Low self-esteem and positive beliefs about smoking: A destructive combination for male college students

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HIGHLIGHTS

- Positive beliefs about smoking mediate the gender to cigarette usage relationship.
- Self-esteem moderates the first stage and direct effect of the mediational model.
- Males with low self-esteem contribute significantly to the gender gap in smoking.
- Self-esteem and positive beliefs represent malleable factors for interventions.

ARTICLE INFO

ABSTRACT

Introduction: Men exhibit higher rates of smoking relative to women (CDC, 2014). Given the associated health and socio-economic consequences, it would be valuable to explore the psychological factors underlying this variance. We contend that positive beliefs about smoking influence this difference, and that self-esteem moderates these beliefs.

Method: As part of a multi-institutional collaborative study funded by the American Legacy Foundation, 445 participants who reported being either steady or occasional smokers completed a series of questionnaires assessing their beliefs and behaviors involving smoking as well as several dispositional variables. Moderated mediation was used to test for conditional indirect effects.

Results: The total, indirect, and direct effects of gender were significant for individuals with lower, but not higher self-esteem. Males with lower self-esteem exhibited more positive beliefs and smoking behavior than females with lower self-esteem. No differences between males and females with higher self-esteem were observed.

Conclusion: The gender gap in smoking behavior appears to occur primarily among individuals with lower self-esteem. It is a particularly detrimental risk factor for males, as it is related to higher positive views about smoking and increased tobacco consumption. These results highlight the importance of developing multifaceted gender specific belief-based preventative interventions to address smoking related behaviors.

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1. Introduction

Tobacco-related illnesses account for nearly half a million deaths annually in the U.S. according to the Centers for Disease Control (CDC, 2014). Cigarette usage is a growing concern, especially among young adults. As of 2012, 17.3% of young adults (ages 18–24) and 21.6% of adults aged 25–44 years reported being regular cigarette smokers (CDC, 2014), despite being well aware of the risks associated with smoking tobacco. Additionally, the Substance Abuse and Mental Health Services Administration (SAMHSA) found that nearly 41% of individuals aged 18 to 25 reported having used tobacco products (primarily cigarettes) in the past month (SAMHSA, 2011). The problem of cigarette use may be even more dire for males, as several studies have shown that males typically engage in higher levels of cigarette smoking relative to females (Blanco et al., 2014; CDC, 2014; Vidrine, Anderson, Pollak, & Wetter, 2006). The primary goal of the current study is to examine potential reasons for this difference, with the hope that doing so can identify malleable factors that will set the stage for the development of interventions and cessation programs that can be used to reduce smoking among males and thereby reduce this gender gap.

A constellation of individual and social factors have been identified as contributors to smoking behavior in adolescents and young adults including: personality factors such as neuroticism (Byrne, Byrne, & Reinhart, 1995), self-esteem (Abernathy, Massad, & Romano-Dwyer, 1995), and BAS/BIS sensitivity (Baumann et al., 2014), SES (Backinger et al., 2008; McClave-Regan & Berkowitz, 2011), the perception of normative peer smoking (Unger, Rohrbach, Howard-Pitney, Ritt-Olson, & Mouttapa, 2001), and positive or neutral parental attitudes toward

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smoking (Botvin, Epstein, Schinke, & Diaz, 1994). Clearly, cigarette use is a complex phenomenon that is influenced by a myriad of factors. To understand cigarette use, one must examine how determinants of cigarette use interact with each other and which effects are mediated by others. For this particular study, we focus on interactions between gender, self-esteem, and positive beliefs about smoking.

In addition to males being more likely than females to use cigarettes (Blanco et al., 2014; CDC, 2014; Vidrine et al., 2006), there is reason to believe that several variables predict smoking behavior differently for males versus females. For example, smoking behavior is thought to be influenced by the extent to which individuals subscribe to positive beliefs about smoking (e.g., Lewis-Esquerre, Rodrigue, & Kahler, 2005; Urbán & Demetrovics, 2010). However, some research suggests that the link may be stronger for males than it is for females (Flay, Phil, Hu, & Richardson, 1998). Such a difference would make positive beliefs a plausible mediator for the relationship between gender and cigarette use. The present study focused on this variable as a mediator of the relationship between gender and smoking given previous literature showing 1) that smokers of both genders are more likely than non-smokers to endorse beliefs that emphasize the positive and functional features of smoking (e.g., Dillard, McCaul, & Klein, 2006), and 2) that these beliefs are positively associated with smoking behavior (e.g., Lewis-Esquerre et al., 2005). Furthermore, given that positive beliefs about smoking can be manipulated (e.g., Davis, Nonnemaker, & Farrelly, 2007) and that such beliefs change systematically with changes in smoking status (Fotuhi et al., 2013), we feel that they hold immense potential as possible targets for interventions.

Another variable that may contribute to the gender gap in smoking behavior among young adults is self-esteem, which can be defined as an individual's global assessment of his or her value or worth (Rosenberg, 1965). Some studies have demonstrated a negative relationship between self-esteem and smoking (e.g., Carvajal, Wiatrek, Evans, Knee, & Nash, 2000; Croghan et al., 2006), indicating that it may serve as a protective factor against smoking. Individuals with low self-esteem are more likely to be persuaded to smoke (Dumont & Provost, 1999), which may cause them to change their opinions about the positive aspects related to smoking (Fotuhi et al., 2013). Moreover, these changes in positive beliefs may be moderated by gender. However, the pattern of moderation is difficult to predict given that studies examining gender differences in the relationship between self-esteem and smoking behavior have yielded inconsistent results. Some studies suggest a stronger relationship between self-esteem and smoking for males (Patton, Barnes, & Murray, 1993) and others suggest the opposite (Lewis, Harrell, Bradley, & Deng, 2001). Such inconsistencies suggest that other factors may be playing a mediating or moderating role. Conditional process modeling, of which moderated mediation is an example, provides a framework for exploring and testing contingencies of process-related effects (Hayes, 2013). As such, it is a useful tool for resolving inconsistent findings such as those reported above.

To our knowledge, previous research has not examined how self-esteem interacts with gender and positive beliefs about cigarette smoking to affect smoking behavior within a single conditional process model. In an effort to fill this void and reconcile some of the inconsistent findings noted above, the present study aimed to 1) determine the degree to which positive beliefs about smoking mediate the relationship between gender and smoking, and 2) determine whether self-esteem moderates that effect. Based on the literature above, we made four specific predictions. First, we hypothesized that gender would be associated with positive beliefs about smoking and total cigarette usage, which would replicate findings from studies such as Flay et al. (1998) and Vidrine et al. (2006) respectively. Second, given findings linking increased smoking behavior to higher positive beliefs about smoking (e.g., Urbán & Demetrovics, 2010), we expected that positive beliefs about smoking would have a positive association with total cigarette usage. Based on the first two predictions, our third prediction was that positive beliefs about smoking would mediate the relationship between gender and total cigarette usage. Finally, given many of the aforementioned inconsistent findings relating gender, positive beliefs about smoking, self-esteem, and smoking behavior, we predicted that self-esteem would moderate the first stage (the relationship between gender and positive beliefs) of the model as well as the direct effect remaining after accounting for mediation. The entire hypothesized model is displayed in Fig. 1.

2. Method

2.1. Participants

As part of a multi-institutional study funded by the American Legacy Foundation (ALF), N = 445 participants who reported being either steady (83%) or occasional (17%) smokers were recruited from ethnically diverse educational institutions in California, Florida, New York, and Texas. Depending on the policies of each respective university, recruitment of participants was accomplished via email lists, flyers, and classroom announcements. Participation was incentivized with either with a $20 (U.S.) credit at Amazon.com or credit toward course research activity requirements. The aim of the broader effort was to compare smoking-related behaviors and attitudes across Hispanic subgroups (see American Legacy Foundation, 2014), resulting in an oversampling of Hispanics (65%) relative to Whites (23%), African Americans (6%) and those of other or unidentified ethnicity (6%). Sixty-eight percent of the sample was male and the median age was 21 years (interquartile range = 19 to 24).

2.2. Measures

The entire study was conducted online. The survey required up to 50 min to complete. Questions included items pertaining to tobacco, alcohol, and drug usage, as well as numerous trait and attitudinal measures. The specific measures used for the current study are detailed below. Table 1 details the raw means and standard deviations for each variable, as well as the correlations between the variables and their respective reliabilities, where applicable.
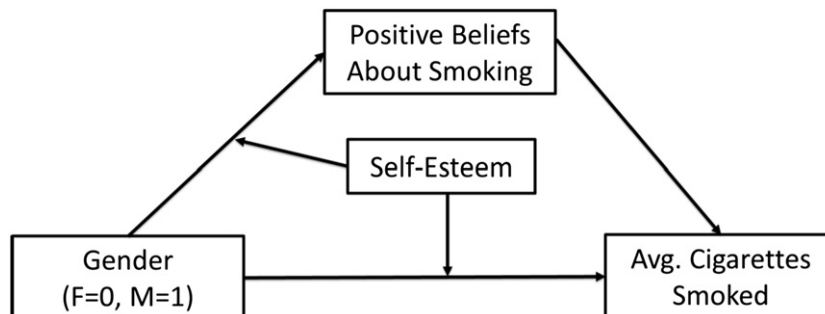

Fig. 1. Hypothesized first stage and direct effect moderation model.