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Comparing college smokers' and dual users' expectancies towards cigarette smoking

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ABSTRACT

Background: As no agreed upon definition exists for dual use (i.e., individuals who concurrently use more than one form of tobacco), this population remains largely unstudied in the substance use literature, despite increases in smokeless tobacco use among young adults. Individuals 18–25 years of age report the highest rates of smokeless tobacco use, dual use, and cigarette use. The current study compared the smoking outcome expectancies of college student dual users to those who reported only smoking cigarettes.
Methods: The Short Form of the Smoking Consequences Questionnaire was used to examine potential differences in positive or negative expectations regarding cigarette use.
Results: Data from this study suggest that smokers believe that smoking will lead to greater positive consequences ("cigarettes taste good"), negative reinforcement ("cigarettes help me deal with anger"), and weight/appetite reduction ("smoking controls my appetite") when compared to dual users. Conversely, dual users believed that smoking would lead to greater negative consequences (e.g., "smoking is taking years off of my life").
Discussion: These results may help to explain why some smokers choose not to use smokeless tobacco products for harm reduction or smoking cessation purposes, as well as why increases are being observed in smokeless tobacco rates among young adults.

1. Introduction

The use of tobacco products is a major public health concern in the United States and abroad. It remains the leading cause of preventable death worldwide and is associated with several serious illnesses including lung cancer, ischemic heart disease, and emphysema (Adhikari, Kahende, Malarcher, Pechacek, & Tong, 2008; World Health Organization [WHO], 2011). Despite the well-known health risks associated with tobacco use, many continue to smoke cigarettes and/or use smokeless tobacco products (e.g., chewing tobacco, snuff, snus). In 2012, an estimated 22.0% of Americans 18 years or older reported current cigarette use, while 3.6% reported current use of one or more smokeless tobacco products (Centers for Disease Control & Prevention [CDC], 2014). Current use is defined as having smoked or used smokeless tobacco in the past 30 days.

While adult smoking rates have declined over the past 15 years, individuals 18–25 years of age have the highest rates of tobacco use. In 2012, nearly early one-third of young adults 18–25 were smokers (31.8%) and 5.5% used smokeless tobacco (CDC, 2014). Males tended to smoke more than females (36.6% and 27.1%, respectively), and use more smokeless tobacco (10.5% of males and 0.5% of females; CDC, 2014). Alarmingly, nearly half (46.1%) of all new smokeless tobacco users and over three-fourths (86.9%) of smokers initiate use before age 18 (CDC, 2014; Substance Abuse & Mental Health Services Administration [SAMHSA], 2011).

Several explanations may account for the increase in smokeless tobacco use among teens and young adults including, smoking bans and new flavors of smokeless tobacco products (e.g., cherry, apple blend, peach, and grape) clearly targeting this group (Alpert, Koh, & Connolly, 2008; Oliver, Jensen, Vogel, Anderson, & Hatsukami, 2013; Widome, Brock, Klein, & Forster, 2012). Furthermore, the addition of snus to the American market has made tobacco use significantly easier to conceal given that the user swallows saliva produced by the product rather than spit it out (Foulds, Ramstrom, Burke, & Fagerström, 2003; Galanti, Wickholm, & Gilljam, 2001). The advertising of smokeless tobacco products (including snus) has also increased, so larger numbers of our youth are being introduced to an addictive product where use can be easily hidden from authority figures (Curry, Pederson, & Stryker, 2011).

These trends are disturbing as individuals are becoming dependent on nicotine earlier and are less likely to successfully quit after a cessation attempt (Lando, Haddock, Robinson, Klesges, & Talcott, 2000). One reason for this is that young smokers have been substituting their cigarettes with smokeless tobacco products (rather than turning to a non-tobacco alternative), or they become dual users, thereby increasing their overall nicotine intake (Hatsukami, Ebbert, Feuer, Stepanov, & Hecht, 2007; Tomar, Alpert, & Connolly, 2010).

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Dual users are those who concurrently use more than one form of tobacco. Aside from the well-known risks of tobacco use, dual users face additional risks when compared to those who use either of the tobacco products in isolation including, heavier alcohol consumption, and greater levels of risk taking behavior (Klesges et al., 2011). Demographically, dual users tend to be Caucasian males, between the age of 18 and 25 years, who live in the southern United States (McClave-Regan & Berkowitz, 2011). In 2012, prevalence estimates for dual use were 10.1% of young adults 18–25 years old and 3.7% of all adults (CDC, 2014). One study examining smokers, smokeless tobacco users, and dual users, found that dual users reported the greatest severity of nicotine withdrawal symptoms, followed by smokers, and smokeless tobacco users (Post, Gilljam, Rosendahl, Bremberg, & Galanti, 2010). Furthermore, the same research group found that smokeless tobacco and dual users reported symptoms of tobacco dependence that were 2–5 times greater than cigarette smokers (Post et al., 2010).

1.1. Tobacco outcome expectancies

Smoking outcome expectancies are important to consider when studying an individual's smoking behavior, motivation to continue smoking, and the likelihood of successful smoking cessation (Brandon, Juliano, & Copeland, 1999; Copeland & Brandon, 2000). Additionally, they are predictive of initiation, relapse, and levels of consumption (Brandon & Baker, 1991; Brandon et al., 1999; Copeland, Brandon, & Quinn, 1995; Rose, Chassin, Presson, & Sherman, 1996). Smoking outcome expectancies can generally be grouped into the following categories: 1) positive reinforcement smoking expectancies, 2) negative consequences smoking expectancies, 3) negative reinforcement smoking expectancies, and 4) appetite/weight control smoking expectancies (Brandon & Baker, 1991).

Positive smoking expectancies include the facilitation of social situations, and enjoyment of the flavor of the product used (Hendricks & Brandon, 2005; Morrell, Song, & Halpern-Felsher, 2010; Mullennix, Kilbey, Fisicaro, Farnsworth, & Torrento, 2003; Myers, McCarthy, MacPherson, & Brown, 2003). While smokers may enjoy the positive effects of smoking they are also aware of the negative consequences associated with continued use including the numerous health consequences, smelling like smoke, and having bad breath (Glock, Unz, & Kovacs, 2012; Hendricks & Brandon, 2005). Smokers are able to rationalize continued use via the positive expectancies they hold, despite concurrently holding negative expectancies (Glock et al., 2012).

There are also smoking outcome expectancies relevant to negative reinforcement. These expectancies have been found to be associated with trait worry and the expectation that smoking will reduce overall negative affect. Furthermore, negative affect reduction expectancies are also thought to induce a positive mood and are associated with smoking behavior as well as nicotine dependence (Brandon, Wetter, & Baker, 1996; Downey & Kilbey, 1995; Peasley-Miklus, McLeish, Schmidt, & Zvolensky, 2012). Finally, expectancies regarding appetite/weight reduction from smoking have been shown to be a motivating factor for individuals to smoke as well, especially among young women (Adams, Baillie, & Copeland, 2011; Brandon & Baker, 1991). Women tend to initiate smoking for weight control reasons and have stronger beliefs regarding the appetite suppressing properties of nicotine when compared to men (Copeland & Carney, 2003; Copeland et al., 1995; French & Jeffery, 1995).

Much less is known regarding the role of smokeless tobacco outcome expectancies. A recent study found that positive expectancies towards smokeless tobacco are predictors of current use (Gottlieb, Cohen, Demarree, Treloar, & McCarthy, 2013). Health consequences related to smokeless tobacco use were also found to be lower among smokeless tobacco users when compared to non-tobacco users and smokers (Gottlieb et al., 2013). Another research group found that smokeless tobacco use was positively correlated with expectations that smokeless tobacco could control one's mood, as well as curb the need to smoke (Wiium & Aarø, 2011). Given that nicotine is the primary psychoactive substance present in both products it makes sense that there is a substantial overlap between smoking and smokeless tobacco outcome expectancies, but differences also exist. One primary difference is that while weight loss is a significant concern for many smokers, smokeless tobacco does not appear to be used for this purpose (Gerend, Boyle, Peterson, & Hatsukami, 1998).

While it is evident that little is known regarding the role of smokeless tobacco outcome expectancies, even less is known about the expectancies of dual users of cigarettes and smokeless tobacco. Taking into consideration that dual use can be significantly more harmful to the individual (McClave-Regan & Berkowitz, 2011; Noonan & Duffy, 2014) and dual users appear to be more difficult to treat when compared to users of either product alone (Post et al., 2010; Rosendahl, Galanti, & Gilljam, 2008; Wetter et al., 2002), it is important to gain a better understanding of this largely understudied group. Thus, the present study is designed to examine any differences between smokers and dual users' responses to a measure of smoking outcome expectancies.

It is hypothesized that smokers will report higher positive reinforcement outcome expectancies for smoking when compared to dual users, given that smokers use only one tobacco product, whereas dual users may experience as much (or more) positive reinforcement from smokeless tobacco. Regarding negative consequence as a result of smoking, it is predicted that dual users will expect greater negative outcomes when compared to smokers, as the former may chose to use smokeless tobacco as a means of harm reduction and substitute such use a portion of the time they have urges to smoke. We also hypothesize that smokers will display greater negative reinforcement outcome expectancies when compared to dual users as smoking may be used as the only method for reducing negative affect, where dual users may decide to use a smokeless tobacco product instead of smoking. Finally, considering that a relationship between smokeless tobacco use and appetite/weight reduction has not yet been established and significantly more men than women use smokeless tobacco, it is hypothesized that smokers will report higher outcome expectancies related to appetite/weight reduction.

2. Method

2.1. Participants

This analysis was part of a larger study (N = 968) that developed a measure for smokeless tobacco outcome expectancies among young adults (Gottlieb et al., 2013). Participants in the current study were 306 undergraduate students enrolled a large, public university in the southern United States. The other 662 students were not included in the analyses for the current study due to the fact that not all phases of data collection for the development of the measure asked about frequency of use. Of the 306 students included, there was a fairly even distribution of dual users (n = 140) and those who reported use of cigarettes, but not smokeless tobacco (n = 166).

Cigar and pipe tobacco users were excluded from participation, and electronic cigarette use was not assessed for, as these devices were not commonly used at the time of assessment. The mean age was found to be just under 20 years old ($M = 19.89$; $SD = 3.70$) and more females (58.2%) than males. The sample self-identified as 71.2% Caucasian, 16.3% Hispanic or Latino, 3.9% African American, 2.9% Asian American or Pacific Islander, 0.7% Native American, and 4.9% identified as biracial or "other." The noted demographic data are generally representative of the city in which the study was conducted, however it is important to mention that African Americans are underrepresented in this sample. See Table 1 for complete demographic information.

2.2. Procedure

The Human Research Protection Program (Institutional Review Board) of the university where the study was conducted approved the