

USE OF SMOKELESS TOBACCO BY YOUNG ADULT FEMALES

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ABSTRACT: *In contrast to the well documented use of smokeless tobacco (ST) by men, far less is known about ST use by women. In part this is due to the small overall prevalence of ST use among women (0.6%). This paper is a descriptive report of the use of ST by young adult women in the upper midwest. Twenty women, identified as smokeless tobacco users, completed a tobacco questionnaire and brief interview. The majority (80%) were introduced to ST by friends and 60% had tried cigarettes before using ST. Almost all used ST daily, averaging 3.6 dips per day. The number of dips per day was significantly correlated with salivary cotinine ($r = .60$). Subjects listed relaxation and pleasure most frequently as reasons for using ST. Twenty-five percent reported using ST to quit smoking and a similar percentage reported using ST to curb their appetite. With the introduction of new flavored snuff products, ST may become more appealing to the tastes of diverse groups including women. The potential acceptance of ST among women should be the focus of further research.*

INTRODUCTION

Public health professionals have identified smokeless tobacco (ST) use as an area of concern based on the increasing prevalence of use and health consequences associated with its use (U.S. Department of Health and Human Services, 1994; World Health Organization,

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1988). The recent popularity of ST has been well documented and linked to growing use by young males. In 1991 the prevalence of ST use was estimated to be 5.6% among men and 0.6% among women ages 18 years and older. Thus 533,000 women were current users in 1991. (Morbidity and Mortality Weekly, [MMWR], 1993). The adverse health effects associated with ST use include oral lesions, gum recession, nicotine addiction and cancer (International Agency for Research on Cancer, 1985; U.S. Department of Health and Human Services, 1986). The most informative case-control study of the carcinogenicity of ST involved 255 women with oral and pharyngeal cancer living in North Carolina. For long-term chronic users of snuff, there was a nearly fifty fold increase in risk for cancers of the gum and buccal mucosa ($RR = 48.0$). From an analysis of attributable risk, the researchers estimated that 87% of these cancer were due to ST use (Winn, Blot, Shy, Pickle, Toledo, & Fraumeni, 1981).

Epidemiological surveys have identified the prevalence of ST and oral cancer risk (Winn et al., 1981), as well as factors associated with use among women (Riley, Barenie, Mabe, & Myers, 1990). However, in contrast to the well documented use of ST among young males, little information exists on patterns of smokeless tobacco use by young women. The purpose of the present study was to describe the use of smokeless tobacco by young adult women who considered themselves to be ST users.

METHOD

Participants

The 20 women included in this paper formed a group of ST using women who participated in a broader study that investigated eating behavior and weight control among equal sized groups ($n = 20$) of young women using smokeless tobacco, cigarettes, and normal controls (Gerend, Boyle, Peterson, & Hatsukami, in press). As part of that study participants received \$30 payment for completing two eating behavior questionnaires, a tobacco questionnaire, and a brief interview. The present paper will focus on the information collected in the tobacco questionnaire and interview to describe the sample of women using smokeless tobacco.

Potential participants were screened over the telephone with participation limited to those women using ST at least once a week for the past six months with no drug use other than alcohol. A total of 29 women were screened for inclusion into the study. Two of the nine women excluded were occasional marijuana users. The remaining seven women were excluded because of insufficient smokeless tobacco use.

The participants were between the ages of 19 and 39 years, with an average age of 22 years ($SD = 4.9$). Ninety percent (90%) identified themselves as White and 10% (2/20) as African American. They were all high school graduates with an average of 14 years of completed education. Participants were recruited via posters placed at various colleges in the metropolitan area of Minneapolis/St Paul, and advertisements placed in the University of Minnesota student newspaper and a local arts and entertainment newspaper.

Procedures

Participants were telephoned the day before the session to remind them of their scheduled appointment time. After informed consent was obtained, an expired air sample was obtained with the Vitalograph breath CO monitor to confirm their smoking status. A fresh tin of ST brought by each subject was weighed in grams using a digital scale (American Scientific Products, Dallas TX) before and after removal of a typical sized dip of tobacco. In addition, subjects were asked to rinse their mouth prior to submitting a saliva sample for cotinine analysis. Cotinine is a metabolite of nicotine and a useful indicator of tobacco exposure.

The questionnaire developed for this study consisted of 60 items measuring demographic variables, initiation and pattern of smokeless tobacco use, quit attempts, and smoking history. The questionnaire items closely followed previous interview research with ST users (Severson, Eakin, Lichtenstein, and Stevens, 1990).

In addition to completing the questionnaire, subjects participated in a brief interview lasting 15 minutes on average. The interviews were organized around key questions asked of each subject. These questions solicited additional information about first use of ST, perceived consequences of use, and advantages of using ST.

To test for significant relationships between measures of ST use and cotinine, Pearson correlation coefficients were examined. Descriptive data were analyzed using frequencies and means. All data were analyzed using SPSS.

RESULTS

Tobacco Use

All of the participants used moist snuff (finely ground tobacco sold in round tins), and identified snuff as their primary form of tobacco. High nicotine content brands were preferred by 80% of the subjects ($n = 15$, Kodiak; $n = 1$, Copenhagen), Skoal, a medium nicotine brand was preferred by three subjects (15%), and Cooper, a low nicotine brand by one subject (5%). Although the preferred brands were Kodiak (75%) and Skoal (15%) most of the subjects had tried several brands of ST. On average they had tried four brands.

In terms of smoking cigarettes, two (10%) were regular smokers ($M = 5$ cigarettes/day), seven (35%) were occasional smokers, six (30%) had tried smoking (1–10 times), and five (25%) were ex-smokers. Twelve (60%) had experimented with cigarettes before trying snuff. In response to the question: "Have you ever smoked when you could not or did not want to chew?" 65% responded "Yes, more than once."

Smokeless Tobacco Initiation

The mean age of first ST use was 17.6 years ($SD = 5.9$). Most of the subjects (80%) cited being with friends the first time they tried ST. Additional responses included being with relatives (10%) and being with team mates (10%). The most common reasons for trying ST were curiosity (40%) and expectations from friends (40%). Several women (25%) reported switching to ST to help quit smoking. In response to an open-ended question, subjects described their physical reactions to first trying ST. The most frequently reported reactions included nausea and vomiting (45%), getting a buzz or high (35%), lightheaded or dizzy (30%).

Current ST Use

Patterns of current use were assessed from the following self-reported measures: dups per day, the number of days a can lasts, and minutes per dip. In addition the weight of a typical dip was measured and saliva cotinine was assessed. Two participants reported using ST less than daily or about 1 to 4 times per week. Participants who were using daily ($n = 18$) reported a mean of 3.6 ($SD = 3.0$) dups per day. The number of days a can lasted varied widely between 2 days and 3 months, with a median of 6 days. Subjects were asked how long they kept a dip of tobacco in their mouth, the mean response was 22.5 minutes ($SD = 9.6$). For all subjects, the mean dip weight was 1.64 grams (range 0.2 to 4.6 g). The mean cotinine level was 86.84 ng/ml with a range of 10 to 214 ng/ml. Subjects had been using ST at their current rate for an average of 18 months ($SD = 16.7$).

The intercorrelations between measures of ST use and cotinine were calculated. Subjects who were regular smokers ($n = 2$) were excluded from this analysis to reduce the influence of smoking on the cotinine levels. Only the number of dups per day correlated significantly with cotinine ($r = .60, p < .05$). In addition, the weight of a dip was correlated significantly with the number of days a can lasted ($r = -.59, p < .05$). The weight of a dip was uncorrelated with cotinine levels, while the other measures of ST use, the number of days a can lasts and minutes a dip is kept in the mouth, produced nonsignificant yet moderate correlations (.30).

Perceptions of Health Risks

All participants ($n = 20$) acknowledged that there are health risks associated with ST use. The most frequently cited risks included cancer (75%), gum disease (30%), and tooth loss (30%). Using a 100 mm visual analog scale, subjects were asked to mark their level of concern about using smokeless tobacco from unconcerned (0) to very concerned (100). The mean response was 55, suggesting a modest level of concern. Participants were asked to think of anything that might motivate them to want to quit. The most frequent response (80%) involved a change in physical health, such as mouth sores, gum disease or cancer. Other responses included having a boyfriend disapprove, a change in the price of a tin, and feeling less effect, that is, "losing the buzz."

Advantages and Disadvantages of ST

Participants were asked what they enjoyed about ST and what they did not like about using ST. These interview responses were collected from 16 of the participants. The relaxing or calming effects (44%) and pleasure (44%) were reported most often. Other positive aspects of chew included appetite suppression (25%) and as a cure for boredom (25%). The mess associated with use (e.g. spitting and cleaning particles from teeth) was cited most often as a disadvantage (44%), other responses included restrictions on use, such as not being able to chew around certain people (38%), mouth sores (30%), health concerns in general (30%), addiction and withdrawal (25%), and concern about social disapproval (25%), portrayed by one subject as "women shouldn't use that."

DISCUSSION

Results from the present study indicate that compared to male ST users women have lower consumption patterns from comparable brands of ST. Based on the ST categories calculated by Djordjevic, Hoffmann, Glynn, and Connolly (1995), most of the women in this sample preferred high (80%) or medium (15%) nicotine content brands. These brands are also popular with male ST users.

The average age of use by women in this study (17.6 years) is approximately a year later than male users reported by Hatsukami, Keenan, and Anton (1988), and Severson et al. (1990). In addition, women from this study report taking fewer dips per day of a lower tobacco weight and shorter duration per dip on average than men (Boyle, Jensen, Hatsukami, & Severson, 1995; Hatsukami et al., 1988; Severson et al., 1990). The use of less ST by women in this sample may be related to a shorter duration of ST use, as most of the women in this study had been regular users for less than 4 years and the mean age of onset was after 17 years of age. Early age of onset has been found to be correlated with higher levels of use among female high school students (Riley, Barenie, Mabe, & Myers, 1990). Another possible explanation is the social disapproval of women using ST that may restrict higher levels of use by reducing the opportunities to engage in the behavior. Indeed, not chewing around certain people and awareness of social disapproval were cited by women in this sample.

Consistent with previous research, salivary cotinine levels were strongly correlated ($r = .60$) with higher ST use, measured as dips/day (Boyle et al., 1995; Hatsukami, Gust, & Keenan, 1987; Severson et al., 1990). Cotinine levels, however, were not related to the grams of tobacco used per day. The finding of ST being used to quit smoking is important and confirms previous research with male ST users who used ST as an aid to quit smoking (Novotny, Pierce, Fiore, & Davis, 1989; Tilashalski, Lozano, & Rodu, 1995).

Despite the fact that all of the snuff users in the sample agree that ST use is associated with health risks, their general level of concern about the use of ST is relatively low. On a scale of 1 to 100, with moderate concern indicated by a score greater than 50, 75% of the women expressed a minimal level of concern about their ST use. Riley et al. (1990) found the perception of health risks associated with ST use to be low among young women. This may suggest that women minimize or deny the health risks associated with ST in order to justify their use of tobacco, in accord with Festinger's model of cognitive dissonance (1957). An explanation for the low level of concern about ST use in the present study is unclear, although it may be due to beliefs that their level of use does not pose the same negative health consequences as more frequent or "heavier" use of ST. The reported responses to first chew use deserve further investigation. Reported reactions, such as nausea, dizziness, and getting a high correspond to the range of responses reported to first cigarette experience. Hirschman, Leventhal and Glynn (1984) have observed an association between the type of initial reaction and progression to a second cigarette. These researchers found dizziness a better predictor of second cigarette use than adverse reactions like nausea and coughing.

Several respondents contrasted ST with smoking cigarettes. The advantages of using ST compared with smoking included being able to use ST almost anywhere, for example, using ST while exercising or working out, and not bothering other people with secondary smoke. Historically, ST use has been associated with both outdoor recreation (baseball,

fishing) and outdoor employment (wood products industries). Recent advertising has highlighted this utility of ST: being able to use while riding a motorcycle, or where one cannot smoke, such as on board an aircraft.

A subgroup of women in this study listed appetite suppression as a positive aspect of ST use. In a comparison of the women in this study with women smokers and controls, no differences were found between groups in dietary restraint or characteristics related to eating disorders (Gerend et al., in press).

The current study provides preliminary evidence of the need for further research on smokeless tobacco use among women. However, the current results have certain limitations. First, the sample size was quite small even for a descriptive study. In addition, women for the study were recruited from a predominately urban area in the midwest, in which ST use may be different than other regions of the United States. Results may have differed if conducted in a more rural community or in parts of the country with different racial/ethnic populations. Indeed, ST use by women appears highest among older women in the rural south (Winn, Blot, Shy, Pickle, Toledo, & Fraumeni, 1981), among American Indian women, and among rural populations. For instance, Salehi & Elder (1995) report a prevalence rate of 7% for regular use of chewing tobacco among female high school students in rural Oregon. In some American Indian groups, such as the Lumbee of North Carolina, prevalence rates of over 11% have been reported among women ages 18 to 24 (MMWR, 1995). The national mean prevalence for ST use is estimated to be 2.5% for American Indian women (MMWR, 1995).

This study has presented preliminary descriptive findings of the use of ST by young women living in Minnesota. These women consumed less tobacco than male ST users and although aware of health risks were unconcerned about their present use of smokeless. Future research should examine in more detail the patterns and function of ST use among diverse groups of women. In addition, the graduation process from flavored, lower nicotine products to finer cut, higher nicotine brands should be examined to determine if this practice has been adopted by women.

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