The Role of the Self in Smoking Initiation and Smoking Cessation: A Review and Blueprint for Research at the Intersection of Social-Cognition and Health

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Abstract

The self-concept is recognized as important to both smoking initiation and cessation. However, most of extant research has viewed the self-concept as a static, monolithic construct. It has not drawn on contemporary social-cognitive theories of the self-concept, which view the self-concept as a dynamic, multi-faceted cognitive structure that regulates behavior in context. This paper discusses a contemporary social cognitive framework that can be used to understand the role of the self-concept in smoking.

Keywords

Self-concept; smoking; social cognitive; personality

Research in tobacco control has examined the relationship of the self-concept to smoking initiation and smoking cessation. The vast majority of research conducted to date has taken one of two approaches, depending on the population being studied and whether the research focuses on smoking initiation or smoking cessation. When predicting initial smoking among adolescents and young adults, researchers tap self-concept through adjective rating tasks. Participants describe themselves and smokers using a set of standardized descriptors (e.g., smart/dumb, attractive/unattractive). Ratings are typically made at a single point in time without reference to the situation or context in which those descriptors come into play. Congruence between ratings of the self and ratings of smokers are then used to predict smoking initiation or escalation in smoking (e.g., Andrews, Hampson, & Barckley, 2008; Burton, Sussman, Hansen, Johnson, & Flay, 1989; Gibbons, & Eggleston, 1996). When predicting smoking cessation among adult smokers, questionnaires with items designed to assess how strongly individuals view themselves as smokers (e.g., "Do you identify with smokers?", see Falomir-Pichastor, Invernizzi, Mugny, Munoz-Rojas, & Quiamzade, 2002; "Smoking is part of my personality.", see Shadel & Mermelstein, 1996) are administered and the resulting scores are used to predict success with smoking cessation.

In these approaches, the self-concept is viewed as a static psychological construct that operates independently of the situation. This perspective is consistent with some of the earliest approaches to studying the self (reviewed by Markus & Wurf, 1987; Showers, Limke, & Zeigler-Hill, 2004) but it does not align with contemporary perspectives on the

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self-concept drawn from the basic social-cognitive sciences, long the disciplinary home for research on self and identity. Indeed, conceptualizations of the self-concept as a static, monolithic entity that functions in the same way without much regard to context have evolved into conceptualizations that view the self-concept as a dynamic, organized system of self-referent cognitive-affective beliefs that come into play in the different contexts of life (Banjai & Prentice, 1994; Markus & Wurf, 1987; Mischel & Morf, 2003; Swann & Bosson, 2010). In this contemporary view, the self-concept is seen as a key mediator of behavior, thought, and affect in specific contexts and assessment methods capture the self as it comes into play in those contexts. By not capitalizing on contemporary social-cognitive theories and assessment methods, then, the majority of tobacco control research that focuses on the self-concept is disappointingly out of date.

There is, however, reason for optimism. Some emerging efforts have, in fact, explicitly brought advances in social-cognitive research on the self-concept to bear on the problem of smoking initiation and smoking cessation. This work has studied the developing self-concept as an influence on smoking initiation among adolescents and the mature self-concept of adult smokers as contributing to their ability to quit smoking. The long term goal of this work is to improve smoking prevention and cessation programs by focusing therapeutic efforts at the self-concept as a key mediator of behavior change. This paper reviews this work.

The Smoking Problem

The primary motive for wedding research on the self-concept to smoking is rooted in the relative failure of current smoking prevention and cessation efforts to reduce smoking prevalence rates and a desire to reinvigorate these efforts at tobacco control. Although prevention interventions can reduce adolescent smoking in the short term (e.g., Sowden & Stead, 2008; Thomas & Perera, 2006), they are not particularly effective over the long term (e.g., Dobbins, DeCorby, Manske, & Goldblatt, 2008). Among adult smokers, only a small percentage is able to quit "cold turkey" and quit rates for formal treatment programs are low (Fiore et al., 2008). The net result of these failures is that the smoking reduction goals of Healthy People 2010 have not been met (see www.healthypeople.gov). As a consequence and unless something is done, smoking will continue to contribute to significant levels of morbidity and mortality in the United States (United States Department of Health and Human Services [USDHHS], 1994).

Given the failure to achieve the goals of Healthy People 2010 and the relatively disappointing long-term successes of smoking prevention and cessation programs, radically new ideas for prevention and cessation interventions are needed. The origin for these new interventions will come from a more in depth understanding the basic psychological mechanisms that causally regulate smoking initiation and cessation (see Curry, Mermelstein, & Sporer, 2009; Niaura & Abrams, 2002; Piasecki & Baker, 2001; Shiffman, 1993; Witkiewitz & Marlatt, 2004). Once mechanisms that regulate smoking initiation and cessation are identified, treatments can be developed or existing treatments modified that target those causal mechanisms to ultimately improve smoking outcomes either by preventing more children and adolescents from starting or by enhancing adult smokers' ability to quit.

The self-concept is one such psychological mechanism that could be a target for these new treatments. In principle, a better understanding of self-referent psychological systems that contribute to smoking initiation and cessation may enable clinicians to improve smoking prevention and cessation treatments by focusing treatment efforts at those self-systems. With this motive in mind, we review theory and research on smoking and the self-concept.

Rationale and Importance of the Self-Concept to Tobacco Control

Conceptually, there are three primary reasons that the self-concept should be important to understanding smoking initiation and cessation.

Cigarette smoking is marked by clear transitions and the self-concept is critically important during transitions

The transition from never smoking to regular, dependent smoking is thought to occur in a series of stages (see Mayhew, Flay, & Mott, 2000). In general, people move from 1) never smoking; to 2) initial smoking (first puffs of a cigarette); to 3) experimental smoking (irregular smoking in particular contexts); to 4) regular smoking (habitually smoking in specific contexts); and finally to 5) dependent smoking (smoking driven by withdrawal, cue provoked craving; see Shadel, Shiffman, Niaura, Nichter, & Abrams, 2000). Most established smokers endure multiple cycles of quitting, relapsing back to smoking, and recycling into another quit attempt before they achieve permanent abstinence (Witkiewitz & Marlatt, 2004).

The self-concept, as a cognitive structure, has particular relevance during periods of transition. Transitions may represent developmentally-relevant, age-linked transitions (e.g., from late adolescence to young adulthood; see Arnett, 1999) or social role changes (e.g., to fatherhood; see Strauss & Goldberg, 1999), for example. The structure and organization of the self-concept may help individuals navigate those life transitions (Cantor, Norem, Niedenthal, Langston, & Brower, 1987) and may change as a function of experiencing those transitions (Jetton, O'Brien, & Trindall, 2002). Thus, the self-concept may be important for regulating transitions in smoking behavior (i.e., from never smoking to regular smoking; and from regular smoking to abstinence) and may change as a function of those shifts in smoking behavior.

Transitions in cigarette smoking are tied to development and changes in the self-concept are tied to development

Cigarette smoking is a chronic relapsing condition that affects individuals throughout their lives (USDHHS, 1994). A clear jump in smoking prevalence rates occurs between middle and high school (Johnston, O'Malley, Bachman, & Schulenberg, 2009). Although most initial smoking trials occur before the age of 18 (USDHHS, 1994), a nontrivial percentage of initial and experimental smoking occurs during the college years (Wetter et al., 2004). Smoking prevalence rates tend to be highest during young adulthood and decline significantly during the later adult years (Centers for Disease Control [CDC], 2009).

The self-concept is a developmentally-relevant psychological construct that shifts and changes as individuals grow and mature. Behavioral indicators of the self during early to late childhood (e.g., get A's on tests, answer teacher's questions) gradually give way to more abstract descriptive summaries of these behavioral indicators (e.g., "smart"). The self-concept becomes more highly differentiated during adolescence with more self-descriptors and situations in which those descriptors come into play. "Conflicts" (an index of self-organization) arise between the attributes adolescents to describe themselves. Conflicts among self-attributes are a function of adolescents' increasing awareness that different self-attributes are relevant for describing themselves, along with their lack of the cognitive maturity to resolve the contradictions between self-attributes (e.g., "How can I be shy with my parents, but outgoing with my friends?"). Conflicts rise and peak during middle adolescence, and then decline after late adolescence (Harter & Monsour, 1992; Harter, 1999). The cognitive capacity to resolve self-conflicts does not develop until the later teens. As such, adolescents seek to resolve self-conflict because it is dissonant, and they look to

social context to do so (Harter, 1999). Adolescents who possess a high number of self-conflicts and are not capable of resolving them (i.e., early adolescents due to their relative lack of cognitive maturity) look to the external environment to decide which attributes they should use or abandon as part of their self-concept (see Harter, 1999). Substantial refining and redefining of the self-concept occurs during early adulthood, perhaps more than was previously thought (Arnett, 1999), and the self-concept continues to dynamically respond to environmental changes throughout the life course (Kling, Ryff, & Essex, 1997; Pasupathi, Mansour, Brubaker, 2007). Thus, developmental changes in the self-concept could be important for understanding developmental changes in smoking over the lifespan.

Both cigarette smoking and the self-concept are inherently tied to context

Initial smoking episodes occur in specific, well-defined contexts primarily out of social pressures that are conducive to smoking (e.g., peers; see Kobus, 2003). Although maintenance of the habit is, in part, regulated by physiological processes that reflect nicotine dependence in established adult smokers (e.g., withdrawal, tolerance), specific situations (e.g., alcohol consumption) can trigger smoking behavior (see Conklin, 2006; Shiffman et al., 2002). After smokers quit, relapse is more likely in some situations (e.g., with other smokers) compared to other situations (Witkiewitz & Marlatt, 2004).

The self-concept is composed of multiple self-relevant descriptive attributes (e.g., "independent", "shy", "smart") (Harter, 1999; Linville, 1987; Showers, 1992; Vallacher, Nowak, Froehlich, & Rockloff, 2002) and these attributes are organized according to context. For example, self-complexity theory (Linville, 1987; see Rafaeli-Mor, & Steinberg, 2002) posits that individuals possess an associative cognitive network of self-attributes organized by the different social roles that they assume in life (e.g., self as mother, wife, and prevention specialist). Self-complexity is the degree to which these selves are semantically differentiated from one another. Showers (1992; see also Showers & Zeigler-Hill, 2007) has evaluated the compartmentalization of self-attributes into positive and negative evaluative categories. Compartmentalization is the degree to which self-attributes are isolated in particular social roles (e.g., negative attributes define some roles, whereas positive attributes define others). Integration is the degree to which both positive and negative self-attributes are dispersed among social roles. The self-concept could have relevance for understanding smoking (and not smoking) in context.

Smoking and the Social-Cognitive Self-Concept

Smoking Initiation in Adolescents

Our research in this domain has explicitly sought to explain the jump in smoking prevalence rates between middle and high school. More specifically, it examines the relationship between adolescents' developing self-concept and their responses to cigarette advertising. Exposure to cigarette advertising is strongly associated with adolescent smoking (Wellman, Sugarman, DiFranza, & Winkoff, 2006), but the mechanisms that underlie this association and who is most vulnerable to cigarette advertising are not well understood. Cigarette advertisements present potent images of individuals smoking in a variety of situations for a variety of reasons (Pollay et al., 1996). Shadel and colleagues (2001) proposed that adolescents who are having difficulty resolving high levels of self-conflict look to these images for help in resolving it. As such, early adolescents with higher levels of self-conflict are hypothesized to have the highest level of susceptibility to the influence of cigarette advertising.

Our research strategy has been to assess adolescents' self-concept, expose them to cigarette advertisements, and after exposure, measure their perceived relevance of the advertisements and future smoking intentions. We have used the "What I Am Like With Other People" task

to assess the self-concept (Harter, 1999). In this assessment, adolescents list the attributes that they believe describe them in six life domains (e.g., with mother; father; best friend, etc.); then, the number of those attributes that adolescents think are in conflict with one another is calculated. Shadel et al (2004) found that early adolescents with a greater number of self-conflicts said that cigarette advertising was more relevant to them compared to early adolescents with lower numbers of self-conflicts and middle adolescents (regardless of their level of self-conflict). A second study (Shadel, Tharp-Taylor, & Fryer, 2008) found that early adolescents who had more self-conflicts and who also said that cigarette advertisements were more relevant to their self-concept had stronger smoking intentions following exposure to cigarette advertisements compared to all other groups of early and middle adolescents. Finally, Shadel et al (2009) found that early adolescents who had more self-conflicts and also said that they identified more with the models used in cigarette advertisements had stronger smoking intentions following exposure to cigarette advertising. Early adolescents with higher levels of self-conflict who did not identify with cigarette advertising models and early adolescents with low levels of self-conflict (regardless of level of model identification) had weaker future smoking intentions. These studies support the notion that the developing self-concept, conceptualized within a social-cognitive frame, is important in understanding who responds to cigarette advertising and why.

As cigarette advertising in magazines and on billboards has become less prevalent in recent years (and as adolescents are less likely to be exposed to it), our ongoing research (funded by the National Institute on Drug Abuse) is examining whether the developing self-concept moderates adolescents' responses to smoking in movies. Exposure to smoking in movies is strongly related adolescent smoking (Wellman et al., 2006). This research adopts a strategy similar to that in our previous work (measures self-conflict; exposes adolescent to movie clips that portray characters who smoke; measures post exposure smoking intentions). An added feature of this work is that we are exposing adolescents to movie clips that differ in the way that smoking is contextually portrayed in the movies so that we can test, for example, whether adolescents with high levels of self-conflict are more susceptible to the effects of movie smoking when that smoking is portrayed as helping individuals to relax versus as helping them to socialize (see Shadel, Martino, Haviland, Setodji, & Primack, in press). In addition, future work in this domain of inquiry could examine how self-conflict moderates adolescents' responses to other contextual influences on smoking (e.g., peers) and the capacity of self-conflict to predict smoking initiation and escalation.

Smoking Cessation in Adults

Smokers who execute coping strategies to manage the contexts that trigger smoking are more successful with smoking cessation (e.g., Shiffman et al., 1996). However, the precise cognitive mechanisms that contribute to successful coping have not been clearly identified (Bliss, Garvey, & Ward, 1999). Understanding of these mechanisms may help to improve coping skills training with smokers (i.e., target and enhance those mechanisms) and thus further improve cessation rates. In service of this meeting goal, our work with adult smokers has drawn on several lines of social-cognitive self research (Higgins, 1987, Higgins & Siegel, 2004; Higgins, Roney, Crow, & Hymes, 1994; Markus, 1977; Markus & Nurius, 1986). This work specifies how an integrated, associative network of abstinence related self-schemas are organized and affect coping and coping self-efficacy in specific situations.

The abstainer ideal-possible self is a self-schema that represents knowledge of the ex-smoker that the smoker strives to become, the person with all of the hoped for attributes that will describe them as ex-smokers. The abstainer ideal possible self is focused on positive outcomes (i.e., being a non-smoker) and regulates approach coping behaviors (e.g., "think of the benefits of not smoking"; "Keep a positive attitude and outlook toward quitting smoking") that allow the smoker to move toward the positive outcome of being a

nonsmoker. This descriptive attribute-approach coping skills knowledge is linked to specific situations in which the smoker must execute approach coping strategies in order to not smoke.

The abstainer ought-possible self is a self-schema that represents knowledge of the nonsmoking person that the smoker believes he or she should or ought to become, the person who has a social obligation to quit smoking. The abstainer ought possible self is focused on negative outcomes (i.e., remaining a smoker) and regulates avoidant coping behaviors (e.g., "put thoughts of smoking out of your head", "chew gum or candy when you want to smoke a cigarette") that allow the smoker to move away from the negative outcome of remaining a smoker. In other words, the focus is on negative outcomes though the ultimate end state of not smoking is still the overarching goal. The descriptive attribute-avoidance coping skills knowledge is linked to situations in which the smoker needs to execute avoidance coping strategies to not smoke.

An important feature of this work is in distinguishing between approach coping and avoidant coping. Coping can be categorized in a number of ways (see Shiffman et al., 1996), but the distinction between approach and avoidance coping is not typically made in smoking research despite its importance in substance use treatment (e.g., Timko, Finney, & Moos, 2005) and health psychology (e.g., Heckman et al., 2004) more generally. The distinction between approach and avoidance behaviors is important conceptually and has been supported in the broader social cognitive literature (Higgins & Siegel, 2004) and aspects of the self-concept are related to coping (Showers & Zeigler-Hill, 2007).

Laboratory studies have supported this model of smoking. First, smokers reliably link approach coping strategies with attributes that describe their abstainer ideal possible self and avoidant coping strategies with attributes that describe their the abstainer ought possible self and then reliably link this attribute-coping skills knowledge to unique contexts (Shadel, Niaura, & Abrams, 2000; Shadel, Cervone, Niaura, & Abrams, 2004). Second, experimental evidence has suggested when the abstainer ideal possible self is activated via cognitively priming procedures (Higgins, 1996), processing speed for approach coping information is faster compared to when other self-schemas are activated via priming; similarly, when the abstainer ought possible self is activated, processing speed for avoidant coping information is faster compared to when other self-schemas are activated (Shadel et al., 2004). Finally, when the abstainer ideal and abstainer ought possible selves are cognitively primed, smokers rate their self-efficacy to resist smoking in response to situational trigger as higher compared to when smoking-related self-schemas are activated (Shadel & Cervone, 2006). These results are complemented by recent findings which indicate that smokers display substantial within-person, situation-to-situation variability in self-efficacy for abstinence, that these intra-individual variations are predictable from prior assessments of schematic self-knowledge and situational beliefs, and that self-schema assessments predict not only levels of self-efficacy but the speed with which individual appraise their efficacy for performance (Cervone, Orom, Aristico, Shadel, & Kassel, 2007; Cervone et al., 2008).

This research has now moved out of the laboratory and into the field. Our current research, funded by the National Cancer Institute, is examining whether variations in smoking-related and abstinence-related self-schemas predict success with smoking cessation and relapse. A next phase of this work will examine whether changing via treatment these self-schemas improves smoking cessation outcomes.

Summary and Conclusions

The majority of the extant tobacco control literature has viewed the self-concept through a outdated lens, and has not capitalized on contemporary social-cognitive self theory and assessment methods. This paper presented an exception in this literature, a conceptual framework that views the self-concept as a dynamic, multi-faceted cognitive structure that regulates behavior in context. It reviewed research that has examined the self-concept as important for regulating adolescents' responses to cigarette advertising and smoking in movies, and for regulating adult smokers' coping and coping self-efficacy. The long term goal of this work is to develop interventions that target the self-concept as a key mediator of smoking behavior change to reduce smoking prevalence and thus the morbidity and mortality associated with smoking.

Acknowledgments

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