NIH-PA Author Manuscript

NIH-PA Author Manuscript

NIH-PA Author Manuscript

The Smoking Abstinence Questionnaire: Measurement of smokers' abstinence-related expectancies

Peter S. Hendricks[1], **Sabrina B. Wood**[2], **Majel R. Baker**[2], **Kevin L. Delucchi**[2], and **Sharon M. Hall**[2]

[1]University of Alabama at Birmingham, Department of Health Behavior, 227 Ryals Public Health Building, 1665 University Blvd, Birmingham, AL 35294

[2]University of California, San Francisco, Department of Psychiatry, 401 Parnassus Ave., TRC Box 0984, San Francisco, CA 94143

Abstract

AIM—To develop and validate a measure of smokers' expectancies for the abstinence process upon quitting smoking: the Smoking Abstinence Questionnaire (SAQ).

DESIGN—Principal component analysis and other psychometric analyses of self-report data.

SETTING—San Francisco, California.

PARTICIPANTS—507 adult smokers of at least 10 cigarettes per day diverse in gender, sexual orientation, and ethnoracial status.

MEASUREMENTS—The primary measure was a draft version of the SAQ. Additional measures assessed a variety of other smoking-related constructs.

FINDINGS—Principal component analyses revealed 10 factors of the SAQ: Withdrawal, Social Improvement/Nonsmoker Identity, Adverse Outcomes, Treatment Effectiveness, Common Reasons, Barriers to Treatment, Social Support, Optimistic Outcomes, Coffee Use, and Weight Gain. The SAQ factors demonstrated internal consistencies ranging from .62 to .85 and were associated with tobacco dependence, motivation to quit, abstinence self-efficacy, withdrawal symptoms, dietary restraint, shape and weight concern, and tobacco use expectancies. The SAQ predicted smoking-related constructs above and beyond tobacco use expectancies, suggesting that abstinence-related expectancies and tobacco use expectancies are distinct from one another.

CONCLUSIONS—A newly developed questionnaire, the SAQ, appears to reliably capture smokers' expectancies for abstinence (Withdrawal, Social Improvement/Nonsmoker Identity, Adverse Outcomes, Common Reasons, Optimistic Outcomes, Coffee Use, and Weight Gain) and expectancies related to the success of a quit attempt (Treatment Effectiveness, Barriers to Treatment, and Social Support). It remains to be seen how far any of these expectancies predict attempts to quit, withdrawal, treatment utilization and response, and quitting success above and beyond existing measures.

Introduction

Expectancies are conceptualized as the consequences that individuals anticipate from their actions [1]. With regard to addiction, research has focused on the expectancies that individuals hold concerning the use of a number of substances including alcohol (see [2]), tobacco (e.g., [3]), stimulants (e.g., [4–6]), and marijuana (e.g., [7]). A large and growing

body of research has indicated that these expectancies are core constructs relating to drug use. For instance, tobacco use expectancies have been shown to distinguish among smokers of varying levels of tobacco dependence and treatment-seeking behavior, and they are among the best predictors of a number of important indices of smoking behavior including withdrawal symptoms and treatment outcome [8,9].

Although the expectancies that individuals hold regarding the *effects* of substance use have attracted significant attention in the research literature (e.g. [10–16]), little has been done to explore the expectancies that individuals hold about the *cessation* of substance use, i.e., abstinence-related expectancies. To the best of our knowledge, there are no instruments that directly assess abstinence-related expectancies and as a consequence, little data is available on this topic. The smoking literature proves no exception to this rule [8]. While measures that assess reasons for quitting [17] and perceived risks and benefits of quitting [18] are relevant, they do not address the specific "If I quit smoking, then _____." contingency encompassed by the abstinence-related expectancy construct [8].

It is ironic that sparse data address smokers' expectancies for abstinence given the considerable effort that has been expended on treatments for smoking cessation (see [19]). In truth, abstinence-related expectancies may have substantial significance to the understanding and treatment of tobacco dependence. For instance, smokers who anticipate more negative consequences than positive consequences upon cessation may be less likely to make a quit attempt. Those who anticipate predominantly positive outcomes with few negative outcomes may find cessation demoralizing and be at high risk for relapse. Abstinence-related expectancies represent areas of cognition that can be directly addressed by clinicians and public health campaigns, thereby enhancing the efficacy of interventions.

To fill this gap in the research literature, the goal of the present investigation was to develop and validate a measure of the range of expectancies that smokers hold for the abstinence process upon quitting smoking (i.e., all concepts that might complete the sentence "If I quit smoking, then _____."), which we label as the Smoking Abstinence Questionnaire (SAQ). We accomplished this by composing a draft version of the SAQ, administering the measure to a large sample of cigarette users, and employing quantitative methods to assess its psychometric properties.

To protect against confirmation bias, we assumed an exploratory approach. Consequently, we did not offer specific hypotheses regarding the factor structure of the SAQ. However, consistent with research on tobacco-use expectancies [9], we expected that participants' responses would correspond to either positive or negative outcomes.

To examine evidence for the validity of the SAQ, we evaluated the concurrent relationship of the measure with other, key smoking-related constructs. The following hypotheses were predicated on the rationale that more chronic smokers, for whom abstinence represents a daunting prospect, should expect weaker positive outcomes and greater negative outcomes from cessation, whereas less chronic smokers, for whom abstinence connotes fewer challenges, should anticipate greater positive outcomes and weaker negative outcomes from quitting. We hypothesized that if the SAQ indeed assesses smokers' abstinence-related expectancies, then the following relationships would be observed: 1) In a similar, yet inverse, manner that tobacco use expectancies are associated with dependence [9], more tobacco dependent participants would report weaker abstinence-related expectancies pertaining to positive outcomes and stronger abstinence-related expectancies pertaining to negative outcomes; 2) Consistent with research on tobacco use expectancies [9,20], smokers who report more motivation to quit and greater abstinence self-efficacy would report stronger abstinence-related expectancies pertaining to positive outcomes and weaker

abstinence-related expectancies pertaining to negative outcomes; 3) As withdrawal effects are believed to be the most salient features of abstinence and the predominant motivators of relapse [21], and as tobacco use expectancies are associated with withdrawal symptoms [16,22–24], smokers who report experiencing a greater degree of withdrawal would report weaker abstinence-related expectancies pertaining to positive outcomes and stronger abstinence-related expectancies pertaining to negative outcomes; 4) Because the desire to control appetite and weight motivates cigarette use (e.g., [25]), and weight gain is a major barrier to cessation (see [26]), smokers who report higher levels of dietary restraint, shape concern, and weight concern would report weaker abstinence-related expectancies pertaining to positive outcomes and stronger abstinence-related expectancies pertaining to negative outcomes. Finally, we hypothesized that the SAQ would share a degree of conceptual overlap with tobacco use expectancies, as measured by the Smoking Consequences Questionnaire-Adult (SCQ-A; [15]). The basis for this hypothesis is that in some respects, abstinence-related expectancies might be considered the inverse of smoking expectancies. For example, if one were to anticipate a great degree of health risks from smoking, he or she might be expected to anticipate improved health outcomes from abstinence. However, because we assert that abstinence-related expectancies and tobacco use expectancies represent distinct constructs, we hypothesized that SAQ scales would remain associated with the constructs described above while controlling for their conceptually related scales on the SCQ-A.

Methods

Initial Selection of Items

As item selection is of foremost importance in measure development [27], candidate items were assembled from extensive groundwork in a series of three stages briefly detailed here. In the first stage, items were generated via reference to the literature on reasons for quitting smoking and barriers to smoking cessation (see [8]). In the second stage, additional items were generated through focus groups with current smokers (see [8]). In the third stage, items were presented to a panel of clinical scientists with expertise in smoking cessation for final modification. All items were worded at the fifth- to sixth-grade reading level so that they could be easily understood by a wide range of smokers (see [28]). The draft version of the SAQ comprised 170 items.

Participants

Participants who filled out the draft questionnaire were 507 individuals recruited from the local community though newspaper and internet advertisements, flyers, and outreach to community-based organizations. Participants were required to: 1) be at least 18 years of age; 2) be able to speak, read, and write in English; 3) have a breath carbon monoxide (CO) of at least 10 parts per million (ppm); and 4) smoke at least 10 cigarettes per day. A relatively low smoking rate criterion was chosen to include minority populations, who tend to smoke fewer cigarettes than other smokers (e.g., [29]).

Measures

Demographics Questionnaire (DQ) and Smoking Information Questionnaire (SIQ)—The DQ assessed participants' demographic information and the SIQ measured participants' smoking behavior.

The Smoking Abstinence Questionnaire-Draft (SAQ-Draft)—The SAQ-Draft instructed participants to rate how likely or unlikely they believed each consequence (i.e., item) would be for them if they attempted to quit smoking. A rating scale with seven

response options (0 = "not at all likely" to 6 = "extremely likely") was provided for each item.

Tobacco dependence—In light of research suggesting that multiple measures provide for the optimal appraisal of tobacco dependence (e.g., [30–32]), we assessed tobacco dependence with four measures: the 12-item Cigarette Dependence Scale (CDS; [33,34]), the Fagerström Test of Nicotine Dependence (FTND; [35]), the Nicotine Dependence Syndrome Scale (NDSS; [36]), and the Wisconsin Inventory of Smoking Dependence Motives (WISDM; [37]).

The Thoughts about Abstinence Questionnaire (TAA; [38])—The four-item TAA was used to assess motivation to quit and abstinence self-efficacy. TAA motivation to quit scores have been shown to predict smoking cessation treatment outcome, and TAA abstinence self-efficacy scores have been shown to mediate the effect of extended cognitive behavioral therapy on treatment outcome [39].

Minnesota Nicotine Withdrawal Scale (MNWS; [40])—The MNWS is an eight-item questionnaire that measures symptoms of withdrawal over the past 24 hours. The MNWS compares favorably with other measures of smoking withdrawal [41].

Eating Disorder Examination Questionnaire-Restraint Subscale, Shape Concern Subscale, and Weight Concern Subscale (EDE-Q; [42])—The EDE-Q is a widely used measure of eating disorder symptomatology. The Restraint subscale measures attempts to restrict food intake to influence shape and weight. The Shape Concern and Weight Concern subscales measure preoccupation, discomfort, and anxiety with regard to one's body shape and weight, respectively.

Smoking Consequences Questionnaire-Adult (SCQ-A; [15])—The SCQ-A is the standard instrument for assessing tobacco use expectancies in experienced smokers. It measures outcome expectancies on 10 scales: Negative Affect Reduction, Stimulation/State Enhancement, Health Risk, Taste/Sensorimotor Manipulation, Social Facilitation, Weight Control, Craving/Addiction, Negative Physical Feelings, Boredom Reduction, and Negative Social Impression.

Procedures

Participants who met screening criteria during a telephone interview were provided with an overview of the study and scheduled for an appointment of approximately two hours. The majority of data were collected in group meeting rooms at the University of California, San Francisco, and some data were collected in a conference room at a healing center for American Indians in San Francisco and in classrooms at the University of San Francisco.

Upon providing informed consent, participants provided a CO sample. Those individuals who qualified for participation were given a packet that included the study measures and were instructed to complete the measures at their own pace. Study measures were presented in the following order: DQ, FTND, SAQ-Draft, SIQ, NDSS, EDE-Q, TAA, MNWS, SCQ-A, CDS, and WISDM. Upon completion of the study, each participant was debriefed and paid $35 for their participation.

Data Analysis

A principal components analysis using promax rotation was employed to examine the dimensionality of the data. To determine the robustness of the SAQ's factor structure to procedural variation, factor analysis also was employed and produced equivalent results. To

determine the number of factors to retain, the Minimum Average Partial procedure [43] was used. Items with factor loadings of at least .40 and no cross loadings were retained for rotation. Upon ascertaining the SAQ's factor structure, inter-item reliability (coefficient alpha) was determined for each of the factors. The effect on alpha of deleting any one item was examined, and any item that did not appear to substantially improve measurement was eliminated. Scales from each factor were constructed by computing the mean of the remaining items that loaded on each factor.

Results

Table 1 describes demographic and smoking characteristics of the sample. As indicated by the table, the sample was diverse with regard to gender, sexual orientation, and ethnoracial status.

No missing data were encountered due to careful data collection procedures. Initially ninety-nine items were removed from the SAQ-Draft, resulting in a 71-item version of the measure. Analyses resulted in a 10-factor solution that accounted for 47% of the variance. In response to reviewers' recommendation that the length of the SAQ be reduced to enhance its utility, an additional 16 items were removed from the SAQ-draft with little change in alpha coefficients, resulting in 55 items in the final version of the measure. A 10-factor solution of the final version of SAQ accounted for 51% of the variance. Table 2 displays the factor structure of the SAQ. Scale one, labeled Withdrawal (M = 3.8, SD = 1.3), had its greatest loadings on seven items that addressed the notion that quitting would result in physiologic and behavioral withdrawal symptoms and withdrawal-related processes (e.g., urges/craving to smoke); scale two, labeled Social Improvement/Nonsmoker Identity (M = 3.4, SD = 1.3), had its greatest loadings on eight items and assessed expectancies for social improvement and a shift in identity from stigmatized "smoker" to "nonsmoker"; scale three, labeled Adverse Outcomes (M = 1.5, SD = 1.1), had its greatest loadings on seven items and addressed the notion that quitting smoking would result in a number of somewhat exaggerated negative consequences; scale four, labeled Treatment Effectiveness (M = 3.3, SD = 1.5), had its greatest loadings on five items and measured expectancies for the effectiveness of pharmacotherapeutic and professional intervention to aid in quitting; scale five, labeled Common Reasons (M = 4.9, SD = .9), had its greatest loadings on seven items and assessed expectancies that mirror commonly supplied reasons for quitting cigarette use (e.g., improved health outcomes); scale six, labeled Barriers to Treatment (M = 3.5, SD = 1.5), had its greatest loadings on four items and assessed the expectancy that professional and pharmacotherapeutic intervention would be difficult to obtain; scale seven, labeled Social Support (M = 4.6, SD = 1.3), had its greatest loadings on four items and assessed expectancies for positive social support during a quit attempt; scale eight, labeled Optimistic Outcomes (M = 2.5, SD = 1.2), had its greatest loadings on six items and addressed the notion that quitting smoking would be unproblematic; scale nine, labeled Coffee Use (M = 3.0, SD = 1.5), had its greatest loadings on four items and assessed the concept that quitting smoking would alter one's experience of drinking coffee; and scale 10, labeled Weight Gain (M = 3.9, SD = 1.5), had its greatest loadings on three items and assessed expectancies for postcessation appetite increase and weight gain. Coefficient alphas ranged from .62 to .85 with an average of .75. Table 3 displays the zero-order correlations among the scales of the SAQ. See Appendix A for the SAQ and Appendix B for the scoring key.

Tests of Construct Validity

Table 4 lists statistically significant correlations of at least .10 between the scales of the SAQ and the CDS, FTND, NDSS, WISDM, TAA, MNWS, EDE-Q, and SCQ-A.

Test 1: Associations with tobacco dependence—More tobacco dependent individuals reported weaker expectancies for positive outcomes and stronger expectancies for negative outcomes, although there were exceptions to this pattern (tobacco dependence was positively related to Treatment Effectiveness and Common Reasons). The CDS, NDSS, and WSDM total scores had significant correlations of at least .10 with eight of the 10 SAQ scales. The NDSS and WISDM subscales also were associated with a number of SAQ scales. Notable relationships included those between Drive of the NDSS and Withdrawal, Negative Reinforcement of the WSDM and Withdrawal, and Weight Control of the WSDM and Weight Gain. While the FTND had significant correlations of at least .10 with six of the 10 SAQ scales, no correlation exceeded .16, suggesting only modest relationships between the FTND and SAQ.

Test 2: Associations with motivation to quit and abstinence self-efficacy—Those who reported more motivation to quit and more abstinence self-efficacy reported stronger abstinence-related expectancies for positive outcomes and weaker abstinence-related expectancies for negative outcomes. Motivation to quit and abstinence self-efficacy each had significant correlations of at least .10 with eight of the 10 SAQ scales.

Test 3: Association with withdrawal—Those who reported greater withdrawal over the past 24 hours reported weaker expectancies for positive outcomes and stronger expectancies for negative outcomes, with one exception (withdrawal symptoms were positively correlated with Treatment Effectiveness). MNWS scores had significant correlations of at least .10 with six of the 10 SAQ scales.

Test 4: Associations with dietary restraint, shape concern, and weight concern—Those who reported greater shape concern and weight concern reported weaker expectancies for positive outcomes and stronger expectancies for negative outcomes, although there were exceptions to this pattern (shape concern and weight concern were positively associated with Treatment Effectiveness and Common Reasons). Shape concern and weight concern had significant correlations of at least .10 with five of the 10 SAQ scales. Dietary restraint had significant correlations of at least .10 with only three of the 10 SAQ scales with no correlation exceeding .11, suggesting only modest relationships between dietary restraint and the SAQ.

Test 5: Associations with tobacco use expectancies—The SCQ-A appeared to share conceptual overlap with four scales of the SAQ. Negative Affect Reduction of the SCQ-A, which assesses expectancies for smoking to alleviate negative mood states, and Craving/Addiction of the SCQ-A, which assesses expectancies for smoking to result in continued craving for and use of cigarettes, were robustly associated with Withdrawal of the SAQ. Negative Social Impressions of the SCQ-A, which assesses expectancies for smoking to impact negatively on one's presentation to others, was strongly related to Social Improvement/Nonsmoker Identity of the SAQ. Health Risk of the SCQ-A, which assesses expectancies for the negative health impact of smoking, was strongly associated with Common Reasons of the SAQ. Finally, Weight Control of the SCQ-A, which assesses expectancies for smoking to control weight and appetite, was robustly related to Weight Gain of the SAQ. No additional SCQ-A scales appeared to share conceptual overlap with the SAQ; however, the SCQ-A had a number of significant correlations of at least .10 with several SAQ scales.

Tables 5, 6, 7, and 8 present results of regressions of SAQ scales on smoking-related constructs while controlling for their related scales on the SCQ-A. SAQ scales largely remained associated with the constructs described in tests 1 through 5 while controlling for

their related scales of the SCQ-A. For instance, Withdrawal was a unique predictor of the CDS; the strongest predictor of the NDSS total score, the WISDM total score, and the MNWS total score; and the only predictor of the FTND score, motivation to quit, abstinence self-efficacy, shape concern, and weight concern. Social Improvement/Nonsmoker Identity and Weight Gain showed similar associations with smoking-related constructs while controlling for their respective related SCQ-A scales. Common Reasons remained a significant predictor of NDSS total score and motivation to quit.

Discussion

The main objective of the current study was to develop and validate an instrument designed to assess smokers' expectancies for the abstinence process upon quitting smoking. To the best of our knowledge, the present research represents not only the first attempt to create a measure of abstinence-related expectancies for cigarette use, but the first effort to create a measure of abstinence-related expectancies for any addictive substance. Accordingly, the results of the current investigation underscore a previously overlooked construct.

Analysis revealed 10 factors underlying the items of the SAQ, from which 10 scales were constructed: Withdrawal, Social Improvement/Nonsmoker Identity, Adverse Outcomes, Treatment Effectiveness, Common Reasons, Barriers to Treatment, Social Support, Optimistic Outcomes, Coffee Use, and Weight Gain. The SAQ scales were associated with tobacco dependence, motivation to quit, abstinence self-efficacy, withdrawal symptoms, dietary restraint, shape and weight concern, and tobacco use expectancies. Consistent with hypotheses, results indicated that more chronic smokers tended to hold weaker expectancies pertaining to positive outcomes and greater expectancies pertaining to negative outcomes. Only four of the 10 SAQ scales appeared to have conceptual overlap with SCQ-A scales, and SAQ scales predicted other smoking-related constructs above and beyond their related scales of the SCQ-A; in many instances the SAQ was a better predictor of other smoking-related constructs than the SCQ-A. These results suggest that the SAQ is a valid measure of a unique construct.

Examination of the SAQ scales' coefficient alphas indicate that the measure could benefit from enhanced reliability. All but three scales (Withdrawal, Social Improvement/Nonsmoker Identity, and Treatment Effectiveness) exhibited modest coefficient alphas [44,45]. Nevertheless, it is notable that these scales demonstrated validity despite their less than optimal reliability. As the reliability of the SAQ is improved, its observed relationships with other smoking-related constructs will be augmented.

Limitations

The participants in the present research were moderate to heavy smokers with moderate to high levels of tobacco dependence. The degree to which the results generalize to the population of smokers, especially the emerging population of intermittent and light smokers [46], is unknown. It also is unknown whether the results from the current study generalize to adolescent smokers, non-English speaking smokers, or smokers from countries outside of the U.S. Although great effort was taken to develop a comprehensive pool of initial items and administer them to a diverse sample, as is the case with any form of factor analysis, the final factor structure is a result of the items and sample used.

Conclusion and Future Directions

Results from the current investigation support the notion that abstinence-related expectancies, as measured by the SAQ, are important constructs underlying smoking motivation and behavior. However, as this study represents the first attempt to

systematically evaluate the role of abstinence-related expectancies in tobacco use, the results are best described as promising. It is important that future studies establish the predictive validity of the SAQ. If abstinence-related expectancies indeed have significance to the understanding and treatment of tobacco dependence, then SAQ scales should predict quit attempts, withdrawal symptoms, use of and response to treatment and relapse, among other variables, above and beyond existing measures. Future research should demonstrate that the SAQ scales are superior to any single item at predicting these variables. As the SAQ's validity is firmly established, clinical applications of the SAQ may include tailoring interventions at the individual or population level based on responses to the instrument. For example, smokers who expect intense withdrawal effects upon cessation may be aided by the provision of withdrawal coping strategies and pharmacotherapy to allay withdrawal symptoms. Those who anticipate little improvement in their social functioning may benefit from educational materials informing them of the social gains associated with abstinence. Of course, interventions could be tailored according to responses on each of the 10 scales of the SAQ, and to this end profile analysis may prove useful.

Acknowledgments

References

1. Bandura, A. Social learning theory. Englewood Cliffs, NJ: Prentice-Hall; 1977.

2. Reich RR, Below MC, Goldman MS. Explicit and implicit measures of expectancy and related alcohol cognitions: A meta-analytic comparison. Psychol Addict Behav. 2010; 24:13–25. [PubMed: 20307108]

3. Urbán R. Smoking outcome expectancies mediate the association between sensation seeking, peer smoking, and smoking among adolescents. Nicotine Tob Res. 2009; 12:59–68. [PubMed: 19959571]

4. Halkitis PN, Mukherjee PP, Palamar JJ. Multi-level modeling to explain methamphetamine use among gay and bisexual men. Addiction. 2007; 102:76–83. [PubMed: 17493056]

5. Lundahl LH, Lukas SE. Negative cocaine expectancies are associated with subjective response to cocaine challenge in recreational cocaine users. Addict Behav. 2007; 32:1262–71. [PubMed: 17110052]

6. Harrell PT, Juliano LM. Caffeine expectancies influence the subjective and behavioral effects of caffeine. Psychopharmacology. 2009; 207:335–42. [PubMed: 19760283]

7. Metrik J, Rohsenow DJ, Monti PM, McGeary J, Cook TA, de Wit H, et al. Effectiveness of a marijuana expectancy manipulation: Piloting the balanced-placebo design for marijuana. Exp Clin Psychopharmacol. 2009; 17:217–25. [PubMed: 19653787]

8. Hendricks PS, Wood SB, Hall SM. Smokers' expectancies for abstinence: Preliminary results from focus groups. Psychol Addict Behav. 2009; 23:380–5. [PubMed: 19586157]

9. Brandon, TH.; Juliano, LM.; Copeland, AC. Expectancies for tobacco smoking. In: Kirsch, I., editor. How expectancies shape experience. Washington DC: American Psychological Association; 1999. p. 263-99.

10. Brown SA, Christiansen BA, Goldman MS. The Alcohol Expectancy Questionnaire: An instrument for the assessment of adolescent and adult alcohol expectancies. J Stud Alcohol. 1987; 48:483–91. [PubMed: 3669677]

11. Rohsenow DJ, Sirota AD, Martin RA, Monti PM. The Cocaine Effects Questionnaire for patient populations: Development and psychometric properties. Addict Behav. 2004; 29:537–53. [PubMed: 15050672]

12. Schafer J, Brown SA. Marijuana and cocaine effect expectancies and drug use patterns. J Consult Clin Psychol. 1991; 59:558–65. [PubMed: 1918560]

13. Heinz AJ, Kassel JD, Smith EV. Caffeine expectancy: Instrument development in the Rasch development framework. Psychol Addict Behav. 2009; 23:500–11. [PubMed: 19769434]

14. Brandon TH, Baker TB. The Smoking Consequences Questionnaire: The subjective expected utility of smoking in college students. Psychol Assess. 1991; 3:484–91.

15. Copeland AL, Brandon TH, Quinn EP. The Smoking Consequences Questionnaire-Adult: measurement of smoking outcome expectancies of experienced smokers. Psychol Assess. 1995; 7:484–94.

16. Vidrine JI, Vidrine DJ, Costello TJ, Mazas C, Cofta-Woerpel L, Meijia L, et al. The Smoking Consequences Questionnaire: Factor structure and predictive validity among Spanish-speaking Latino smokers in the United States. Nicotine Tob Res. 2009; 11:1280–8. [PubMed: 19696309]

17. Curry S, Wagner EH, Grothaus LC. Intrinsic and extrinsic motivation for smoking cessation. J Consult Clin Psychol. 1990; 58:310–6. [PubMed: 2195084]

18. McKee SA, O'Malley SS, Salovey P, Krishnan-Sarin S, Mazure CM. Perceived risks and benefits of smoking cessation: Gender-specific predictors of motivation and treatment outcome. Addict Behav. 2005; 30:423–35. [PubMed: 15718060]

19. Fiore, MC.; Jaén, CR.; Baker, TB., et al. Clinical practice guideline. U.S. Department of Health and Human Services, Public Health Service; 2008. Treating tobacco use and dependence: 2008 update.

20. Gwaltney CJ, Shiffman S, Balabanis MH, Paty JA. Dynamic self-efficacy and outcome expectancies: Prediction of smoking lapse and relapse. J Abnorm Psychol. 2005; 114:661–75. [PubMed: 16351387]

21. Baker TB, Piper ME, McCarthy DE, Majeskie MR, Fiore MC. Addiction motivation reformulated: An affective processing model of negative reinforcement. Psychol Rev. 2004; 111:33–51. [PubMed: 14756584]

22. Tate JC, Stanton AL, Green SB, Schmitz JM, Le T, Marshall B. Experimental analysis of the role of expectancy in nicotine withdrawal. Psychol Addict Behav. 1994; 8:169–78.

23. Juliano LM, Brandon TH. Effects of nicotine dose, instructional set, and outcome expectancies on the subjective effects of smoking in the presence of a stressor. J Abnorm Psychol. 2002; 111:88–97. [PubMed: 11866182]

24. Wetter DW, Smith SS, Kenford SL, Jorenby DE, Fiore MC, Hurt RD, et al. Smoking outcome expectancies: Factor structure, predictive validity, and discriminant validity. J Abnorm Psychol. 1994; 103:801–11. [PubMed: 7822583]

25. Lopez EN, Drobes DJ, Thompson JK, Brandon TH. Effects of a body image challenge on smoking motivation among college females. Health Psychol. 2008; 27:S243–51. [PubMed: 18979977]

26. Spring B, Howe D, Berendsen M, McFadden HG, Hitchcock K, Rademaker AW, et al. Behavioral intervention to promote smoking cessation and prevent weight gain: A systematic review and meta-analysis. Addiction. 2009; 104:1472–86. [PubMed: 19549058]

27. Goldberg, LR.; Velicer, WF. Principles of exploratory factor analysis. In: Strack, S., editor. Differentiating normal and abnormal personality. 2. New York NY: Springer; 2006. p. 209-37.

28. Meade CD, Byrd JC, Lee M. Improving patient comprehension of literature on smoking. Am J Public Health. 1989; 79:1411–12. [PubMed: 2782514]

29. Pérez-Stable EJ, Herrera B, Jacob P 3rd, Benowitz NL. Nicotine metabolism and intake in black and white smokers. JAMA. 1998; 280:152–6. [PubMed: 9669788]

30. Piper ME, McCarthy DE, Baker TB. Assessing tobacco dependence: A guide to measure evaluation and selection. Nicotine Tob Res. 2006; 8:339–51. [PubMed: 16801292]

31. Hendricks PS, Prochaska JJ, Humfleet GL, Hall SM. Evaluating the validities of different DSM-IV based conceptual constructs of tobacco dependence. Addiction. 2008; 103:1215–23. [PubMed: 18554351]

32. Piper ME, McCarthy DE, Bolt DM, Smith SS, Lerman C, Benowitz NL, et al. Assessing dimensions of nicotine dependence: An evaluation of the Nicotine Dependence Syndrome Scale (NDSS) and the Wisconsin Inventory of Smoking Dependence Motives (WISDM). Nicotine Tob Res. 2008; 10:1009–20. [PubMed: 18584464]

33. Etter JF, Le Houezec J, Perneger TV. A self-administered questionnaire to measure dependence on cigarettes: The Cigarette Dependence Scale. Neuropsychopharmacology. 2003; 28:359–70. [PubMed: 12589389]

34. Courvoisier DS, Etter JF. Comparing the predictive validity of five cigarette dependence questionnaires. Drug Alcohol Depend. 2010; 107:128–33. [PubMed: 19926407]

35. Heatherton TF, Kozlowski LT, Frecker RC, Fagerström KO. The Fagerström Test for Nicotine Dependence: A revision of the Fagerström Tolerance Questionnaire. Br J Addict. 1991; 86:1119–27. [PubMed: 1932883]

36. Shiffman S, Waters AJ, Hickcox M. The Nicotine Dependence Syndrome Scale: A multidimensional measure of nicotine dependence. Nicotine Tob Res. 2004; 6:327–49. [PubMed: 15203807]

37. Piper ME, Piasecki TM, Federman EB, Bolt DM, Smith SS, Fiore MC, et al. A multiple motives approach to tobacco dependence: the Wisconsin Inventory of Smoking Dependence Motives (WISDM-68). J Consult Clin Psychol. 2004; 72:139–54. [PubMed: 15065950]

38. Hall SM, Havassy BE, Wasserman DA. Commitment to abstinence and acute stress in relapse to alcohol, opiates, and nicotine. J Consult Clin Psychol. 1990; 58:175–181. [PubMed: 2335634]

39. Hendricks PS, Delucchi KL, Hall SM. Mechanisms of change in extended cognitive behavioral treatment for tobacco dependence. Drug Alcohol Depend. 2010; 109:114–9. [PubMed: 20096510]

40. Hughes JR, Hatsukami DK. Signs and symptoms of tobacco withdrawal. Arch Gen Psychiatry. 1986; 43:289–94. [PubMed: 3954551]

41. Etter JF, Hughes JR. A comparison of the psychometric properties of three cigarette withdrawal scales. Addiction. 2006; 101:362–72. [PubMed: 16499509]

42. Fairburn CG, Belgin SJ. The assessment of eating disorders: Interview or self-report questionnaire? Int J Eat Disord. 1994; 16:363–70. [PubMed: 7866415]

43. Velicer WF. Determining the number of components from the matrix of partial correlations. Psychometrika. 1976; 41:321–27.

44. Cicchetti DV. Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. Psychol Assess. 1994; 6:284–90.

45. Nunnally, JC.; Bernstein, IH. Psychometric Theory. 3. New York: McGraw-Hill; 1994.

46. Shiffman S. Light and intermittent smokers: Background and perspective. Nicotine Tob Res. 2009; 11:122–5. [PubMed: 19246630]

Appendix A

Smoking Abstinence Questionnaire

We would like to learn about what you would expect to happen if you quit smoking. Below are a number of sentences. Each sentence is about a consequence that might happen if you quit smoking. Please rate how LIKELY or UNLIKELY you believe each consequence would be for you if you quit smoking.

For example:

If a consequence seems not at all likely to you, you would circle 0. If a consequence seems extremely like to you, you would circle 6. If it seems neither likely nor unlikely, you would circle 3. Please refer to the scale below to guide you further:

0	1	2	3	4	5	6
Not likely at all	Very unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Very likely	Extremely likely

If I quit smoking…	Not likely at all						Extremely likely
1. I would have few urges or cravings to smoke.	0	1	2	3	4	5	6
2. I would have more control over my life.	0	1	2	3	4	5	6
3. Drinking coffee would make me want to smoke.	0	1	2	3	4	5	6
4. Prescription drugs for quitting would be really helpful.	0	1	2	3	4	5	6
5. My drug habit would increase if I quit.	0	1	2	3	4	5	6
6. My weight would not change.	0	1	2	3	4	5	6
7. My teeth would look brighter and whiter.	0	1	2	3	4	5	6
8. The sight of a cigarette would tempt me to smoke.	0	1	2	3	4	5	6
9. Parts of my social life would improve.	0	1	2	3	4	5	6
10. I would feel short-tempered or cranky.	0	1	2	3	4	5	6
11. The people close to me would make fun of me for trying to stop smoking.	0	1	2	3	4	5	6
12. After a while, the idea of smoking would disgust me.	0	1	2	3	4	5	6
13. My mood would not be affected.	0	1	2	3	4	5	6
14. The people close to me would be happy that I quit.	0	1	2	3	4	5	6
15. Withdrawal would not be so bad if I used prescription drugs for quitting.	0	1	2	3	4	5	6
16. I would feel like a traitor to my fellow smokers.	0	1	2	3	4	5	6
17. The demands of everyday life would seem like more of a struggle.	0	1	2	3	4	5	6
18. I would gain weight.	0	1	2	3	4	5	6
19. I would be a more productive person.	0	1	2	3	4	5	6
20. I would look less attractive than before.	0	1	2	3	4	5	6
21. I would not be out of breath all the time.	0	1	2	3	4	5	6
22. The people close to me would do everything they could to help me quit.	0	1	2	3	4	5	6
23. I would feel pleasant and sociable.	0	1	2	3	4	5	6
24. It would be no problem to find an alternative to smoking that helps reduce stress.	0	1	2	3	4	5	6
25. Prescription drugs for quitting would make it easier to stop smoking.	0	1	2	3	4	5	6
26. I would drink less coffee than before.	0	1	2	3	4	5	6
27. It would be easier to be active and exercise.	0	1	2	3	4	5	6
28. Prescription drugs for quitting would be too expensive to use.	0	1	2	3	4	5	6
29. After I quit, I would try to persuade other smokers to quit.	0	1	2	3	4	5	6
30. My use of other drugs would increase.	0	1	2	3	4	5	6
31. I would want to eat more food than I do now.	0	1	2	3	4	5	6
32. My health would be better in the long-term.	0	1	2	3	4	5	6
33. Without a cigarette, I would not look as cool.	0	1	2	3	4	5	6
34. Drinking coffee would not be the same without smoking.	0	1	2	3	4	5	6
35. My ability to deal with stress would not be affected.	0	1	2	3	4	5	6
36. The people close to me would really cheer me on in my effort to quit.	0	1	2	3	4	5	6

If I quit smoking…	Not likely at all							Extremely likely
37. I would really crave a cigarette.	0	1	2	3	4	5		6
38. Nicotine treatments like the patch and gum would cost too much to use.	0	1	2	3	4	5		6
39. I would feel a sense of accomplishment.	0	1	2	3	4	5		6
40. All I would think about is having a cigarette.	0	1	2	3	4	5		6
41. It would be hard to control my eating.	0	1	2	3	4	5		6
42. The people close to me would support my decision to quit.	0	1	2	3	4	5		6
43. Nicotine treatments like the patch or gum would be really helpful.	0	1	2	3	4	5		6
44. It would be easier to talk to people without a cigarette.	0	1	2	3	4	5		6
45. It would be too much of a hassle to get prescription drugs for quitting.	0	1	2	3	4	5		6
46. I would feel anxious, nervous, or worried.	0	1	2	3	4	5		6
47. Withdrawal would not be much of a problem for me.	0	1	2	3	4	5		6
48. I would change my coffee drinking because coffee would make me want to smoke.	0	1	2	3	4	5		6
49. I would probably live longer.	0	1	2	3	4	5		6
50. My chances of quitting would be much better with the help of a professional.	0	1	2	3	4	5		6
51. I would feel like I had been bullied into quitting.	0	1	2	3	4	5		6
52. It would cost too much to go to a professional for help quitting.	0	1	2	3	4	5		6
53. I would be a more desired romantic partner.	0	1	2	3	4	5		6
54. My body would begin to heal from the damage of smoking.	0	1	2	3	4	5		6
55. Seeing someone else smoke would make me crave a cigarette.	0	1	2	3	4	5		6

Appendix B

Smoking Abstinence Questionnaire Scoring Key

Item Numbers	Scale
8, 10, 17, 37, 40, 46, 55	Withdrawal
2, 9, 12, 19, 23, 29, 44, 53	Social Improvement/Nonsmoker Identity
5, 11, 16, 20, 30, 33, 51	Adverse Outcomes
4, 15, 25, 43, 50	Treatment Effectiveness
7, 21, 27, 32, 39, 49, 54	Common Reasons
28, 38, 45, 52	Barriers to Treatment
14, 22, 36, 42	Social Support
1, 6, 13, 24, 35, 47	Optimistic Outcomes
3, 26, 34, 48	Coffee Use
18, 31, 41	Weight Gain

Note. To determine scale scores, compute the mean of the items pertaining to each scale.

Table 1

Demographic and Smoking Characteristics

Gender (%)	
Male	53.3
Female	45.6
Transgender	1.2
Sexual Orientation (%)	
Heterosexual	76.1
Homosexual	13.4
Bisexual	10.5
Mean Age (*SD*)	40.8 (12.4)
Education (%)	
No high school degree	10.0
High school degree	58.8
Associate's degree, vocational degree	15.2
Bachelor's degree	13.0
Master's degree	2.4
Doctoral degree	.6
Annual individual income (%)	
Less than $10,000	51.1
$11,000 – $20,000	23.1
$21,000 – $30,000	7.9
$31,000 – $40,000	7.9
$41,000 – $50,000	4.5
Over $51,000	5.5
Ethnoracial status (%)	
White	36.5
African American	29.8
American Indian	17.2
More than one race	8.5
Asian/Pacific Islander	4.3
Other	3.7
Hispanic/Latino (any race)	12.6
Mean cigarettes smoked per day (*SD*)	17.8 (7.7)
Mean years smoking daily (*SD*)	21.0 (12.6)
Mean number of quit attempts of at least one week (*SD*)	7.8 (25.6)
Mean intake CO (*SD*)	20.2 (12.2)

Mean total score (*SD*)	
CDS	46.5 (7.9)
FTND	4.9 (2.1)
NDSS	−.02 (.96)
WISDM	57.7 (14.8)

Note. CO = breath carbon monoxide, CDS = Cigarette Dependence Scale, FTND = Fagerström Test of Nicotine Dependence, NDSS = Nicotine Dependence Syndrome Scale, WISDM = Wisconsin Inventory of Smoking Dependence Motives.

Table 2

Smoking Abstinence Questionnaire Items and Factor Loadings

Scale (coefficient alpha reliability)	Loading
Withdrawal (.85)	
Seeing someone else smoke would make me crave a cigarette.	.77
I would feel short-tempered or cranky.	.76
The sight of a cigarette would tempt me to smoke.	.75
The demands of everyday life would seem like more of a struggle.	.63
I would feel anxious, nervous, or worried.	.62
I would really crave a cigarette.	.62
All I would think about is having a cigarette.	.59
Social Improvement/Nonsmoker Identity (.80)	
I would have more control over my life.	.74
Parts of my social life would improve.	.74
It would be easier to talk to people without a cigarette.	.64
I would be a more productive person.	.61
I would be a more desired romantic partner.	.60
After I quit, I would try to persuade other smokers to quit.	.52
After a while, the idea of smoking would disgust me.	.48
I would feel pleasant and sociable.	.47
Adverse Outcomes (.75)	
I would feel like a traitor to my fellow smokers.	.65
My use of other drugs would increase.	.62
I would feel like I had been bullied into quitting.	.62
I would look less attractive than before.	.62
My drug habit would increase if I quit.	.61
The people close to me would make fun of me for trying to stop smoking.	.55
Without a cigarette, I would not look as cool.	.52
Treatment Effectiveness (.82)	
Prescription drugs for quitting would be really helpful.	.83
Prescription drugs for quitting would make it easier to stop smoking.	.80
Withdrawal would not be so bad if I used prescription drugs for quitting.	.71
Nicotine treatments like the patch or gum would be really helpful.	.65
My chances of quitting would be much better with the help of a professional.	.64
Common Reasons (.72)	
My teeth would look brighter and whiter.	.72
My body would begin to heal from the damage of smoking.	.65
I would probably live longer.	.62
My health would be better in the long-term.	.55
I would feel a sense of accomplishment.	.53
I would not be out of breath all the time.	.50
It would be easier to be active and exercise.	.49

Scale (coefficient alpha reliability)	Loading
Barriers to Treatment (.75)	
It would cost too much to go to a professional for help quitting.	.82
It would be too much of a hassle to get prescription drugs for quitting.	.74
Prescription drugs for quitting would be too expensive to use.	.69
Nicotine treatments like the patch and gum would cost too much to use.	.68
Social Support (.76)	
The people close to me would do everything they could to help me quit.	.80
The people close to me would really cheer me on in my effort to quit.	.74
The people close to me would support my decision to quit.	.74
The people close to me would be happy that I quit.	.65
Optimistic Outcomes (.62)	
Withdrawal would not be much of a problem for me.	.66
My ability to deal with stress would not be affected.	.62
My mood would not be affected.	.57
My weight would not change.	55
I would have few urges or cravings to smoke.	.53
It would be no problem to find an alternative to smoking that helps reduce stress.	.46
Coffee Use (.72)	
I would change my coffee drinking because coffee would make me want to smoke.	.75
I would drink less coffee than before.	.68
Drinking coffee would not be the same without smoking.	.67
Drinking coffee would make me want to smoke.	.66
Weight Gain (.74)	
I would gain weight.	.79
I would want to eat more food than I do now.	.77
It would be hard to control my eating.	.63

Table 3

Zero-Order Correlations of the SAQ Scales

SAQ Scales	Withdrawal	Social Improvement/Nonsmoker Identity	Adverse Outcomes	Treatment Effectiveness	Common Reasons	Barriers to Treatment	Social Support	Optimistic Outcomes	Coffee Use	Weight Gain
Withdrawal										
Social Improvement/Nonsmoker Identity	−.08									
Adverse Outcomes	.28**	−.03								
Treatment Effectiveness	.27**	.35**	.15*							
Common Reasons	.15**	.38**	−.20**	.24**						
Barriers to Treatment	.33**	.00	.18**	.15*	.06					
Social Support	.03	.30**	−.22**	.14*	.37**	−.06				
Optimistic Outcomes	−.33**	.22**	.08	−.06	−.04	−.05	.04			
Coffee Use	.37**	.06	.27**	.18**	.09†	.18*	.08	−.03		
Weight Gain	.46**	.01	.15*	.24**	.13*	.22*	.06	−.18**	.29**	

Note.

†
$p < .05$,

*
$p < .01$,

**
$p < .001$. SAQ = Smoking Abstinence Questionnaire

Table 4

SAQ Scale Correlations with Other Smoking-Related Measures

Scales and Subscales	SAQ Scales									
	Withdrawal	Social Improvement/Nonsmoker Identity	Adverse Outcomes	Treatment Effectiveness	Common Reasons	Barriers to Treatment	Social Support	Optimistic Outcomes	Coffee Use	Weight Gain
CDS total score	.48 **	--	--	.23 **	.22 **	.16 **	.13 *	-.31 **	.19 **	.25 **
FTND total score	.16 **	--	.13 *	.12 *	-.11 †	--	--	--	.12 *	.16 **
NDSS										
Total score	.50 **	--	.14 *	.20 **	.15 *	.18 **	--	-.21 **	.20 **	.26 **
Drive	.59 **	--	.10 †	.28 **	.22 **	.17 **	--	-.35 **	.23 **	.36 **
Priority	--	.17 **	.21 **	--	--	--	-.18 **	.10 †	.21 **	--
Tolerance	.17 **	--	--	--	.12 *	--	--	-.14 *	--	--
Continuity	--	--	--	--	--	--	--	--	--	--
Stereotypy	--	--	--	--	--	--	--	.13 *	--	--
WISDM										
Total score	.59 **	--	.24 **	.28 **	.14 *	.22 **	--	-.20 **	.29 **	.35 **
Affiliative Attachment	.41 **	.13 *	.22 **	.24 **	--	.16 **	--	--	.27 **	.19 **
Automaticity	.37 **	.15 *	.11 †	.23 **	.16 *	.14 *	.11 †	--	.16 **	.19 **
Control	.40 **	.19 **	--	.32 **	.25 **	.16 **	.11 †	-.17 **	.19 **	.25 **
Behavioral Choice/Melioration	.49 **	--	.32 **	.22 **	--	.17 **	--	-.12 *	.32 **	.26 **
Cognitive Enhancement	.44 **	--	.26 **	.20 **	--	.13 *	--	-.14 *	.23 **	.22 **
Cravings	.56 **	--	--	.27 **	.25 **	.22 **	--	-.25 **	.23 **	.34 **
Cue Exposure/Associative Processes	.61 **	--	.16 *	.22 **	.24 **	.21 **	--	-.23 **	.28 **	.34 **
Negative Reinforcement	.57 **	--	.20 **	.20 **	.12 *	.21 **	--	-.23 **	.24 **	.31 **
Positive Reinforcement	.49 **	--	.27 **	.16 **	--	.16 **	--	-.17 **	.29 **	.26 **
Social/Environmental Goals	.23 **	--	.17 **	--	--	.24 **	-.12 *	--	--	--
Taste/Sensory Properties	.40 **	--	.19 **	.13 *	--	.10 †	--	-.14 *	.24 **	.19 **
Tolerance	.37 **	--	--	.21 **	.14 *	.11 †	--	-.18 **	.16 **	.23 **
Weight Control	.28 **	.11 †	.20 **	.18 **	--	--	--	--	.11 †	.48 **

NIH-PA Author Manuscript

Scales and Subscales	SAQ Scales									
	Withdrawal	Social Improvement/Nonsmoker Identity	Adverse Outcomes	Treatment Effectiveness	Common Reasons	Barriers to Treatment	Social Support	Optimistic Outcomes	Coffee Use	Weight Gain
Thoughts about Abstinence										
Motivation to Quit	-.26**	.40**	-.27**	.16**	.21**	--	.24**	.17**	-.11†	--
Abstinence Self-efficacy	-.36**	.28**	-.11†	--	--	-.16**	.15*	.27**	-.15**	-.17**
MNWS total score	.39**	--	.17**	.16*	--	.19**	--	--	.12*	.25**
EDE-Q										
Restraint	.11†	--	--	.10†	--	--	--	--	--	.10†
Shape Concern	.26**	--	--	.14*	.11†	.16**	--	--	--	.29**
Weight Concern	.24**	--	--	.10†	.10†	.16**	--	--	--	.31**
SCQ-A										
Negative Affect Reduction	.56**	--	--	.14*	.18**	.18**	.12†	-.31**	.21**	.34**
Stimulation/State Enhancement	.42**	--	.33**	.23**	--	.11†	--	-.15*	.25**	.26**
Health Risk	.16**	.18**	-.27**	.18**	.49**	--	.28**	-.18**	--	.15*
Taste/Sensorimotor Manipulation	.47**	--	.27**	.13*	--	.11†	--	-.22**	.23**	.23**
Social Facilitation	.42**	--	.36**	.19**	--	.15*	--	-.12†	.25**	.23**
Appetite/Weight Control	.33**	--	.16**	.23**	--	.13*	--	-.14*	.16**	.53**
Craving/Addiction	.49**	--	--	.25**	.27**	.19**	.14*	-.27**	.19**	.31**
Negative Physical Feelings	.15*	.29**	.10†	.23**	.19**	--	.13*	--	--	.17**
Boredom Reduction	.50**	--	.12*	.14*	.13*	.23**	--	-.24**	.21**	.24**
Negative Social Impressions	--	.44**	--	.27**	.22**	--	.12*	--	--	--

Note.

† *p < .05,*

* *p < .01,*

** *p < .001.* SAQ = Smoking Abstinence Questionnaire, CDS = Cigarette Dependence Scale, FTND = Fagerström Test of Nicotine Dependence, NDSS= Nicotine Dependence Syndrome Scale, WISDM = Wisconsin Inventory of Smoking Dependence Motives, MNWS = Minnesota Nicotine Withdrawal Scale, EDE-Q = Eating Disorders Examination Questionnaire, SCQ-A = Smoking Consequences Questionnaire-Adult.

Table 5

Results of Regressions of the SAQ Withdrawal Scale on Smoking-Related Constructs while Controlling for the Negative Affect Reduction Scale and Craving/Addiction Scale of the SCQ-A.

Predictors	Smoking-related constructs									
	CDS	FTND	NDSS	WISDM	MTQ	ASE	MNWS	Dietary Restraint	Shape Concern	Weight Concern
SAQ Scale										
Withdrawal	.31**	.15*	.32**	.32**	−.27**	−.32**	.30**	.08	.19**	.17**
SCQ-A Scales										
Negative Affect Reduction	−.04	−.02	.11†	.21**	−.05	−.05	.12†	.06	.09	.07
Craving/Addiction	.38**	.05	.24**	.31**	.08	−.04	.05	−.01	.05	.05

Note. Reported statistic is the standardized regression coefficient.

†
$p < .05$,

*
$p < .01$,

**
$p < .001$. SAQ = Smoking Abstinence Questionnaire, SCQ-A = Smoking Consequences Questionnaire-Adult, CDS = Cigarette Dependence Scale total score, FTND = Fagerström Test of Nicotine Dependence total score, NDSS= Nicotine Dependence Syndrome Scale total score, WISDM = Wisconsin Inventory of Smoking Dependence Motives total score, MTQ = motivation to quit, ASE = abstinence self-efficacy, MNWS = Minnesota Nicotine Withdrawal Scale total score.

Table 6

Results of Regressions of the SAQ Social Improvement/Nonsmoker Identity Scale on Smoking-Related Constructs while Controlling for the Negative Social Impression Scale of the SCQ-A.

Predictors	Smoking-related constructs	
	MTQ	**ASE**
SAQ Scale		
Social Improvement/Nonsmoker Identity	.35 **	.28 **
SCQ-A Scale		
Negative Social Impression	.11 †	.01

Note. Reported statistic is the standardized regression coefficient.

†
p < .05,

*
p < .01,

**
p < .001. SAQ = Smoking Abstinence Questionnaire, SCQ-A = Smoking Consequences Questionnaire-Adult, MTQ = motivation to quit, ASE = abstinence self-efficacy.

Table 7

Results of Regressions of the SAQ Common Reasons Scale on Smoking-Related Constructs while Controlling for the Health Risk Scale of the SCQ-A.

Predictors	Smoking-related constructs					
	CDS	NDSS	WISDM	MTQ	Shape Concern	Weight Concern
SAQ Scale						
Common Reasons	.09	$.10^{\dagger}$	.09	$.14^{*}$	.05	.04
SCQ-A Scale						
Health Risk	$.28^{**}$	$.10^{\dagger}$	$.11^{\dagger}$	$.14^{*}$	$.12^{\dagger}$	$.11^{\dagger}$

Note. Reported statistic is the standardized regression coefficient.

$^{\dagger}p < .05,$

$^{*}p < .01,$

$^{**}p < .001.$ SAQ = Smoking Abstinence Questionnaire, SCQ-A = Smoking Consequences Questionnaire-Adult, CDS = Cigarette Dependence Scale total score, NDSS= Nicotine Dependence Syndrome Scale total score, WISDM = Wisconsin Inventory of Smoking Dependence Motives total score, MTQ = motivation to quit.

Table 8

Results of Regressions of the SAQ Weight Gain Scale on Smoking-Related Constructs while Controlling for the Appetite/Weight Control Scale of the SCQ-A.

Predictors	Smoking-related constructs								
	CDS	FTND	NDSS	WISDM	ASE	MNWS	Dietary Restraint	Shape Concern	Weight Concern
SAQ Scale									
Weight Gain	.22 **	.16 *	.20 **	.19 **	−.16 *	.14 *	−.07	.13 *	.16 **
SCQ-A Scale									
Appetite/Weight Control	.05	−.01	.10 †	.31 **	−.03	.21 **	.31 **	.31 **	.28 **

Note. Reported statistic is the standardized regression coefficient.

† *p* < .05,

* *p* < .01,

** *p* < .001. SAQ = Smoking Abstinence Questionnaire, CDS = Cigarette Dependence Scale total score, FTND = Fagerström Test of Nicotine Dependence total score, NDSS= Nicotine Dependence Syndrome Scale total score, WISDM = Wisconsin Inventory of Smoking Dependence Motives total score, ASE = abstinence self-efficacy MNWS = Minnesota Nicotine Withdrawal Scale total score.