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Authors

Brown-Johnson, Cati G
Cataldo, Janine K
Orozco, Nicholas
[et al.](#)

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Validity and Reliability of the Internalized Stigma of Smoking Inventory: An Exploration of Shame, Isolation, and Discrimination in Smokers with Mental Health Diagnoses

Cati G. Brown-Johnson, PhD¹, Janine K. Cataldo PhD, APRN², Nicholas Orozco, BSc, MS³, Nadra E. Lisha, PhD⁴, Norval Hickman III, PhD, MPH⁵, and Judith J. Prochaska, PhD, MPH¹

¹Stanford Prevention Research Center, Department of Medicine, School of Medicine, Stanford University, Stanford, California

²Department of Physiological Nursing, School of Nursing, University of California, San Francisco, California

³Joint Medical Program, University of California Berkeley, School of Public Health, Berkeley, California & University of California San Francisco, School of Medicine, San Francisco, California

⁴Center for Tobacco Control Research and Education, University of California, San Francisco

⁵California Tobacco-Related Disease Research Program, Office of the President, University of California, Oakland, California

Abstract

Background and Objectives—De-normalization of smoking as a public health strategy may create shame and isolation in vulnerable groups unable to quit. To examine the nature and impact of smoking stigma, we developed the Internalized Stigma of Smoking Inventory (ISSI), tested its validity and reliability, and explored factors that may contribute to smoking stigma.

Methods—We evaluated the ISSI in a sample of smokers with mental health diagnoses (N=956), using exploratory and confirmatory factor analysis, and assessed construct validity.

Results—Results reduced the ISSI to 8 items with three subscales: smoking *self-stigma* related to shame, *felt stigma* related to social isolation, and *discrimination* experiences. Discrimination was the most commonly endorsed of the three subscales. A multivariate generalized linear model predicted 21-30% of the variance in the smoking stigma subscales. Self-stigma was greatest among those intending to quit; felt stigma was highest among those experiencing stigma in other domains, namely ethnicity and mental illness-based; and smoking-related discrimination was highest among women, Caucasians, and those with more education.

Discussion and Conclusion—Smoking stigma may compound stigma experiences in other areas. Aspects of smoking stigma in the domains of shame, isolation, and discrimination related to

Corresponding Author: Judith J. Prochaska, PhD, MPH, Stanford Prevention Research Center, Department of Medicine | Stanford University, Medical School Office Building, X316, 1265 Welch Road, Stanford, CA 94305-5411USA, T 650-724-3608, F 650-725-6247, jpro@stanford.edu.

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modeled stigma responses, particularly readiness to quit and cigarette addiction and was found to be more salient for groups where tobacco use is least prevalent.

Scientific Significance—The ISSI measure is useful for quantifying smoking-related stigma in multiple domains.

Tobacco use in the US has become de-normalized over the last fifty years.¹ As tobacco use has declined, smoking has moved from once being viewed as normal to now an aberrant behavior. As a consequence, smokers have become increasingly concentrated in underprivileged and marginalized groups characterized by low-income, unemployment, lower education, and mental illness.^{2,3} While 18% of US adults smoke tobacco, the smoking prevalence among community-dwelling individuals with mental illness is 36%,⁴ and 60% among acutely hospitalized psychiatric patients.⁵ The health consequences are significant for individuals with serious mental illness who face a 25 year shortened survival on average.⁶

In addition to the health disparities experienced by smokers, psychosocial factors such as smoking stigma can cause additional strain on health, and may thwart positive behavior change. Smoking stigma can be defined as a social process by which exclusion, rejection, blame or devaluation occurs,⁷ in this case related to smoking or being identified as a smoker. Stigma can be categorized as: 1) internally-focused *self-stigma* resulting from the internalization of public stigma and characterized by statements about the individual's worth, e.g., “I am worth less because I smoke”⁸; 2) *perceived or felt stigma*, which is an awareness of devaluation or stereotype in work, social, and everyday situations,⁷ and includes fear of being stigmatized, experiencing external blame, and social isolation; or 3) *enacted stigma*, which refers to acts of discrimination perpetrated on stigmatized individuals.⁹

In in-depth interviews and focus groups with 86 young adults in New Zealand, both smokers and non-smokers perceived the existence of smoking stigma and reported participating in discriminating and stigmatizing behavior towards smokers.¹⁰ Other qualitative work on smoking stigma experiences has discussed themes of: 1) smoker self-ostracization,^{11,12} resulting in the creation of “smoking islands” where smoking is accepted and condoned¹³; 2) non-smoker-imposed social isolation with projected negative and distancing “anti-social” and “other” labels given to smokers¹⁴; 3) perceptions of being a bad parent as a result of being a smoker (e.g., bad caregiver for mothers,¹¹ bad protector and provider for fathers¹²); and 4) a “deep divide” perceived by smokers between those who smoke and those who do not.¹⁰ An interview study in Scotland found that some smokers even stigmatized other smokers by creating divisions based on perceived cleanliness: “I’m not a dirty smoker,” “I don’t throw butts around”.¹¹ Smokers have indicated that they manage the shame of smoking with cleanliness rituals including hand washing and teeth brushing.¹²

Three survey studies with over 800 adult smokers and ex-smokers from New York City make up the known quantitative research concerning smoking stigma. About half of the smokers and former smokers reported experiencing smoking stigma (assessed using five 4-point Likert scale items) focusing on devaluation (perception that others looked down on smokers) and differential treatment (discrimination); 17% of respondents reported direct discrimination (i.e., denial of apartment rentals, job opportunities, and health insurance) because of their smoking.¹⁵ Smoking stigma was found to originate from beliefs that

smoking is a personal “choice” (and not an addiction) and fears associated with health risks of secondhand smoke.¹ Additionally, patients who believed smokers are devalued compared to non-smokers were more likely to report keeping secrets from medical providers, suggesting that stigma may interfere with quality healthcare.¹⁶ Finally, these studies linked perceived smoking stigma to: social withdrawal; experiences of smoking-related discrimination; smoke-free environments (i.e., smoke-free workplaces and homes); and beliefs that “weak character,” “bad genes,” and stress cause smoking.^{1,15}

Expanding beyond direct experiences with discrimination and devaluation to assess perceptions of social exclusion and self-judgment from the viewpoint of smokers, we aimed to further develop research on smoking stigma. Building from research of stigma formation with regard to mental illness stigma,¹⁷ we sought to create a brief, valid, and reproducible measure of perceived smoking stigma that would include discrimination and devaluation elements and self-stigma. In evaluating the construct validity of the measure, we considered modeled precursors, perceptions, and responses to smoking stigma, drawing from the Lung Cancer Stigma Model as a theoretical framework (Figure 1).^{18,19} Smoking stigma in the model is characterized by identification as a smoker, physical triggers (including smell and coughing) indicating smoking, and social context (*precursors*); experiences of discrimination, isolation or shame (*perceived smoking stigma*); and *responses* ranging from increased smoking to attempts to quit. Herein, we report on the factor structure, reliability, and construct validity of the resulting Internalized Stigma of Smoking Inventory (ISSI), and address the following model-derived research questions: (1) are concepts of discrimination, isolation, and shame reflected in the ISSI; (2) are elements of smoking stigma associated with readiness to quit smoking, as a modeled response; and (3) what proportion of the reported experience of smoking stigma is uniquely accounted for by smoking-related behavior, versus experiences of stigma in other domains, namely ethnicity and mental illness-based.

Methods

Design

The current study analyzed baseline data from a sample of smokers with serious mental illness. Evaluating the ISSI with a diverse psychiatric sample, likely to experience multiple interacting forms of stigma²⁰ due to mental illness, tobacco use, and ethnicity, provided the unique opportunity to determine how much of the ISSI assessed a generalized experience of stigma (assessed here through ethnicity- and mental illness-based stigma) versus stigma that was tobacco-specific.

Measures

Stigma Scales Measurement Development—The ISSI was adapted from the widely used and validated Internalized Stigma of Mental Illness (ISMI) measure¹⁷ with 17 items and five subscales (Alienation, Stereotype Endorsement, Perceived Discrimination, Social Withdrawal, and Stigma Resistance). Higher ISMI scores are associated with reduced hope and empowerment; lower self-esteem and treatment adherence; and greater psychiatric symptom severity.²¹ In creating the ISSI, we adapted items from three of the five ISMI

subcales (Stereotype Endorsement, Social Withdrawal, and Perceived Discrimination). Two ISMI subscales were not represented (Alienation and Stigma Resistance). Alienation items did not easily translate to stereotypes of smokers (e.g., “Smokers tend to be violent”; “Because I am a smoker, I need others to make most decisions for me”), and the Stigma Resistance subscale was excluded because it had previously exhibited poorer internal consistency with low Chronbach's alpha.²² Once a working draft of the ISSI was available, we convened experts in smoking cessation, substance treatment, stigma, and mental illness to provide comments on the scale and inform inclusion/exclusion decisions at the item level. With this expert team's assistance, we identified and removed four items that were inappropriate for smoking stigma (e.g., “People often patronize me, or treat me like a child, just because I am a smoker”), resulting in a 13-item scale for testing. Responses used the ISMI's original four-point Likert scale with the following designations: Strongly Disagree (1), Disagree (2), Agree (3), Strongly Agree (4). Given variability in the number of items per scale, scores were calculated as a mean.

For comparison and interest, we created an Ethnicity-based Internalized Stigma Inventory (EISI) with 13-items matching adaptations for the ISSI, but with reference to race/ethnicity.

Descriptive Measures—Demographics included age, sex, race/ethnicity, and indicators of socioeconomic status, including income, education, and participants' perceived social standing in their self-defined community and in the broader US (measured with the MacArthur Subjective Social Status 10-point ladder scales), associated in recent studies with smoking behavior in young adults,²⁴ as well as more basic health functions like cortisol levels.²⁵ Health functioning was assessed with the SF-12 Physical and Mental Component Scores (PCS and MCS).²⁶ Psychiatric diagnosis was assessed using the mood and psychosis modules of the Mini International Neuropsychiatric Interview (MINI) and supplemented by chart review.²⁷ Smoking measures were cigarettes per day, years smoked, quit attempts in the past year, and the Fagerstrom Test of Cigarette Dependence (FTCD), consisting of six items for a total score range of 0-10, with 5 considered moderate to high dependence to cigarettes.²⁸ The Smoking Stage of Change measure assessed participants' readiness to quit smoking^{30,31} with defined stages of precontemplation (not intending to quit smoking in the next 6 months), contemplation (planning to quit within 6 months), and preparation (planning to quit within 30 days with at least one 24-hr quit attempt in the last year).

Sample

Participants were adult smokers enrolled between November 2009 and September 2013 in a tobacco treatment clinical trial initiated in inpatient psychiatry. Patients who demonstrated the capacity to consent and provided informed consent were interviewed during a psychiatric hospitalization. The settings were 100% smokefree, acute care (median stay < 7 days), psychiatric units in the San Francisco Bay Area. Participants were paid \$10 for completing the baseline assessment and could receive up to \$120 over the 18-month study. Eligibility criteria were smoking a minimum of five cigarettes per day prior to hospitalization, English-speaking, and intending to remain in the Bay Area over the next 18 months. The intervention was tailored to stage of change, and intention to quit smoking was not required to participate. Data for the current analyses were collected at baseline. The

institutional review boards of Stanford University, Alta Bates Medical Center, and the University of California, San Francisco approved the study.

Data Analysis

SPSS 20, R, and M-Plus 7.2 were used to perform study analyses. To examine the psychometric properties of the 13-item ISSI, we performed an exploratory factor analysis (EFA) using the Alpha extraction method coupled with the varimax rotation (an oblique rotation) with a randomly selected half of the sample (n=478). Alpha factor extraction was used in scale development,¹⁸ whereby factors identified by the method were grouped with maximum internal consistency. factor-loading minimum of 0.5 was chosen, which is stringent but within normal range³³; crossloaded items (i.e., loading at 0.32 on more than one factor) were dropped.³⁴ Results relied on the rotated factor matrix, taking advantage of the allowance for relationships between factors inherent in an oblique rotation. Next, we performed a confirmatory factor analysis (CFA) with the second random half of the sample (n=478) using the structural equation modeling (sem) package in R with parameters generated by the EFA results, and confirming results with M-Plus. Only those items that met our EFA criteria (i.e., 0.5 factor loading with no crossloading) were included in the CFA (see Table 1: excluded items in italics).

For the resulting measure, we examined scale and subscale reliabilities by calculating Cronbach's alphas with the full sample. To test construct validity, we examined correlates of smoking stigma based on our theoretical model and determined the unique contribution of demographic, stigma, health, and tobacco-related variables to the variance of smoking stigma. Pearson correlation coefficients and univariate ANOVA tests were run for the identified three ISSI subscales resulting from the EFA/CFA with demographic, stigma, health, and tobacco variables. Variables with significant univariate associations were entered into a generalized linear model with ISSI subscales as dependent variables. The final model included gender, age, education, race/ethnicity, and perceived social standing (only US due to multicollinearity among the ladder scales) along with the stigma, health, psychiatric diagnosis, and tobacco-related variables that had demonstrated significant univariate associations.

Results

Sample Characteristics

The sample was balanced by gender, diverse with respect to age and ethnicity, and skewed towards a lower socioeconomic status (predominately low income: 75% <\$20,000/year;56% not employed;40.5% high school education or less). Psychiatric diagnoses were 27% psychotic disorder, 32% bipolar disorder, 27% unipolar depression, and 14% other. The sample averaged 17 cigarettes per day (SD=10) for 19 years (SD=14), and had a mean FTCD of 4.67 (SD=2.22). The sample's SF-12 mean physical component score (PCS) was close to published norms (X=46.92, SD=12.66), while the sample's mental component score (MCS) averaged two standard deviations below norms (X=31.18, SD=14.09) (Table 2).

Factor Analyses and Reliability

The EFA produced three factors aligning with concepts of self-stigma, felt stigma, and discrimination experiences (Table 1). A CFA on the other random half of the data demonstrated a good fit³⁵ for this three-factor solution based on parameters of absolute fit (RMSEA=0.09, <.10 desired) and incremental fit (Bentler CFI=0.943, >0.90 acceptable; SRMR=0.04, <0.08 desired). The three items from the self-stigma subscale included aspects of internalized judgment such as embarrassment, disappointment in self, and inferiority. The three felt stigma items reflected perceptions of stigma and social isolation (e.g., being ignored, having people avoid getting close due to smoking status), and most closely related to elements of perceived stigma on the level of individual interpersonal interactions. Both items from the discrimination subscale directly addressed experiences of enacted stigma (i.e., discrimination and disrespectful treatment). The identified ISSI subscales were moderately correlated with one another ($r_s=.38-.48$) and more differentiated than subscales from the original ISMI within the sample ($r_s=.66-.71$). If further analyses of the ISSI were done on the refined 8-item, 3-scale measure. Cronbach's alphas were 0.80 for self-stigma, 0.81 for felt stigma, and 0.70 for discrimination, with 0.83 for the total ISSI, indicating good internal reliability.

Scale Description Overall and by Group

Table 2 summarizes descriptions of the subscales by demographic and diagnostic group and stage of change. For the full sample, felt stigma scores were the lowest on average, followed by self-stigma, with highest scores on the discrimination subscale scores (see Table 2 for means; p -values <.01 for paired samples t -tests). Additionally, the ISSI total score ($X=2.23$, $SD=.58$) was significantly higher than EISI and lower than ISMI in paired sample t -tests ($p<.02$).

Construct Validity

The generalized linear multivariate (GLM) model explained 26% of the variance in the *self-stigma* ISSI subscale (Table 3). Controlling for gender, education level, race/ethnicity, community standing, age, and diagnosis, parameter estimates indicated that self-stigma was associated with the experience of other stigmas and readiness to quit smoking (Table 3). Gender, ethnicity, and education were significant covariates. Beta values indicated that women, those who were college degreed (compared to high school or less education), and nonHispanic Caucasian (compared to African American, Asian Pacific Islander and Other/Multiracial) experienced higher smoking self-stigma.

For *felt stigma*, the multivariate model explained 30% of the total variance (Table 3). Like self-stigma, experience of other stigmas and readiness to quit smoking were associated with felt stigma. Additional significant covariates included cigarette dependence, being nonHispanic Caucasian as compared to African American, and age; 35-45 year olds experienced significantly greater stigma than 18-25 year olds (Table 3). Also, there was a weak inverse relationship with mental health status (MCS).

The multivariate model for the smoking stigma discrimination subscale explained 21% of the variance. Discrimination varied with experience of other stigmas and readiness to quit

smoking and by gender, education, and ethnicity. NonHispanic Caucasians reported greater experience of smoking-related discrimination than smokers identifying as African American, Hispanic, and other/multiracial. Cigarette addiction (FTCD) was additionally associated with discrimination.

Variance in all subscales was largely explained by experiences of other stigma and stage of change with respect to quitting, but subscales differed in the strongest model predicting factors. Measures of mental health-focused and ethnicity-based stigma were responsible for 39% (self-stigma), 80% (felt stigma), and 39% (discrimination) of the variance accounted for by modeled variables for the respective subscales. Measured smoking characteristics explained 37% of the self-stigma subscale, 7% of the variance for felt stigma, and 18% for discrimination (see partial η^2 , Table 3). Demographic measures explained 21% of the variance accounted for by modeled variables for the self-stigma subscale, 9% for felt stigma, and 40% for discrimination. Health measures were minimally responsible for variance in stigma scores (3% self-stigma, 4% felt stigma, and 3% discrimination).

Discussion

We developed the ISSI to expand the repertoire of tools available to scholars interested in the experience of smoking stigma. Factor analysis indicated a three-factor structure with the following subscales: self-stigma (internalized stereotype agreement characterized by shame and self-blame), felt stigma (experiences of devaluation, social isolation, and blame from others), and discrimination (experiences of direct discrimination). This factor structure was confirmed with confirmatory factor analysis results and aligned with our Smoking Stigma Model (Figure 1). As predicted, all ISSI subscales were significantly associated with modeled aspects of smoking stigma including exposure to additional stigma in other domains (precursor), addiction/cigarette dependence (precursor), and stage of change (response – cessation attempts). Generally, individuals closer to quitting smoking also experienced more stigma. Perceptions of self-worth measured as perceived community standing were not associated with smoking stigma subscales.

Our findings support potential modeled responses to stigma, particularly future stigma avoidance. Adding to prior qualitative observations of response to smoking-related stigma (e.g., cleanliness rituals¹²), we found that smoking stigma was associated with increased readiness to quit across the subscales. In particular, self-stigma and quit intentions were highly associated, though whether self-stigma motivates smokers to quit or is produced as a result of shame associated with difficulty quitting is undetermined in our cross-sectional dataset. Going forward, this distinction should be examined, and elements of the self-stigma subscale (i.e., inferiority, self-disappointment, shame, and embarrassment) should be investigated within the context of cessation. Some may contend that if stigma motivates cessation, the ends justify the means. We would consider, however, efforts to induce stigma as abjectly wrong and avoidable. Instead, treatment engagement strategies could emphasize stigma-reduction as an ancillary benefit – i.e., messaging that quitting smoking can reduce stigma, rather than messaging aimed at increasing stigma to induce quitting.

For all three smoking stigma subscales a significant though minority portion of variance was accounted for by other measures of stigma, namely mental health- and ethnicity-related stigma. Conlon et al. suggested that smoking stigma is part of a series of health-related “stacked stigmas” which together create an increased sense of stigma for individuals with tobacco-related health problems.²⁰ In particular, the felt stigma subscale, which focused on social isolation and withdrawal, was most strongly related to other stigma experiences, indicating that this social sub-element of smoking stigma may be echoed or amplified by other stigmatizing thoughts or experiences. These potential amplifying effects need additional research; focusing on perceived felt stigma within smoking and other stigmas may be a good starting place for this investigation. Felt stigma also was found to be greater among those aged 36-45 relative to young adults.

While prior research found discrimination was experienced by a minority of smokers,¹⁵ the current sample scored highest on the discrimination subscale relative to self- and felt stigma. In addition to later stage of change and greater stigma experiences in other domains, the discrimination subscale related to greater cigarette addiction, Caucasian ethnicity, female gender, and greater education. Though psychiatric diagnosis has been associated with differences in reasons for smoking,³⁶ it was found unrelated to the reported experience of smoking stigma in the current sample. Instead, we observed significant demographic covariates for self-stigma and discrimination, supporting previous observations that smoking stigma is rooted in stigma of social class.³⁹ Our finding that women experienced greater smoking self-stigma and discrimination may relate to gender roles and expectations. As observed in previous research, perhaps the caregiving role of mothers may foster greater smoking-related shame and judgment.¹¹ The positive association between years of education and perceived stigma confirmed previous smoking stigma research.¹ The process of stigma is one of social norming, and perhaps to be expected we found greatest smoking stigma among participants less expected to smoke women, higher educated individuals, and those aged 36-45 year olds, relative to young adults.

Limitations

This study's sample was limited to individuals treated in inpatient psychiatric care. Those with serious mental illness smoke at greater rates than the general population and may experience general pervasive stigma associated with their mental health diagnoses. Although study participants may have different experiences than the general population, their diagnoses should not have interfered with results relating to addiction and intention to quit.⁴⁰ Future use of the ISSI should evaluate the tool in more generalizable samples, and as smoking restrictions continue to increase in the US, particular attention should be paid to light or intermittent smokers. Finally, the data were cross-sectional, and our future efforts will model perceptions and responses to stigma over time

Conclusion

With an identified three factor structure, multivariate associations differentiated the ISSI subscales: self-stigma was most strongly associated with readiness to quit, felt stigma with other experiences of stigma, and discrimination with demographic variables. Investigation of these three aspects of stigma will allow for exploration of psychosocial aspects of cessation;

underlying stigma mechanisms; and social, class, and gender-based differences in the experience of smoking stigma.

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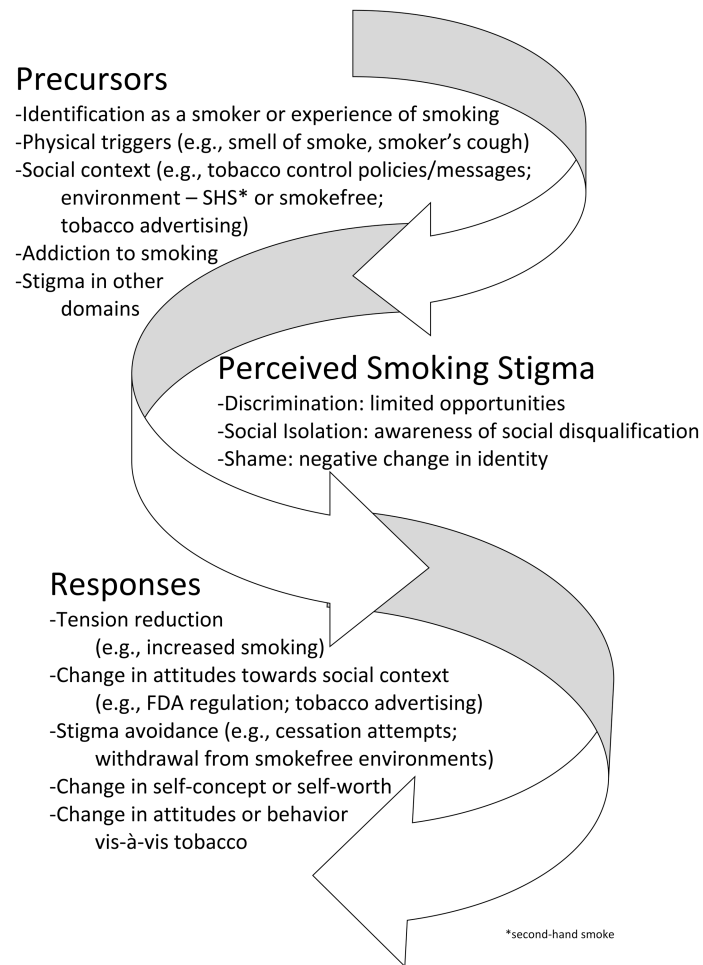


Figure 1.

Table 1
Factor analysis of items for the Internalized Stigma of Smoking Inventory (ISSI)

Item	Self-stigma ISSI subscale	Felt stigma ISSI subscale	Discrimination ISSI subscale
ISSI-03: I am embarrassed or ashamed that I am a smoker.	0.944		
ISSI-07: I am disappointed in myself for being a smoker.	0.868		
ISSI-04: I feel inferior to others who are not smokers.	0.712		
<i>ISSI-08: Being a smoker has spoiled my life.**</i>	0.548	0.325	
<i>ISSI-05: I don't socialize as much as I used to because my smoking might make me look "abnormal".*</i>	0.499		
<i>ISSI-01: I feel like I am out of the place in the world because I am a smoker.*</i>	0.433		0.348
ISSI-11: People ignore me or take me less seriously just because I am a smoker.		0.894	
ISSI-13: Others think that I can't achieve much in life because I am a smoker.		0.859	
ISSI-12: Nobody would be interested in getting close to me because I am a smoker.		0.612	
<i>ISSI-09: I avoid certain social situations because I am a smoker.*</i>		0.356	
<i>ISSI-10: People who have never smoked could not possibly understand me.*</i>		0.345	
ISSI-02: People discriminate against me because I am a smoker.			0.851
ISSI-06: People often treat me disrespectfully just because I am a smoker.			0.681
	Cronbach's alpha	0.80	0.81
	Subscale mean	2.24	2.05
	Subscale standard deviation	0.76	0.68
	Subscale range	(1-4)	(1-4)

Alpha factoring, Promax with Kaiser Normalization; factor weights suppressed below 0.3

* excluded item below 0.5 threshold

** excluded item exceeded cross-loading maximum of 0.32

Table 2

Descriptive Statistics of Demographics and Health Status (N=956)

	n	%	Self-stigma ISSI subscale	Felt stigma ISSI subscale	Discrimination ISSI subscale
Full Sample	956	100%	2.24 (.76)	2.05 (.68)	2.48 (.76)
Gender					
Male	490	51.3%	2.15 (.76)	2.05 (.67)	2.44 (.77)
Female	466	48.7%	2.33 (.76)	2.05 (.69)	2.53 (.75)
Race/ethnicity					
African American	218	22.8%	2.25 (.71)	2.16 (.66)	2.33 (.74)
Asian/Pacific Islander	44	4.6%	2.02 (.76)	1.92 (.72)	2.29 (.75)
Caucasian	454	47.5%	2.30 (.76)	2.05 (.68)	2.59 (.75)
Hispanic	95	9.9%	2.30 (.87)	1.99 (.73)	2.43 (.82)
Other/multiracial	145	15.2%	2.07 (.76)	2.03 (.73)	2.44 (.76)
Education (N=943)					
College degree+	190	20.1%	2.30 (.80)	1.98 (.68)	2.54 (.77)
Some college	371	39.3%	2.28 (.81)	1.99 (.68)	2.51 (.77)
HS degree/GED	218	23.1%	2.17 (.67)	2.09 (.64)	2.42 (.74)
< HS degree	164	17.4%	2.19 (.73)	2.20 (.73)	2.42 (.77)
Age					
18-25	225	23.5%	2.10 (.72)	1.89 (.67)	2.37 (.76)
26-35	189	19.8%	2.17 (.72)	2.02 (.65)	2.37 (.71)
36-45	207	21.7%	2.34 (.81)	2.18 (.71)	2.63 (.80)
46-55	214	22.4%	2.35 (.80)	2.12 (.70)	2.59 (.74)
56+	121	12.7%	2.22 (.71)	2.04 (.64)	2.42 (.77)
Diagnosis (MINI)					
Psychosis	255	26.7%	2.18 (.77)	2.13 (.74)	2.44 (.81)
Bipolar	304	31.8%	2.27 (.78)	2.08 (.70)	2.55 (.75)
Unipolar	258	27.0%	2.36 (.73)	2.01 (.73)	2.50 (.72)
Other	139	14.5%	2.04 (.73)	1.89 (.60)	2.37 (.75)
Stage of Change					
Precontemplation	287	30.0%	1.93 (.71)	1.92 (.67)	2.36 (.77)

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	n	%	Self-stigma ISSI subscale	Felt stigma ISSI subscale	Discrimination ISSI subscale
Contemplation	446	46.7%	2.32 (.74)	2.10 (.67)	2.55 (.74)
Preparation	223	23.3%	2.48 (.75)	2.11 (.72)	2.49 (.78)

Table 3

Generalized Linear Model of Smoking Stigma

	SELF-STIGMA ISSI SUBSCALE (a)			FELT STIGMA ISSI SUBSCALE (b)			DISCRIMINATION ISSI SUBSCALE (c)		
	beta	p	eta ²	beta	p	eta ²	beta	p	eta ²
Overall		<0.01			<0.01			<0.01	
Demographic Measures* - partial eta ² :									
Gender			0.04			0.02			0.08
Female (ref)									
Male	-0.12	0.01	0.01	-0.02	0.68	0.00	-0.11	0.02	0.01
Race/Ethnicity									
Caucasian (ref)									
African American	-0.14	0.02	0.01	-0.11	0.05	0.01	-0.38	0.01	0.04
Asian Pacific Islander	-0.24	0.03	0.01	-0.11	0.25	0.00	-0.15	0.17	0.00
Hispanic	-0.06	0.45	0.00	-0.12	0.07	0.00	-0.21	<0.01	0.01
Other/multiracial	-0.24	0.00	0.01	-0.10	0.08	0.00	-0.21	<0.01	0.01
Education									
College degree+(ref)									
Some college	-0.06	0.38	0.00	0.02	0.77	0.00	-0.04	0.55	0.00
HS degree/GED	-0.17	0.02	0.01	0.05	0.43	0.00	-0.15	0.04	0.01
< HS degree	-0.18	0.02	0.01	0.08	0.22	0.00	-0.20	0.02	0.01
Age									
18-25 (ref)									
26-35	-0.02	0.79	0.00	0.04	0.56	0.00	-0.12	0.08	0.00
36-45	0.08	0.27	0.00	0.16	0.01	0.01	0.10	0.16	0.00
46-55	0.10	0.18	0.00	0.12	0.06	0.00	0.09	0.25	0.00
56+	0.08	0.37	0.00	0.13	0.07	0.00	-0.04	0.69	0.00
Community Standing	0.00	0.76	0.00	0.00	0.76	0.00	-0.02	0.09	0.00
Health Measures* - partial eta ² :									
Health Measures* - partial eta ² :			0.01			0.01			0.01
Physical Component Score (PCS)	0.00	0.86	0.00	0.00	0.15	0.00	0.00	0.38	0.00
Mental Component Score (PCS)	0.00	0.12	0.00	0.00	0.02	0.01	0.00	0.08	0.00

	SELF-STIGMA ISSI SUBSCALE (a)			FELT STIGMA ISSI SUBSCALE (b)			DISCRIMINATION ISSI SUBSCALE (c)		
	beta	p	eta ²	beta	p	eta ²	beta	p	eta ²
Diagnosis									
Other (ref)	.	.	.	.	.	.	.	.	.
Unipolar	0.08	0.32	0.00	0.01	0.84	0.00	0.03	0.72	0.00
Bipolar	0.01	0.92	0.00	0.01	0.87	0.00	0.04	0.58	0.00
Psychosis	0.00	0.97	0.00	0.01	0.88	0.00	0.00	0.96	0.00
Stigma Measures* - partial eta ² :			0.07			0.17			0.07
ISMI (mental illness)	0.25	<0.01	0.04	0.26	<0.01	0.06	0.18	<0.01	0.02
EISI (ethnicity-based)	0.24	<0.01	0.03	0.40	<0.01	0.11	0.32	<0.01	0.05
Smoking Measures* - partial eta ² :			0.07			0.02			0.03
Cigarette Dependence (FTCD)	0.00	0.87	0.00	0.02	<0.01	0.01	0.05	<0.01	0.03
Stage of Change									
Precontemplation (ref)	.	.	.	.	.	.	.	.	.
Contemplation	0.35	<0.01	0.05	0.12	0.01	0.01	0.13	0.02	0.01
Preparation	0.47	<0.01	0.06	0.11	0.05	0.01	0.06	0.35	0.00

a: R Squared = .255 (Adjusted R Squared = .235)

b: R Squared = .304 (Adjusted R Squared = .285)

c: R Squared = .208 (Adjusted R Squared = .187)

* cumulative partial eta² may not equal eta² sums due to rounding