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Smokeless Tobacco Use Among Undergraduate Male College Students: Motivation for Use

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BACKGROUND

- Smokeless tobacco (ST) use has been related to nicotine addiction, cancers of the mouth, esophagus, and pancreas, as well as increased risk of death from heart disease and stroke. On a cellular level, ST exposure (24 hours) on human oral keratinocytes results in a 3.5-fold increase in lipid peroxidation and 1.5-fold increase in DNA fragmentation, a biological hallmark of apoptosis. [1,2]
- Despite growing evidence of the harmful health effects of ST and education about these consequences, 8.8% of middle school and high school students in the United States use ST and 13.9% of college students have tried or continue to use ST.[3]
- Young adults tend to overestimate the number of peers that use ST, increasing the likelihood they engage in this behavior themselves.[3,4]
- ST use has also previously been associated with male-dominated college organizations such as Greek life and college athletics, male social bonding, and men who conform highly to masculine norms.[5,6,7,8]
- Further, health behaviors have been linked to motivation to participate in activities, such as male-dominated college organizations, where extrinsic motivations are associated with negative health behaviors.[8,9]
- **Hypothesis:** Participation in male-dominated college organizations will be a motivator for ST use. Further, male students using ST will have extrinsic reasons for participation in male-dominated groups, higher scores on the *Conformity to Masculine Norms Inventory-46* and higher perceptions of peer use as compared to nonusers within the aforementioned groups.

MATERIALS AND METHODS

Participants

U.S. undergraduate male college students were invited via Facebook and email to complete an anonymous online survey through SurveyMonkey from September 14, 2015 until December 31, 2015. Incentive of an Amazon gift card for 8 random participants was provided. All methods were submitted and approved by the university's Institutional Review Board (2015-0425)

Instrument

The survey contained both qualitative and quantitative items. Survey items were developed specifically for this study or were adapted from similar studies.[3,9] Demographics measured sex, ethnicity, race, year in college, and type of college housing. Tobacco use items measured frequency and amount of ST use and perceptions of peer use. After gaining appropriate consent for use, the *Conformity to Masculine Norms Inventory-46* (CMNI-46) was added.[9] Qualitative open-ended items assessed motivation for participation in a male-dominated college organization

Analysis

Participants were categorized as either nonusers or ST users based on self-report. Percentages were calculated for demographics, perception of relative harm from ST compared to cigarettes, perception of peer ST use within participants' male-dominated organization and at their school in general. Responses to the CMNI-46 were coded from 0 for *Strongly Disagree* up to 3 for *Strongly Agree* and then summed for a total score. The means and ranges of the total score on the CMNI-46 were then calculated for ST users and nonusers. Qualitative data was analyzed by identifying common themes in responses and coding these as either intrinsic or extrinsic motivations and further categorizing extrinsic motivations under four subtypes: external regulation, introjected regulation, identification, and integrated regulation.[10]

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RESULTS

Table 1. Perception of harmfulness of ST compared to cigarettes. Participants reported how harmful they perceived ST to be in comparison to cigarettes.

Harmfulness	*ST Users*	*Nonusers*
	% (N)	% (N)
More harmful than cigarettes	-	18 (24)
As harmful as cigarettes	43 (6)	57 (77)
Less harmful than cigarettes	50 (7)	16 (21)
I don't know	7 (1)	9 (12)
Total	100 (14)	100 (134)

Table 2. Conformity to Masculine Norms Inventory-46 Scores. Means, standard deviations and ranges of the CMNI-46 for ST users and nonusers. The maximum score is 138. The higher the score, the greater the conformity to masculine norms.

	ST Users	*Nonusers*
Mean	77	67.54
Range	51-104	39-84

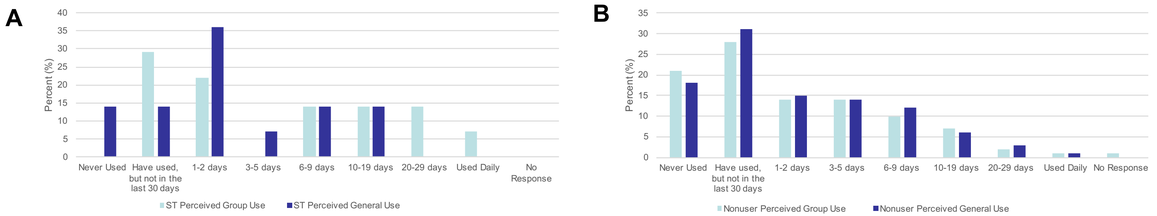

Figure 1. Perception of peer ST use within male-dominated group and in general. ST users (Panel A) and nonusers (Panel B) reported how often they believed a typical student in their male-dominated organization(s) versus a typical student at their school used ST within the last 30 days.

Motivation for Participation in a Male-Dominated Organization

- Both ST users and nonusers provided intrinsic reasons
  - "I enjoy the sport, purely for fun"
- Most nonusers provided extrinsic motivations falling under the identification subtype
  - "It provides opportunities for growth [and] introduces a family away from home."
- Most ST users provided extrinsic motivations falling under introjected regulation
  - "I love, love to win," "I'm good at it," and "for the girls."

LIMITATIONS

- Tests of significance were not run due to our small sample size of ST users. This, combined with the cross-sectional nature of our study limits our conclusions as possible trends that are correlational, not causal.
- Data is self-reported and involves questions regarding negative health behaviors. Several distractor items were incorporated to divert participants from detecting the purpose or aim of the study, thus preventing over-reporting or under-reporting of behaviors. Additionally, previous studies have found self-report questionnaires on tobacco use to be reliable and valid measures.[11]

CONCLUSIONS

- The majority of ST users provided introjected regulation motivations while the majority of nonusers provided identification motivations suggesting only certain subtypes of extrinsic motivation could be associated with ST use.
- ST Users tended to have higher scores on the CMNI-46, indicating they conform more to traditional masculine norms compared to nonusers. ST users perceived greater ST use within their respective male-dominated groups than at their school in general, a difference lacking in nonusers, suggesting they associate ST use with male-dominated contexts
- Taken together, ST users could possibly consider ST use to be a masculine behavior and could be a way for these males to demonstrate masculinity. Future interventions should focus on this motivation as a way to prevent initiation of ST use.

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