobacco use and 1 question about smokeless tobacco. The tobacco questions are part of the larger YRBS, which is used by all states in the surveillance. Specific patterns for tobacco use across age groups are reported by states every 4 years and are available on
the CDC website at http://www.cdc.gov. It is a brief survey on the overall general use of tobacco and to find out if these collegiate baseball athletes have used tobacco products.

The Inquiry-Based Skill Assessment for Tobacco Prevention (IBSA-TP) questions are about tobacco uses but emphasizes the cognitive skills the baseball athletes have toward smokeless tobacco. The five subcategories of cognitive skills are based on the Habits of Health and Habits of Mind model by Ubbes (2008): decision making, goal setting, stress management, conflict resolution, and communication. Decision-making involves 3 questions on whether collegiate baseball players are capable of making decisions not to use smokeless tobacco in situations which may be tempting for them to use. Goal setting asks 3 questions that express whether a collegiate baseball player can decrease their use of smokeless tobacco while in an environment which may influence them to use smokeless tobacco. Stress management asks 3 questions regarding whether collegiate baseball players can manage situations that do not involve the use of smokeless tobacco. Conflict resolution asks 3 questions to find out if collegiate baseball players are able to resolve a conflict that may occur without needing to use smokeless tobacco. And finally, the last portion of this survey is communication. Communication asks 3 questions that deal with whether collegiate baseball players are able to communicate with family and friends about their smokeless tobacco use.

Glover-Nilsson Smokeless Tobacco Behavioral Questionnaire (GN-SBQ) asks 11 questions that are about different behaviors related to smokeless tobacco (Glover & Nilsson, 2005). This survey was developed to determine the degree to which behavioral patterns play a role in smoking dependence (Ebbert, Severson, Danahaer, Schroeder, & Glover, 2012). According to Ebbert et al. (2012) that the GN-SBQ was highly associated with tobacco craving and withdrawal. This strictly means someone scoring high on this test are highly dependent on smokeless tobacco. These questions also range from using smokeless tobacco in different environments to do they use smokeless tobacco for personal reasons.

Finally, the Confidential Player Survey asks 10 questions about collegiate baseball players’ intentions toward smokeless tobacco use. These questions range from how bad do they want to quit to how confident they are in themselves to quit. In this
survey, there are questions about the use of smokeless tobacco to see how old and which type of smokeless tobacco the players have used. This survey asks questions about if baseball players have any intentions to quit using smokeless tobacco by asking questions like, “how much do you want to stop using dip/chew?” Also, it is important to find out in this survey their intentions when and where they use smokeless tobacco. Questions like “when do you chew” and “how soon after you wake up in the morning do you have your first dip or chew?”
Chapter IV

Results

In all, four collegiate baseball teams were contacted and three teams participated in the study because one team was terminated before I could administer the questionnaire. Out of the three teams that participated, 45 collegiate baseball players agreed to take the survey. Forty-two percent (n=19) were from the Oxford campus, 46% (n=21) were from the Hamilton campus, and 11% (n=5) were from the Miami University club team. Out of the 45 male participants, 31% (n=14) were 20 years old, 29% (n=13) were 19 years old, 18% (n=8) were 21 years old, 13% (n=6) were 22 years old, and 9% (n=4) were 18 years old. Ninety-five percent (n=43) of the participants in this study were white and 5% (n=2) were black. Among the responders, 38% (n=17) play in the National Collegiate Athletic Association (NCAA), 47% (n=21) play in the Ohio Regional Campus Conference (ORCC), and 16% (n=7) play in the National Club Baseball Association.

Prevalence of Cigarettes

In this study, I also wanted to see whether participants smoked cigarettes because previous studies showed that people believe erroneously that smokeless tobacco was a safer alternative to smoking cigarettes. According to my data, the overall prevalence of cigarette smoking use within the past 30 days was 2% (n=1) for 6 to 9 days and 5% (n=2) for 1 to 2 days. Asked if they ever tried a cigarette, 64% (n=29) said yes, while 36% (n=16) said no. Of these, 33% (n=15) reported that they first tried a cigarette at age 17 or older, 16% (n=7) at 15 or 16 years old, 7% (n=3) at 13 or 14 years old, and 4% (n=2) at 9 to 10 years old (Table 1).

Prevalence of Smokeless Tobacco and Age of First Use

The overall prevalence of smokeless tobacco (snuff or dip) use in my study for the past 30 days was 16% (n=7) for all 30 days, 9% (n=4) from 6 to 9 days, 9% (n=4) from 10 to 19 days, 9% (n=4) from 20-29 days, 2% (n=1) for 3 to 5 days, and 9% (n=4) for 1 to 2 days, and 47% (n=21) reported they have not used smokeless tobacco within 30 days. Of these, 52% (n=22) reported that they were 17 to 18 years old when they started using
chew or dip tobacco, 29% (n=12) reported being 15 to 16 years of age when started, 7% (n=3) reported 19 or 20 and 20 or older, and 5% (n=2) were younger than 15.

**Types of Smokeless Tobacco Used by Time of Day, Location & Frequency**

The majority of the responding smokeless tobacco users used dip and/or snuff (51%, n=23), while the rest used leaf tobacco (13%, n=6). Twenty-four percent (n=11) of smokeless tobacco users reported they use their first dip or chew within 3 hours of waking up in the morning, while 18% (n=8) reported they used more than 3 hours after waking up and 4% (n=2) said within 30 minutes. Participants were asked when they used dip or chew. Results showed that 37% (n=15) reported they chew recreationally (not related to sports) plus during their sport season, 27% (n=11) reported only recreationally, 20% (n=8) reported only during games during the sport season, 10% (n=4) reported all the time during the sport season, and 7% (n=3) reported only during practice during the sport season. Finally, to see how many dips or chews that they use per day, 30% (n=13) reported using 1 to 2 per day, 16% (n=7) reported using 3 to 5 per day, and 14% (n=6) reported of using 6 to 9 per day.

**Inquiry-Based Skill Assessment for Tobacco Prevention (IBSA-TP)**

Participants were asked questions about their use of cognitive skills like decision-making, stress management, goal setting, conflict resolution, and communication related to their smokeless tobacco use. Results from the Inquiry-Based Skill Assessment for Tobacco Prevention (IBSA-TP) revealed the following:

**Decision Making and Smokeless Tobacco**

Out of the 45 participants, 9% (n=4) reported they are not capable of making the decision to use smokeless tobacco while in the dugout, while 91% (n=41) reported they were. Asked whether they were able to make the decision to not use smokeless tobacco while around teammates, 16% (n=7) reported no, while 82% (n=37) reported yes. Thirteen percent (n=6) of the participant reported they could not make the decision to not use smokeless tobacco while around friends who used smokeless tobacco, and 87%
(n=39) reported they could make the decision to not use smokeless tobacco while around friends.

**Stress Management and Smokeless Tobacco**

Asked whether participants could manage their stress during a close ball game or against a fierce opponent, 11% (n=5) said they could not do that without the use of smokeless tobacco.

**Goal Setting and Smokeless Tobacco**

This section was accidentally omitted while making the survey into the computer, so we did not get any results from goal setting.

**Conflict Resolution and Smokeless Tobacco**

When asked about conflict resolution, 9% (n=4) said they did not know if they were capable of participating in baseball without the use smokeless tobacco after having an argument with a loved one, while 7% (n=3) said they could not. With conflict resolution, 9% (n=4) of the participants said they were not capable of participating in baseball without smokeless tobacco after a discussion with their coach and after a disagreement with the umpire.

**Communication and Smokeless Tobacco**

Participants were asked if they are able to communicate with their teammates, coaches, and parents why they did not use smokeless tobacco. Nine percent (n=4) said they were not able to communicate with their teammates on why they do not use smokeless tobacco, 7% (n=3) said they were not able to communicate with their coaches on why they do not use smokeless tobacco. Eleven percent (n=5) said they did not know if they were able to. And 9% (n=4) said they were not able to communicate with their parents on why they do not use smokeless tobacco.
Smokeless Tobacco Addiction

Smokeless tobacco is a nicotine product that can be addicting. When asked whether their smokeless tobacco was very important to them, 11% (n=5) of the participants reported that it was extremely important to them and very much important to them, while 9% (n=4) reported moderately so, and 4% (n=2) reported somewhat.

Discovering whether the participants find themselves using smokeless tobacco routinely (without craving), 16% (n=7) reported that they very much so, 13% (n=6) reported moderately so, 7% (n=3) reported extremely so, while 4% (n=2) reported somewhat. Eleven percent (n= 5) of smokeless tobacco users said they, very much so, rewarded themselves with smokeless tobacco after accomplishing a task, 9% (n=4) said that they extremely so rewarded themselves and 9% (n=4) somewhat rewarded themselves, while only 7% (n=3) say they moderately so rewarded themselves after an accomplishment with smokeless tobacco.

On whether participants find themselves having difficulty concentrating before attempting a task without the use of smokeless tobacco, 11% (n=5) said very much so and 7% (n=3) said moderately so and somewhat. To help smokeless tobacco craving, the participants were asked whether they placed something in their mouth to distract them from smokeless tobacco and 13% (n=6) reported that they somewhat do, 11% (n=5) reported very much so, and 7% (n=3) reported extremely so.

Smokeless Tobacco Ritual

Some smokeless tobacco users have rituals they perform before they place the smokeless tobacco into their mouth. In table 4, 13% (n=6) of participants reported that they do maneuver and manipulate smokeless tobacco in their mouth as part of the ritual use while 11% (n=5) reported very much so, and 7% (n=3) reported extremely so. Another question regarding rituals was if smokeless tobacco enjoyment comes from the steps (ritual) they take when handling smokeless tobacco and 11% (n=5) reported very much so, 9% (n=4) reported extremely so, and 7% (n=3) reported somewhat.
Smokeless Tobacco and Environments

Environmental cues are important factors when it comes to a health behavior and when surrounded by a particular environment; it is sometimes hard not to perform the health behavior (smokeless tobacco). When the participants are not allowed to use smokeless tobacco in certain places, 13% (n=6) said they very much so play with their smokeless tobacco can or pouch, while 4% (n=2) said they moderately do so, and only 2% (n=1) said somewhat. Asked if certain environmental cues like their favorite chair, sofa, room, sports, friends, hunting, or drinking alcohol will trigger the use of smokeless tobacco, 20% (n=9) reported extremely so, 13% (n=6) reported somewhat, and 9% (n=4) reported each very much so and moderately so. Thirteen percent (n=6) reported they felt somewhat secure, safe, and more confident if they were in possession of smokeless tobacco when they were alone in a restaurant, bus terminal, party, or other places, while 9% (n=4) said they were very much so secure, safe, and more confident. Another 4% (n=2) said moderately so, and 2% (n=1) said they felt extremely secure, safe, and more confident when they were in possession of smokeless tobacco when alone.

Quitting Smokeless Tobacco

Participants were asked if they had ever made a serious attempt to quit using dip/chew altogether and 33% (n=15) reported they have not. Participants were also asked to select the best statement that describes them with regards to the use of dip or chew: 29% (n=13) said that they were not thinking about quitting smokeless tobacco within the next 6 months, 29% (n=13) said I have stopped using smokeless tobacco for more than 6 months, 7% (n=3) said they were seriously thinking about quitting smokeless tobacco within 6 months, 7% (n=3) also said they have stopped using smokeless tobacco for 6 months or less, and 2% (n=1) said they plan on quitting in the next 30 days.

Participants were asked if they decided to stop using smokeless tobacco completely within the next 2-3 weeks, how confident would they feel? Results showed that 22% (n=10) reported they were somewhat confident they would quit for good, 16% (n=7) very confident they would quit for good, and 16% (n=7) reported not all confident they would quit for good.
**Harmfulness of Smokeless Tobacco**

And lastly, participants were asked how much they think people risk harming themselves if they use dip or chew? Results showed that 49% (n=22) said moderately so, 24% (n=11) said great risk, 22% (n=10) said slight risk, and 2% (n=1) each said not sure and no risk.
Chapter X

Discussion

Research Questions and Hypotheses

There are three main research questions to explore with this thesis: 1) What influences a collegiate baseball player to use smokeless tobacco?, 2) Do collegiate baseball surrounding environments increase the chances of using smokeless tobacco? And 3) Does smokeless tobacco knowledge change collegiate baseball players beliefs and behaviors toward smokeless tobacco use?

According to this research, out of the 45 male participants, 21 (47%) reported using smokeless tobacco within the past 30 days but 42 out of the 45 participants were or current users of smokeless tobacco. The majority of the responding smokeless tobacco users used dip and/or snuff (51%), while the rest used leaf tobacco (13%). These findings are comparable to recent research because in Gansky et al. (2005), 40% of their participants were users of smokeless tobacco in the past 30 days.

What influences a collegiate baseball player to use smokeless tobacco?

Sixteen percent of the 45 participants reported they could not use smokeless tobacco while around other teammates who currently use and 13% \((n=6)\) reported that they could not make decisions not to use smokeless tobacco around other friends who currently use smokeless tobacco. Even though these results are relatively low percentages, it still is a factor that influences collegiate baseball player to use smokeless tobacco. According to Cooper, Ellison, & Walsh (2003), where they studies 616 minor league baseball players and 52% stated that teammates were the primary reason for them to use smokeless tobacco but in this research, teammates were not as high as compared to other researches. This is because collegiate baseball players have already been using smokeless tobacco so friends and teammates are no longer an influence on them to use or try smokeless tobacco.
Do collegiate baseball surrounding environments increase the chances of using smokeless tobacco?

The environment seems to have the greatest influence on collegiate baseball players' use of smokeless tobacco. Environmental cues have an effect on collegiate baseball players because when they are in certain environments, it cues them to perform the behavior (i.e., use of smokeless tobacco). In this study, collegiate baseball players were asked if they would play with their smokeless tobacco pouches or cans at places where smokeless tobacco was not allowed. Data showed that 20% (n=10) of the participants reported that they do, showing they have to do some kind of behavior with their tobacco product while in certain baseball environments. This is significant because we want to determine how the built environment, which does not permit smokeless tobacco use, will determine their behaviors. Data also showed that 51% (n=23) reported that certain environmental cues do trigger tobacco use behaviors. Finding out that most of the collegiate baseball players (73%, n=30) in this study reported that they use smokeless tobacco during the sports season, demonstrates that baseball environment is a significant influence on smokeless tobacco use.

Compared to the other findings in table 3, 27% (n=11) of the participants used smokeless tobacco recreationally. Stating that baseball is where most collegiate baseball players use smokeless tobacco, it becomes a standard to use smokeless tobacco during baseball season. Table 3 also shows that collegiate baseball player use smokeless tobacco more during games than during practice. This is because collegiate baseball players are more concentrated in a game environment than during a practice environment, which makes collegiate baseball players use smokeless tobacco more during a game environment.

Does smokeless tobacco knowledge change collegiate baseball players’ beliefs and behaviors toward smokeless tobacco use?

When asked whether people are at risk of harming themselves if they were to use smokeless tobacco, 96% (n=43) of current and non-current users reported there were risks involved whether it was a slight risk, moderate risk, or great risk to using smokeless
tobacco. Out of the 53% (n=24) who have used smokeless tobacco in the past 30 days, 96% (n=43) reported there were risks. This shows that collegiate baseball players have the knowledge about how harmful smokeless tobacco is for them but they are still using it. In regards to whether they know it is harmful, but it is unclear about how much they actually know when it comes to the harmful risks that smokeless tobacco does. Every smokeless tobacco container and/or pouch has a warning label on it that says that this product can cause gum disease and tooth loss. However, it does not necessarily mean collegiate baseball players know how harmful it can be to their health.

To go along with knowledge is whether collegiate baseball players were trying or had any attempt to quit using smokeless tobacco. Table 4 shows whether collegiate baseball players are serious about quitting the use of smokeless tobacco. Collegiate baseball players (38%) reported that they are somewhat and not at all confident they could quit for good. Based on whether collegiate baseball player were serious about quitting, 33% (n=15) were not. With collegiate baseball players trying to make an attempt to quit smokeless tobacco, they still seem to keep coming back to using smokeless tobacco and they do not feel as confident in quitting smokeless tobacco despite the knowledge of knowing the harmful risks. When they are around certain environmental cues, collegiate baseball players find it harder for them to quit using smokeless tobacco because they have a strong connection with smokeless tobacco either through the baseball environment or socially with their friends. Since all of the participants are collegiate baseball players, current users behaviors of using are around the environment of baseball and teammates/friends.

**Inquiry-Based Skill Assessment**

There were not any studies that focused on smokeless tobacco and inquiry-based skills. In this study, collegiate baseball players were asked about their decision-making, goal setting, stress management, and communication with smokeless tobacco. When collegiate baseball players were asked questions regarding decision-making, there was relatively low number (16%, n=7) of participants who reported they were able to make the decision to not use around teammates and coaches. Stating that collegiate baseball
player’s decision-making around teammates and coaches were not an influence towards smokeless tobacco use.

Smokeless tobacco has been known by smokeless tobacco users to provide a relaxation stimulus during stressful situations (Marty, McDermott, & Williams, 1986). Collegiate baseball players responded that 11% (n=5) were not able to manage their stress without smokeless tobacco during fierce competition. The results show that smokeless tobacco is not a factor in managing stress among collegiate baseball players.

With conflict resolution and smokeless tobacco, collegiate baseball players reported that smokeless tobacco was not a factor because 9% (n=4) did not know if they were capable of participating in baseball without the use of smokeless tobacco after having an argument with a loved one and 9% (n=4) after a discussion with their coach or an disagreement with the umpires. Out of the 45 participants, a low number (4) of collegiate baseball players were not affected by certain conflicts to use smokeless tobacco.

Communication was not a factor in the use of smokeless tobacco because only 9% (n=4) out of the 45 participants stated that collegiate baseball players were not able to communicate with their teammates on why they do not use smokeless tobacco, while 7% (n=3) were not able to communicate with their coaches on why they do not use smokeless tobacco. Stating that the majority of collegiate baseball players were able to communicate with their teammates and coaches on why they use smokeless tobacco.

Since goal setting was accidentally forgotten in our survey, we cannot discuss on goal setting.

**Hypothesis**

I hypothesized that collegiate baseball players used smokeless tobacco when in different environments like: the dugouts, baseball fields, games, practices, and when they are with their teammates. This research investigated the knowledge and beliefs of baseball players toward smokeless tobacco. In turn, it was hypothesized that knowledge and beliefs were an influence with the use of smokeless tobacco among collegiate baseball players. This research supported my hypothesis by showing that surrounding
environments do influence collegiate baseball player’s use of smokeless tobacco. Collegiate baseball players were asked when they typically chew. Data shows that 73% (n=30) of collegiate baseball players use smokeless tobacco recreationally and during their sport season, whether it is during practice and/or during games. This study also investigated to see if collegiate baseball players were aware of the harmful risks that were involved in using smokeless tobacco. Data indicated that 96% (n=43) of collegiate baseball players knew there are some risks involved in using smokeless tobacco. Therefore, knowledge is not a significant factor when it comes to changing the behavior of smokeless tobacco use in collegiate baseball players because even though they know the harmful risks, 47% (n=21) of the participants are still using smokeless tobacco.

Social Cognitive Theory

Social Cognitive Theory (Bandura, 1986) was the theoretical framework for determining how knowledge, beliefs, and environments influenced smokeless tobacco behaviors of collegiate baseball players. Social Cognitive Theory outlines whether the (social/built) environment and/or personal knowledge and beliefs influence a health behavior. In the current study the environmental factors were the game of baseball and the effects of teammates and coaches on smokeless tobacco behaviors. My research did show that environments have a significant influence on the use of smokeless tobacco. Data shown in Table 5 indicate that the built environment (baseball games) was more significant than social environment (teammates and coaches).

Recent smokeless tobacco studies have shown that teammates and coaches influenced a majority of baseball players, but this was at the high school level (Walsh, Ellison, Chesney, & Ernster, 2000). The difference between high school and collegiate level is that most of the participants are already addicted to smokeless tobacco. With personal beliefs, my research focused on harmful risks and whether they feel or believe there is any risks involved with using smokeless tobacco. A majority of collegiate baseball players knew there were risks but those risks did not have an effect on whether they used or not.
**Limitations**

Some limitations in the current study include a low number of participants; however, this is the first research specifically between smokeless tobacco and collegiate baseball players. Future studies should explore collegiate baseball players beyond Miami University. Unfortunately, there was one team eliminated due to discontinuing their team before I could conduct the research. Even though I had three different teams agree to participate, not everyone on the team agreed to participate in the study or admitting current use of smokeless tobacco products. With the low number of participants (n=45), two of the teams had a low number of players on their team so comparative research was limited; however, this is the first research that was done using cognitive-skill with smokeless tobacco plus we used the Social Cognitive Theory to explore smokeless tobacco use among collegiate baseball players.

Further research should examine a wider range of collegiate baseball players in different areas like rural and urban setting to determine the prevalence rates in different environments based on socioeconomic status and geography. Further research could examine the difference between entering freshman baseball players and exiting senior baseball players to see how their smokeless tobacco behaviors either changed throughout their collegiate career.

**Conclusion**

Smokeless tobacco use is a major issue in the game of baseball. Our school systems need to educate students earlier and more adequately, in hopes that prevalence of smokeless tobacco use will decrease. Today almost one-half of collegiate baseball players are still using smokeless tobacco at Miami University and the majority of them are using because of baseball environments including the social reinforcements use between teammates and coaches. By providing and enforcing smokeless tobacco polices more harshly toward student athletes who use smokeless tobacco in games and practice situations, smokeless tobacco usage could be decreased and improve the public health outcomes of young men who participate in collegiate baseball.
References


Smokeless Tobacco Survey for Collegiate Baseball Players

This survey is about your understanding and use of smokeless tobacco. The information you give will be used to improve health education for athletes like yourself.

DO NOT write your name on this survey. The answers you give will be kept private. No one will know what you write. Answer the questions based on what you really do.

Completing the survey is voluntary. If you are not comfortable answering a question, just leave it blank.

The questions that ask about your background will be used only to describe the types of students completing this survey. The information will not be used to find out your name. No names will ever be reported.

Make sure you read every question. Circle only one answer to each question. When you are finished, follow the instructions of the person giving you the survey.

DIRECTIONS
* Use a #2 pencil only.
* Make dark marks.
* Fill in a response like this: A B C D
* If you change your answer, erase your old answer completely.

1. How old are you?
   A. 18 years old
   B. 19 years old
   C. 20 years old
   D. 21 years old
   E. 22 years old
   F. 23 years old or older

2. What is your sex?
   A. Female
   B. Male

3. What is your rank in school?
   A. Freshman
   B. Sophomore
   C. Junior
   D. Senior
   E. Graduate Student

4. Are you Hispanic or Latino?
5. What is your race? (Select one or more responses.)
   A. American Indian or Alaska Native
   B. Asian
   C. Black or African American
   D. Native Hawaiian or Other Pacific Islander
   E. White

6. On which Miami University campus do you play collegiate baseball?
   A. Oxford
   B. Hamilton
   C. Middletown
   D. Club

7. At what level of collegiate baseball do you play?
   A. NCAA
   B. Regional Campus team
   C. Club team

8. Your athletic status:
   A. In-State Scholarship Athlete
   B. Out-of-State Scholarship Athlete
   C. Non-Scholarship Athlete

9. At the present time, do you have any injury that would limit your ability to compete?
   A. Yes
   B. No

10. Other than any injuries, how would you rate your current health status from a mental and physical perspective?
    A. Excellent Health Status
    B. Good Health Status
    C. Average Health Status
    D. Fair Health Status
    E. Poor Health Status
Youth Risk Behavior Survey Questions on Tobacco

The next 10 questions ask about tobacco use.

11. Have you ever tried cigarette smoking, even one or two puffs?
   A. Yes
   B. No

12. How old were you when you smoked a whole cigarette for the first time?
   A. I have never smoked a whole cigarette
   B. 8 years old or younger
   C. 9 or 10 years old
   D. 11 or 12 years old
   E. 13 or 14 years old
   F. 15 or 16 years old
   G. 17 years old or older

13. During the past 30 days, on how many days did you smoke cigarettes?
   A. 0 days
   B. 1 or 2 days
   C. 3 to 5 days
   D. 6 to 9 days
   E. 10 to 19 days
   F. 20 to 29 days
   G. All 30 days

14. During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?
   A. I did not smoke cigarettes during the past 30 days
   B. Less than 1 cigarette per day
   C. 1 cigarette per day
   D. 2 to 5 cigarettes per day
   E. 6 to 10 cigarettes per day
   F. 11 to 20 cigarettes per day
   G. More than 20 cigarettes per day

15. During the past 30 days, how did you usually get your own cigarettes? (Select only one response.)
   A. I did not smoke cigarettes during the past 30 days
   B. I bought them in a store such as a convenience store, supermarket, discount store, or gas station.
C. I bought them from a vending machine
D. I gave someone else money to buy them for me
E. I borrowed (or bummed) them from someone else
F. A person 18 years old or older gave them to me
G. I took them from a store or family member
H. I got them some other way

16. During the past 30 days, on how many days did you smoke cigarettes on school property?
A. 0 days
B. 1 or 2 days
C. 3 to 5 days
D. 6 to 9 days
E. 10 to 19 days
F. 20 to 29 days
G. All 30 days

17. Have you ever smoked cigarettes daily, that is, at least one cigarette every day for 30 days?
A. Yes
B. No

18. During the past 12 months, did you ever try to quit smoking cigarettes?
A. I did not smoke during the past 12 months
B. Yes
C. No

19. During the past 30 days, on how many days did you use chewing tobacco, snuff, or dip, such as Redman, Levi Garrett, Beechnut, Skoal, Stokers, or Copenhagen?
A. 0 days
B. 1 or 2 days
C. 3 to 5 days
D. 6 to 9 days
E. 10 to 19 days
F. 20 to 29 days
G. All 30 days

20. During the past 30 days, on how many days did you smoke cigars, cigarillos, or little cigars?
A. 0 days
B. 1 or 2 days
C. 3 to 5 days
D. 6 to 9 days
E. 10 to 19 days
F. 20 to 29 days
G. All 30 days

Inquiry-Based Skill Assessment for Tobacco Prevention (IBSA-TP)
The next 15 questions ask about smokeless tobacco use.

**DECISION MAKING**

21. I am capable of making decisions **not** to use smokeless tobacco while in the dugout.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
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<tbody>
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<td></td>
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</table>

22. I am capable of making decisions **not** to use smokeless tobacco while around other friends who currently use smokeless tobacco.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
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<td></td>
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</table>

23. I am capable of making decisions **not** to use smokeless tobacco while around other teammates who currently use smokeless tobacco.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
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</table>

**GOAL SETTING**

24. I am capable of setting goals to **decrease** smokeless tobacco while in the baseball dugout.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
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<tr>
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</table>

25. I am capable of setting goals to **decrease** smokeless tobacco while playing baseball on the practice field.

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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
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</table>

26. I am capable of setting goals to **decrease** smokeless tobacco while playing baseball on the game field.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
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</table>

**STRESS MANAGEMENT**

27. I am capable of managing my stress **without** smokeless tobacco during a close ball game or against a fierce opponent.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
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<tbody>
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<td></td>
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</table>

28. I am capable of managing my stress **without** smokeless tobacco during a game
when I have an injury.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
</tr>
</thead>
</table>

29. I am capable of managing my stress without smokeless tobacco during a game.

<p>| | | | |</p>
<table>
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<th></th>
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</table>

CONFLICT RESOLUTION

30. After an argument with a loved one, I am capable of participating in baseball without the use of smokeless tobacco.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
</tr>
</thead>
</table>

31. After a discussion with my coach, I am capable of participating in baseball without the use of smokeless tobacco.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
</tr>
</thead>
</table>

32. After a disagreement with the umpire, I am capable of participating in baseball without the use of smokeless tobacco.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
</tr>
</thead>
</table>

COMMUNICATION

33. I am able to communicate to my teammates why I do not use smokeless tobacco.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
</tr>
</thead>
</table>

34. I am able to communicate to my coach why I do not use smokeless tobacco.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
</tr>
</thead>
</table>

35. I am able to communicate to my parents why I do not use smokeless tobacco.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>I don't know</th>
</tr>
</thead>
</table>

Glove-Nilsson Smokeless Tobacco Behavioral Questionnaire (GN-STBQ)

The next 11 questions ask about behaviors related to smokeless tobacco use.

36. My smokeless tobacco is very important to me.

   A. Not at all
   B. Somewhat
   C. Moderately so
   D. Very much so
   E. Extremely so

37. I maneuver and manipulate smokeless tobacco in my mouth as part of the ritual use.

   A. Not at all
   B. Somewhat
   C. Moderately so
   D. Very much so
38. Do you place something in your mouth to distract you from smokeless tobacco?
   A. Not at all
   B. Somewhat
   C. Moderately so
   D. Very much so
   E. Extremely so

39. Do you reward yourself with smokeless tobacco after accomplishing a task?
   A. Not at all
   B. Somewhat
   C. Moderately so
   D. Very much so
   E. Extremely so

40. If you find yourself without smokeless tobacco, will you have difficulty concentrating before attempting a task?
   A. Not at all
   B. Somewhat
   C. Moderately so
   D. Very much so
   E. Extremely so

41. If you are not allowed to use smokeless tobacco in certain places, do you then play with your smokeless tobacco can or pouch?
   A. Not at all
   B. Somewhat
   C. Moderately so
   D. Very much so
   E. Extremely so

42. Do certain environmental cues trigger your smokeless use, e.g., favorite chair, sofa, room, car, sports, friends, hunting, or drinking alcohol?
   A. Not at all
   B. Somewhat
   C. Moderately so
   D. Very much so
   E. Extremely so

43. Do you find yourself using smokeless tobacco routinely (without craving)?
   A. Not at all
   B. Somewhat
   C. Moderately so
   D. Very much so
   E. Extremely so
44. Do you find yourself placing other objects (pen toothpick chewing gum, etc.) in your mouth and sucking to get relief from stress, tension or frustration?

A. Not at all
B. Somewhat
C. Moderately so
D. Very much so
E. Extremely so

45. Does part of your smokeless tobacco enjoyment come from the steps (ritual) you take when handling your smokeless tobacco?

A. Not at all
B. Somewhat
C. Moderately so
D. Very much so
E. Extremely so

46. When you are alone in a restaurant, bus terminal, party, etc., do you feel safe, secure, or more confident if you are in possession of smokeless tobacco?

A. Not at all
B. Somewhat
C. Moderately so
D. Very much so
E. Extremely so

Confidential Player Survey
The next 10 questions ask about your intentions toward smokeless tobacco use.

47. How old were you when you started using chew/dip tobacco?

A. younger than 15
B. 15 or 16
C. 17 or 18
D. 19 or 20
E. older than 20

48. What types of smokeless tobacco do you usually use?

A. Dip/Snuff
B. Leaf
C. I do not use smokeless tobacco
49. Which one of the following statements best describes you with regard to dip or chew use?

A. I have never used dip/chew
B. I have stopped using dip/chew and have been quit for more than 6 months
C. I have stopped using dip/chew and have been quit for 6 months or less
D. I plan to quit dip/chew use in the next 30 days
E. I am seriously thinking about quitting dip/chew use in the next 6 months
F. I am not thinking about quitting dip/chew use within the next 6 months

50. How much do you want to stop using dip/chew?

A. Not at all
B. Somewhat
C. Very much
D. I don’t use dip/chew

51. Do you use dip/chew ore during the morning than during the rest of the day?

A. Yes
B. No
C. I do not use dip/chew

52. How soon after you wake up in the morning do you have your FIRST dip or chew?

A. Within 30 minutes
B. Within 3 hours
C. More than 3 hours
D. I do not use dip/chew

53. When do you chew?

A. only during my sports season, during practice only
B. only during my sports season, during games only
C. only during my sports season, all the time
D. recreationally (not related to sports) and during my sports season
E. only recreationally

54. Have you ever made a serious attempt to quit using dip or chew altogether?

A. Yes
B. No
C. I do not use dip or chew
55. How much do you think people risk harming themselves if they use dip or chew?
   A. No risk
   B. Slight risk
   C. Moderate risk
   D. Great risk
   E. Not sure

56. If you decided to stop using dip or chew completely during the next 2-3 weeks, how confident are you that you would quit for good?
   A. Not at all
   B. Somewhat
   C. Very
   D. I do not use dip/chew

57. When you use dip or chew, how many per day do you usually have?
   A. 0
   B. 1-2 per day
   C. 3-5 per day
   D. 6-9 per day
   E. 10-19 per day
   F. 20+ per day

58. When you use chew, how many per day do you usually have?
   A. 0
   B. 1-2 per day
   C. 3-5 per day
   D. 6-9 per day
   E. 10-19 per day
   F. 20+ per day
Appendix A: Epidemiological Table (Boeffetta, Hector, Gray, Gupta, & Straif, 2008)

<table>
<thead>
<tr>
<th>Sex, study period</th>
<th>Study design</th>
<th>Exposure</th>
<th>Inclusion of smokers*</th>
<th>Exposure frequency</th>
<th>Cancer type (number of cases)</th>
<th>Relative risk (95% CI)</th>
<th>Comments</th>
<th>Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA Women, 1975-78</td>
<td>PCC</td>
<td>Snuff dipping</td>
<td>NS</td>
<td>White, 34%; black, 61%</td>
<td>Oral and pharyngeal cancer (152)</td>
<td>White, 4.2 (2.6-6.7); black, 1.5 (0.5-4.8)</td>
<td>Proxy interviews for many; mainly use of dry snuff with high nitrosamine concentrations</td>
<td>18</td>
</tr>
<tr>
<td>USA Men/Women, 1984-85</td>
<td>PCC</td>
<td>Smokeless tobacco use</td>
<td>SNS</td>
<td>Portuguese (95)</td>
<td>Oral cancer (755)</td>
<td>Tongue cancer, 2 (0.2-12.9); mouth cancer 12 (4.1-30.7)</td>
<td>Cancer controls; exposure data from hospital records</td>
<td>19</td>
</tr>
<tr>
<td>USA Men, 1977-84</td>
<td>HCC</td>
<td>Smokeless tobacco use</td>
<td>NS</td>
<td>15%</td>
<td>Oesophageal cancer (4)</td>
<td>1.2 (0.1-13.3)</td>
<td>Proxy interview for many</td>
<td>21</td>
</tr>
<tr>
<td>USA Men, 1972-83</td>
<td>HCC</td>
<td>Tobacco chewing</td>
<td>SNS NA</td>
<td>Oral cancer (256)</td>
<td>1.0 (0.7-1.4)</td>
<td>Low response rate</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>USA Men, 1966-68</td>
<td>Co</td>
<td>Smokeless tobacco use</td>
<td>NS NA</td>
<td>Pancreatic cancer (57)</td>
<td>1.7 (0.9-3.3)</td>
<td>2</td>
<td>Unadjusted relative risk</td>
<td>23</td>
</tr>
<tr>
<td>USA Men, 1970-90</td>
<td>HCC</td>
<td>Tobacco chewing</td>
<td>NS</td>
<td>Oral and pharyngeal cancer (82)</td>
<td>2.3 (0.7-7.2)</td>
<td></td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>USA Men, 1985-93</td>
<td>HCC</td>
<td>Tobacco chewing</td>
<td>NS</td>
<td>15%</td>
<td>Pancreatic cancer (166)</td>
<td>3.6 (1.0-12.8)</td>
<td>Low response rate</td>
<td>25</td>
</tr>
<tr>
<td>USA Men, 1988-90</td>
<td>PCC</td>
<td>Oral snuff use</td>
<td>SNS</td>
<td>Oral cancer (328); oesophageal cancer (123)</td>
<td>Oral cancer, 1.4 (0.8-2.4); oesophageal cancer, 1.2 (0.7-2.2)</td>
<td></td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>USA Women, 1980-89</td>
<td>PCC</td>
<td>Snuff use</td>
<td>SNS</td>
<td>Oral cancer (410)</td>
<td>6.8 (0.5-13)</td>
<td>Proxy interview for most</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>USA Women, 1995-97</td>
<td>PCC</td>
<td>Snuff use</td>
<td>SNS</td>
<td>Oesophageal cancer (167)</td>
<td>1.4 (0.9-2.3)</td>
<td>Squamous-cell carcinoma</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>USA Men/Women, 1986-89</td>
<td>PCC</td>
<td>Smokeless tobacco use</td>
<td>NS</td>
<td>Pancreatic cancer (130)</td>
<td>1.4 (0.5-3.8)</td>
<td></td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Norway Men, 1986-2001</td>
<td>Co</td>
<td>Snuff use</td>
<td>SNS</td>
<td>Oral and pharyngeal cancer (27); pancreatic cancer (3); lung cancer (164)</td>
<td>Oral and pharyngeal cancer, 1.1 (0.5-2.4); oesophageal cancer, 1.1 (0.6-2.2); pancreatic cancer, 1.7 (1-2.5); lung cancer, 1.8 (0.6-1.1)</td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>USA Men, 1959-72</td>
<td>Co</td>
<td>Current spit tobacco use</td>
<td>NS</td>
<td>Oral and pharyngeal cancer (18); lung cancer (124)</td>
<td>Oral and pharyngeal cancer, 2.0 (0.5-7.7); lung cancer, 1.4 (0.5-5.8)</td>
<td></td>
<td></td>
<td>31</td>
</tr>
<tr>
<td>USA Men, 1982-2000</td>
<td>Co</td>
<td>Current spit tobacco use</td>
<td>NS</td>
<td>Oral and pharyngeal cancer (60); lung cancer (184)</td>
<td>Oral and pharyngeal cancer, 0.9 (0.4-1.8); lung cancer, 0.8 (0.4-1.3)</td>
<td></td>
<td></td>
<td>31</td>
</tr>
<tr>
<td>Sweden Men, 1978-2004</td>
<td>Co</td>
<td>Snuff use</td>
<td>NS</td>
<td>Oral cancer (30); pancreatic cancer (83); lung cancer (154)</td>
<td>Oral cancer, 0.3 (0.1-1.7); pancreatic cancer, 2.0 (1.2-3.2); lung cancer, 0.8 (0.5-1.3)</td>
<td></td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>USA Men/Women, 2000-06</td>
<td>HCC</td>
<td>Tobacco chewing</td>
<td>NS</td>
<td>Pancreatic cancer (323)</td>
<td>6.6 (0.3-14)</td>
<td>Similar findings for use of snuff</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Sweden Men, 1971-2004</td>
<td>Co</td>
<td>Snuff use</td>
<td>NS</td>
<td>Oesophageal cancer (25)</td>
<td>3.5 (1.6-7.6)</td>
<td>Squamous-cell carcinoma</td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>

Co-hort study. HCC-hospital-based case-control study. NA-not available. NS-non-smokers. PCC-population-based case-control study. SNS-smokers and non-smokers. *Relative risks that refer to both smokers and non-smokers are adjusted for tobacco smoking.

Table 1. Epidemiological studies of smokeless tobacco use and cancer risk of the oral cavity, oesophagus, pancreas, and lung in the USA and northern Europe.
Appendix B: Social Cognitive Theory

Bandura’s Triadic Reciprocal Determinism
Hi Coach,

My name is Ryan Williams, and I am a graduate student in Health Promotion at Miami University in the Department of Kinesiology and Health. I am doing my master thesis on “Smokeless Tobacco and Collegiate Baseball Players.” The purpose of my research is to determine when, where, and to what extent collegiate baseball players use smokeless tobacco.

I am contacting you today about involving your team in my research study. If you agree to let your team participate, I was wondering if we could meet before or after practice to briefly discuss my study for my master’s thesis? At that time, should you agree, I will also need to secure a “meeting” room, or a classroom, so your athletes will be able to complete my research survey at a future time.

The survey contains 55 questions and will take approximately 35 minutes to complete. None of your athletes will be asked to put their names on the survey because their answers will be confidential and only viewable by me and my master’s thesis advisor, Dr. Valerie A. Ubbes (ubbesva@miamioh.edu) from the Department of Kinesiology and Health at Miami University – Oxford.

Would you please let me know by telephone or email, if you are willing to meet with me in the next week or so? Thank you for your time, Coach!

Sincerely,

Ryan Williams, AT
Athletic Trainer
Miami University
williarp@miamioh.edu
Hello Collegiate Baseball Players,

I am a Graduate Student in the Department of Kinesiology and Health at Miami University (Oxford) I am a Certified Athletic Trainer, and I am currently writing my master’s thesis on “Collegiate Baseball Players and Smokeless Tobacco”. My research is supervised by my advisor, Dr. Valerie A. Ubbes, who is also from the Department of Kinesiology and Health. The purpose of my meeting today is to request your involvement in my study.

Your participation in this study is strictly on a volunteer basis. Should you agree to participate, you will spend the next 35 minutes answering my questionnaire. Your answers will be kept private and confidential and only be seen by my graduate advisor and me.

Your name is NOT needed anywhere on the questionnaire. You may skip any questions for any reason.

In a few minutes, I will distribute the surveys. If you agree to participate, please read the directions carefully. I will be in the room if anyone has any questions. If you are unsure about your response, make an “educated guess”. Please work through the questions quickly without talking to your teammates or coaches. Once you have read and answered the questions, please put the survey back in the manila envelope – then hand the envelope to me before you leave the room.

Thank you for your participation in my study.

Sincerely,

Ryan Williams, AT
Athletic Trainer
Miami University
williarp@miamioh.edu
Table 1: Prevalence of Cigarette Smoking

<table>
<thead>
<tr>
<th>Have you ever tried cigarette smoking, even one or two puffs?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>64.4</td>
</tr>
<tr>
<td>No</td>
<td>35.6</td>
</tr>
</tbody>
</table>

How old were you when you smoked a whole cigarette for first time?

| I have never smoked a whole cigarette.                      | 40.0       |
| 9 or 10 years old                                           | 4.4        |
| 13 or 14 years old                                          | 6.7        |
| 15 or 16 years old                                          | 15.6       |
| 17 years or older                                           | 33.3       |
Table 2: Prevalence Smokeless Tobacco

<table>
<thead>
<tr>
<th>When you use dip or chew, how many per day do you usually have?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 per day</td>
<td>40%</td>
</tr>
<tr>
<td>1-2 per day</td>
<td>60%</td>
</tr>
<tr>
<td>3-5 per day</td>
<td>16%</td>
</tr>
<tr>
<td>6-9 per day</td>
<td>14%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>During the past 30 days, how many days did you use smokeless tobacco?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 days</td>
<td>46%</td>
</tr>
<tr>
<td>1-2 days</td>
<td>9%</td>
</tr>
<tr>
<td>3-5 days</td>
<td>2%</td>
</tr>
<tr>
<td>6-9 days</td>
<td>9%</td>
</tr>
<tr>
<td>10-19 days</td>
<td>9%</td>
</tr>
<tr>
<td>20-29 days</td>
<td>9%</td>
</tr>
<tr>
<td>All 30 days</td>
<td>16%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How old were you when you started to use smokeless tobacco?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger than 15</td>
<td>5%</td>
</tr>
<tr>
<td>15 or 16</td>
<td>29%</td>
</tr>
<tr>
<td>17 or 18</td>
<td>52%</td>
</tr>
<tr>
<td>19 or 20</td>
<td>7%</td>
</tr>
<tr>
<td>Older than 20</td>
<td>7%</td>
</tr>
</tbody>
</table>
Table 3: When collegiate baseball players chew

<table>
<thead>
<tr>
<th>When do you chew?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only during my sport season, during practice only</td>
<td>7%</td>
</tr>
<tr>
<td>Only during my sport season, during games only</td>
<td>20%</td>
</tr>
<tr>
<td>Only during my sport season, all the time</td>
<td>9%</td>
</tr>
<tr>
<td>Recreationally, and during sport season</td>
<td>37%</td>
</tr>
<tr>
<td>Only recreationally</td>
<td>27%</td>
</tr>
</tbody>
</table>
Table 4: Quitting Smokeless Tobacco

<table>
<thead>
<tr>
<th>Have you ever made a serious attempt to quit using dip or chew altogether?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>20%</td>
</tr>
</tbody>
</table>

If you decided to stop using dip or chew completely during the next 2-3 weeks, how confident are you that you would quit for good?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Somewhat</th>
<th>Very</th>
<th>I do NOT use dip/chew</th>
</tr>
</thead>
<tbody>
<tr>
<td>16%</td>
<td>22%</td>
<td>16%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Which one of the following statements best describes you with regard to dip or chew use?

<table>
<thead>
<tr>
<th>I have never used dip/chew</th>
<th>27%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have stopped using dip/chew and have been quit for more than 6 months</td>
<td>29%</td>
</tr>
<tr>
<td>I have stopped using dip/chew and have quit for 6 months or less</td>
<td>7%</td>
</tr>
<tr>
<td>I plan to quit dip/chew use in the next 30 day</td>
<td>2%</td>
</tr>
<tr>
<td>I am seriously thinking about quitting dip/chew use in the next 6 months</td>
<td>7%</td>
</tr>
<tr>
<td>I am NOT thinking about quitting dip/chew use within the next 6 months</td>
<td>29%</td>
</tr>
</tbody>
</table>
Table 5: Built Environment and Social Environment

(Built Environment)  

Do certain environmental cues trigger your smokeless use, e.g., favorite chair, sofa, room, car, sports, friends, hunting, or alcohol?

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>49%</td>
</tr>
<tr>
<td>Somewhat</td>
<td>13%</td>
</tr>
<tr>
<td>Moderately so</td>
<td>9%</td>
</tr>
<tr>
<td>Very much so</td>
<td>9%</td>
</tr>
<tr>
<td>Extremely so</td>
<td>20%</td>
</tr>
</tbody>
</table>

(Social Environment)  

I am capable of making decisions NOT to use smokeless tobacco while around teammates who currently use smokeless tobacco.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>82%</td>
</tr>
<tr>
<td>No</td>
<td>16%</td>
</tr>
<tr>
<td>I don’t know</td>
<td>2%</td>
</tr>
</tbody>
</table>
Table 6: Age, Sex, Rank, Campus, and Level of Play

<table>
<thead>
<tr>
<th>How old are you?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-19 years old</td>
<td>38% (n=17)</td>
</tr>
<tr>
<td>20-23 years old</td>
<td>62% (n=28)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What is your sex?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>100% (n=45)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What is your rank in school?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>31% (n=14)</td>
</tr>
<tr>
<td>Sophomore</td>
<td>27% (n=12)</td>
</tr>
<tr>
<td>Junior</td>
<td>33% (n=15)</td>
</tr>
<tr>
<td>Senior</td>
<td>9% (n=4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On which Miami University campus do you play collegiate baseball?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxford</td>
<td>38% (n=17)</td>
</tr>
<tr>
<td>Hamilton</td>
<td>48% (n=21)</td>
</tr>
<tr>
<td>Club</td>
<td>16% (n=7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>At what level of collegiate baseball do you play?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCAA</td>
<td>38% (n=17)</td>
</tr>
<tr>
<td>Regional Campus</td>
<td>48% (n=21)</td>
</tr>
<tr>
<td>Club</td>
<td>16% (n=7)</td>
</tr>
</tbody>
</table>
Table 7: Inquiry-Based Skills – Decision-Making

<table>
<thead>
<tr>
<th>I am capable of making decisions NOT to use smokeless tobacco while in the dugout.</th>
<th>Percentage (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>91% (n=41)</td>
</tr>
<tr>
<td>No</td>
<td>9% (n=4)</td>
</tr>
</tbody>
</table>

I am capable of making decisions NOT to use smokeless tobacco while around other friends who currently use smokeless tobacco.

<table>
<thead>
<tr>
<th>I am capable of making decisions NOT to use smokeless tobacco while around other friends who currently use smokeless tobacco.</th>
<th>Percentage (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>87% (n=39)</td>
</tr>
<tr>
<td>No</td>
<td>13% (n=6)</td>
</tr>
</tbody>
</table>

I am capable of making decisions NOT to use smokeless tobacco while around other teammates who currently use smokeless tobacco.

<table>
<thead>
<tr>
<th>I am capable of making decisions NOT to use smokeless tobacco while around other teammates who currently use smokeless tobacco.</th>
<th>Percentage (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>82% (n=37)</td>
</tr>
<tr>
<td>No</td>
<td>16% (n=7)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>2% (n=1)</td>
</tr>
</tbody>
</table>
Table 8: Inquiry-Based Skill – Stress Management

<table>
<thead>
<tr>
<th></th>
<th>Percentage (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am capable of managing my stress WITHOUT smokeless tobacco during a close ball game or against a fierce opponent.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>89% (n=40)</td>
</tr>
<tr>
<td>No</td>
<td>9% (n=5)</td>
</tr>
<tr>
<td>I am capable of managing my stress WITHOUT smokeless tobacco when I have an injury.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>91% (n=41)</td>
</tr>
<tr>
<td>No</td>
<td>4% (n=2)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>4% (n=2)</td>
</tr>
<tr>
<td>I am capable of managing my stress WITHOUT smokeless tobacco during a game.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>93% (n=42)</td>
</tr>
<tr>
<td>No</td>
<td>4% (n=2)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>2% (n=1)</td>
</tr>
</tbody>
</table>
### Table 9: Inquiry-Based Skill – Conflict Resolution

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>After an argument with a loved one, I am capable of participating in</td>
<td></td>
</tr>
<tr>
<td>baseball WITHOUT the use of smokeless tobacco.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>84% (n=38)</td>
</tr>
<tr>
<td>No</td>
<td>7% (n=3)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>9% (n=4)</td>
</tr>
<tr>
<td>After a discussion with my coach, I am capable of participating in</td>
<td></td>
</tr>
<tr>
<td>baseball WITHOUT the use of smokeless tobacco.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>89% (n=39)</td>
</tr>
<tr>
<td>No</td>
<td>9% (n=4)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>2% (n=1)</td>
</tr>
<tr>
<td>After a disagreement with the umpire, I am capable of participating in</td>
<td></td>
</tr>
<tr>
<td>baseball WITHOUT the use of smokeless tobacco.</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>89% (n=39)</td>
</tr>
<tr>
<td>No</td>
<td>9% (n=4)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>2% (n=1)</td>
</tr>
</tbody>
</table>
Table 10: Inquiry-Based Skill – Communication

<table>
<thead>
<tr>
<th>I am able to communicate to my teammates why I do NOT use smokeless tobacco.</th>
<th>Percentage (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>84% (n=36)</td>
</tr>
<tr>
<td>No</td>
<td>9% (n=4)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>7% (n=3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I am able to communicate to my coach why I do NOT use smokeless tobacco.</th>
<th>Percentage (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>82% (n=36)</td>
</tr>
<tr>
<td>No</td>
<td>7% (n=3)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>11% (n=5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I am able to communicate to my parents why I do NOT use smokeless tobacco.</th>
<th>Percentage (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>86% (n=38)</td>
</tr>
<tr>
<td>No</td>
<td>9% (n=4)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>5% (n=2)</td>
</tr>
</tbody>
</table>