This is [not] who I am : understanding identity in continued smoking and smoking cessation

Meijer, E.

CHAPTER 2

QUITTING SMOKING: THE IMPORTANCE OF NONSMOKER IDENTITY IN PREDICTING SMOKING BEHAVIOR AND RESPONSES TO A SMOKING BAN

Eline Meijer, Winifred A. Gebhardt, Arie Dijkstra,
Marc C. Willemsen, and Colette van Laar

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ABSTRACT

Objective

We examined how 'smoker' and 'nonsmoker' self- and group-identities and socio-economic status may predict smoking behavior and responses to antismoking measures (i.e. the Dutch smoking ban in hospitality venues). We validated a measure of responses to the smoking ban.

Design

Longitudinal online survey study with one year follow-up (N = 623 at T1 in 2011; N = 188 at T2 in 2012) among daily smokers. Main Outcome Measures: Intention to quit, quit attempts, and 'rejecting', 'victimizing', 'socially conscious smoking', and 'active quitting' responses to the smoking ban.

Results

Nonsmoker identities are more important than smoker identities in predicting intention to quit, quit attempts, and responses to the smoking ban, even when controlling for other important predictors such as nicotine dependence. Smokers with stronger non-smoker identities had stronger intentions to quit, were more likely to attempt to quit between measurements, and showed less negative and more positive responses to the smoking ban. The association between nonsmoker self-identity and intention to quit was stronger among smokers with lower than higher SES.

Conclusion

Antismoking measures might be more effective if they would focus also on the identity of smokers, and help smokers to increase identification with nonsmoking and nonsmokers.

Keywords: identity; socio-economic status/educational level; smoking cessation; responses; antismoking measures; smoking ban.

How we see ourselves determines greatly our feelings and behavior. According to PRIME theory, our identity likely influences our behavior more strongly than other representations such as specific outcome-expectations (West, 2006). Also, a strong identity will provide relative behavioral stability, whereas impulses and urges may vary in direction and strength over time and across situations, and may lead to less stable behavior. As well as current self-representations, we have expectations and desires with regard to who we want to be (Barreto & Frazier, 2012). People are committed to behave in line with their self-perception of identity, and therefore, behavior change and identity change depend upon each other (Kearney & O'Sullivan, 2003). In line with this, the Transtheoretical Model suggests that an important process of change is 'self-reevaluation', in which people who change an important part of their behavior assess how they think and feel about themselves with regard to this behavior, and create a new self-image (e.g., Prochaska, DiClemente, & Norcross, 1992; Velicer et al., 2008). In addition to perceptions of the self as a person, people derive important parts of their identity from their memberships in groups. In line with social identity theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), smokers may identify with nonsmoking as a behavior (i.e., self-identification as a nonsmoker), or nonsmokers as a group (i.e., group-identification as part of the group of nonsmokers) or both. When identification with a group is stronger, people are more likely to behave in line with the group norms (Tajfel & Turner, 1979; 1986). In the case of smoking, we maintain that smokers are more likely to quit smoking if they can picture themselves as nonsmokers and as part of the group of nonsmokers (i.e., stronger nonsmoker self- and group-identity), and if smoking as a *behavior* and smokers as a *group* are of less importance to their perception of who they are (i.e., weaker smoker self- and group-identity). In the present study, we examined relations between smoker and nonsmoker self- and group-identities and intention to quit, quit attempts and responses to an antismoking measure, the Dutch smoking ban in hospitality venues such as cafés and restaurants. We examined socio-economic status as a possible moderator of the effects of identity, as smokers from lower and higher socioeconomic backgrounds have been found to differ in smoking behavior (e.g., Reid, Hammond, Boudreau, Fong, & Shiapush, 2010).

Smoker and nonsmoker self- and group-identity

The importance of identity in relation to smoking behavior and responses to antismoking measures has been clearly shown. However, direct comparisons between the effects of smoker and nonsmoker self- and group-identities were not possible in the existing literature as the effects of smoker *and* nonsmoker self- *and* group-identity have not been explored jointly. In general, smoker identities have been investigated more than nonsmoker identities. Longitudinal studies using self-report measures have shown that stronger smoker group-identity (the extent to which the person identifies with the *group*

of smokers) predicts lower intentions to quit, and that stronger smoker self-identity (thinking of the self as a person who smokes) predicts fewer quit attempts (Høie, Moan, & Rise, 2010; Moan & Rise, 2005; but see also Moan & Rise, 2006). Also, smokers who liked being 'a smoker' were less likely to have attempted to quit six months later (Tombor, Shahab, Brown, & West, 2013). Intervention studies have shown that smokers participating in smoking cessation treatment were more likely to be abstinent after treatment if they had negative images of the typical smoker, a weak smoker identity and a strong *nonsmoker* identity (Gibbons & Eggleston, 1996; Shadel, Mermelstein & Borrelli, 1996). In line with this, a longitudinal study showed that stronger *quitter* self-identity (thinking of the self as a person who quits smoking) predicted stronger intentions to quit, and both a stronger quitter self-identity and a weaker smoker self-identity predicted more actual quit attempts (Van den Putte, Yzer, Willemsen, & De Bruijn, 2009). To summarize, smokers with weaker smoker self- and group-identities and stronger nonsmoker or quitter self-identities are more likely to move towards nonsmoking.

Identity is not only associated with intention to quit and quit attempts, but also predicts how smokers respond to antismoking measures. Indeed, two experimental studies have shown that smokers with a strong smoker self- or group-identity react defensively when confronted with antismoking measures. Specifically, when confronted with antismoking measures, stronger identity smokers perceived increased support from friends for smoking, and rated the measures as less effective than weaker identity smokers (Falomir-Pichastor & Invernizzi, 1999; Freeman, Hennessy & Marzullo, 2001). Also, a quasi-experimental study showed that, when confronted with a strong antismoking norm, smokers who derived a larger part of their self-esteem from being a smoker responded more defensively and were less positive about quitting smoking than smokers whose self-esteem was less based on being a smoker (Falomir-Pichastor, Mugny, Berent, Pereira, & Krasteva, 2013). In addition to sometimes being ineffective, antismoking measures may even lead to aversive outcomes for some smokers. In a qualitative study, four different responses to the Dutch smoking ban in hospitality venues emerged (Van der Heiden, Gebhardt, Willemsen, Nagelhout, & Dijkstra, 2013). Whereas in response to the ban some smokers became more motivated to quit smoking ('active quitting'), and other smokers agreed to refrain from smoking in areas where smoking is not allowed ('socially conscious smoking'), other smokers responded aversively. Specifically, some smokers felt cornered by the smoking ban and indicated resisting compliance ('rejecting'), and still others felt unable to comply because they considered themselves too addicted to smoking ('victimizing'). In line with the findings described above, we expected identity factors to play a major role in differential responses to antismoking measures. We aimed to extend previous research by investigating the relations of smoker *and* nonsmoker identity with these different responses to the smoking ban in hospitality venues.

Socio-economic status

Identity factors may also interact with socio-economic status (SES) in predicting smoking behavior and responses to antismoking measures. Smoking prevalence is higher among people with a lower SES than among those with a higher SES (Reid et al., 2010). Therefore, the (social) implication of a stronger smoker or nonsmoker identity is likely to be different to smokers from lower and higher SES backgrounds. Whereas for higher SES smokers quitting probably means that they comply with group norms, lower SES smokers who quit smoking may actually need to act against the norms of their group and doing so may entail negative social consequences. Indeed, smokers with lower SES have a higher proportion of smoking peers than higher SES smokers, are more likely to be part of groups in which smoking is the norm, and experience less social pressure to quit (Honjo, Tsutsumi, Kawachi, & Kawakami, 2006; Sorensen, Emmons, Stoddard, Linnen, & Avrunin, 2002; Wiltshire, Bancroft, Parry, & Amos, 2003). A qualitative study even showed that among a group of blue collar workers quitting smoking was associated with leaving the 'gang', and attempts were made to trigger a relapse as a way of keeping the quitter within the group (Katainen, 2011). The impact of antismoking policy has also been found to differ depending on the person's SES (Giskes et al., 2007). For example, workplace smoking bans are less effective among lower SES smokers, and therefore increase rather than decrease socio-economic inequity with regard to health differences (Nagelhout, Willemsen, & De Vries, 2010). Based on these findings, we expect smoker and nonsmoker identities to predict outcomes differently among lower and higher SES smokers. Extending previous work, we included and compared both smoker *and* nonsmoker self- and group-identities, and added SES as a possible moderator of relations between identity and smoking.

Hypotheses

The current study aims to further explore relations between identity and intention to quit, quit attempts and responses to antismoking measures, as well as the moderating influence of SES. We conducted an online longitudinal study among a large group of daily smokers. Data were collected at two time-points, one year apart. We hypothesized that lower SES and stronger smoker self- and group-identities at Time 1 (T1) would predict weaker intentions to quit at T1 and Time 2 (T2) and lower likelihood of one or more quit attempts between T1 and T2 beyond the effects of control variables, whereas higher SES and stronger nonsmoker self- and group-identities at T1 would predict stronger intentions to quit at T1 and T2 and higher likelihood of quit attempts between T1 and T2 beyond controls. We further hypothesized that lower SES, stronger smoker self- and group-identities and weaker nonsmoker self- and group-identities at T1 would predict stronger rejecting and victimizing responses at T2 beyond controls, whereas higher SES, weaker smoker self- and group-identities and stronger nonsmoker self- and group-

identities at T1 would predict stronger active quitting and socially conscious smoking responses at T2 beyond controls. Also, we examined whether the relations between identity and intention to quit, quit attempts and responses to antismoking measures are moderated by SES. Finally, we added intention to quit (T1) in the final steps of the analyses of intention to quit (T2), quit attempts (T2), and responses to the smoking ban (T2) to explore whether identity would still be associated with the outcome variables when intention to quit (T1) was included in the model (see Van den Putte et al., 2009).

METHOD

Participants

Participants were recruited through various media from March 2011 to October 2011. Criteria for inclusion in the analyses were that participants smoked daily at recruitment time and were also daily smokers before the introduction of the Dutch smoking ban in hospitality venues. At T1, each of the participants who completed the entire questionnaire was reimbursed with a gift coupon of 5 Euros, and at T2 five randomly selected participants were rewarded with a gift coupon of 75 Euros.

In total, 1278 smokers started to fill out the T1 questionnaire, of which 623 (48.7%) completed the entire T1 questionnaire. T1 took place in 2011, three years after the instigation of the smoking ban in July 2008. Four-hundred and eighty-seven smokers who participated at T1 and indicated that they were willing to participate again were invited to participate at T2. Of the 487 smokers invited, 189 completed the entire T2 survey instrument (38.8%). Only participants who were still smoking at T2 were included in the statistical analyses ($N = 188$). Participants who were abstinent at T2 were invited to complete an ex-smoker questionnaire, but as this group was too small to use in the analyses ($N = 14$) we will not report on those results here.

Design and procedure

The study employed a longitudinal design. The survey instrument was presented to participants at T1 using the Surveymonkey program (www.surveymonkey.com) and at T2 using the Qualtrics program (www.qualtrics.com). Participants were instructed to fill out the questionnaires by themselves without discussing it with other people. Participants were informed that they could end their participation at any time without having to provide an explanation. After giving informed consent, participants completed the questionnaire. Time needed to complete the T1 and T2 questionnaire was about 30 and 25 minutes, respectively. At the end of the T1 survey instrument, we asked whether participants were interested in participation in a follow-up study. Approximately one year later participants who had indicated willingness to participate in the follow-up re-

ceived a link to the T2 survey instrument by e-mail. Two weeks after the initial invitation, non-responding participants were sent a reminder. The procedure was approved by the University's Ethical Board.

Measures

We measured multiple variables, of which those relevant to the current analyses are described below. All predictor variables were measured at T1. Of the outcome variables intention to quit was measured at T1 and T2, and quit attempts and responses to the smoking ban were measured at T2.

Predictor variables

Demographics.

We asked participants' *gender* and *SES*. To measure SES, we assessed educational level with 1 item asking participants about their highest attained educational level. Educational level is often used as a measure of SES (Schaap & Kunst, 2009). Answer categories ranged from [1] 'no education' – [8] 'university', and [9] 'other, namely…' (this option was not used by participants). For the analyses, SES was converted into two dummy variables representing 3 equally sized groups of participants with lower (no education, only primary school, pre-vocational secondary education, or lower level vocational education), average (middle level vocational education and senior higher secondary education) and higher SES (pre-university education, polytechnic or university level).

Smoking history.

We asked the *number of years participants had been smoking* and their *age at smoking onset*.

Nicotine dependence.

We used the six-item Fagerström Test for Nicotine Dependence (FTND) to measure *nicotine dependence* (Heatherton, Kozlowksi, Frecker, & Fagerström, 1991), for example 'Do you smoke if you are so ill that you are in bed most of the day?'. Instead of measuring the number of cigarettes smoked per day using categories, we asked participants to indicate the actual number of smoked cigarettes. Possible scores on the FTND range from 0 to 10, with higher scores indicating stronger nicotine dependence.

Smoker self-identity.

We used the five-item Smoker Self-Concept Scale to measure strength of smoker self-identity, for example 'Smoking is part of "who I am"' (Shadel & Mermelstein, 1996). A scale was made by averaging scores on the items. Higher scores indicate a stronger smoker self-identity ($\alpha = .85$).

Nonsmoker self-identity.

We used the four-item Abstainer Self-Concept Scale to measure strength of nonsmoker self-identity, for example 'I am able to see myself as a nonsmoker' (Shadel & Mermelstein, 1996). The item 'It is easy to imagine myself as a nonsmoker' (that conceptually overlapped with the item 'I am able to see myself as a nonsmoker') was replaced by an item derived from the Smoker Self-Concept Scale 'Others can view me as a nonsmoker'. A scale was made by averaging scores on the items. Higher scores indicate a stronger nonsmoker self-identity (α = .78).

Smoker group-identity.

We assessed smoker group-identity with one item, 'I feel connected with smokers', [1] 'completely disagree' – [5] 'completely agree'.

Nonsmoker group-identity.

We assessed nonsmoker group-identity with one item, 'I feel connected with nonsmokers', [1] 'completely disagree' – [5] 'completely agree'.

Outcome variables

Intention to quit.

We assessed current levels of *intention to quit*, by asking when (if at all) the participant intended to quit smoking. The answer categories were: 'I intend to [1] quit within 1 month; [2] quit within 6 months; [3] quit within 5 years; [4] quit within 10 years; [5] quit sometime ever, but not within 10 years; [6] always to remain smoking, but less; or [7] always to remain smoking, and not less' (Dijkstra, Bakker, & De Vries, 1997). This variable was recoded, such that higher scores indicated stronger intention to quit.

Number of quit attempts between T1 and T2.

We assessed quit attempts with 1 item, 'How many quit attempts of at least 24 hours did you undertake in 2012?'. This variable was converted into a dichotomous variable (0 = no quit attempts between T1 and T2; 1 = one or more quit attempts between T1 and T2).

Responses to the smoking ban.

We assessed responses to the smoking ban (i.e., rejecting, victimizing, active quitting, socially conscious smoking; Van der Heiden et al., 2013) by asking participants to rate their agreement with 9 items constructed to represent four responses to the smoking ban, for example 'The government has nothing to do with my decision to smoke' (rejecting), 'I am addicted to smoking and cannot quit' (victimizing), 'The smoking ban motivates me to quit' (active quitting), 'If I am not allowed to smoke, I will comply and not do it' (socially conscious smoking) with answers ranging from [1] 'completely disagree'

to [5] 'completely agree'. A principle component analysis confirmed the expected four factors (see Appendix A). Four scales reflecting degree of each of the subtypes were then constructed. The rejecting scale consisted of three averaged items (α = .73), the victimizing scale of one item, the active quitting scale of two averaged items (α = .89), and the socially conscious smoking scale of two averaged items (α = .78). One item was not included in a scale because it loaded on two components. Higher scores indicate a stronger rejecting, victimizing, active quitting, or socially conscious smoking response to the smoking ban.

Analyses

The analyses were conducted in two steps. First we conducted attrition analyses to see if those for whom we had full T1 and T2 data (responders) differed from those for whom we do not have full data (drop-outs). To this end one-way ANOVAs and Chi-square analyses were performed on T1 background variables and T1 variables relevant to the research questions. Preliminary analyses of zero-order correlations between SES and identity were also conducted. Secondly, the main hypotheses were examined using hierarchical linear and logistic regression analyses. We entered gender, age at smoking onset, years smoked and nicotine dependence (measured at T1) as control variables in all analyses by entering them first into the equation (Step 1: enter procedure), together with the two SES dummy variables (as predictors, not controls). We then entered identity variables in Step 2, after which interaction terms were entered in Step 3. Intention to quit (T1) was then added in Step 4 in the analyses of intention to quit, quit attempts and responses to the smoking ban (all measured at T2). Significant interactions were followed by simple slope analyses, using the PROCESS macro for SPSS (Hayes, 2013). Predictor variables were centered. We ensured that assumptions of the analyses were met. We checked for suppression when contrary findings emerged, by examining whether these findings reflected an actual effect of the respective predictor, or whether contrary findings only emerged in the context of the other variables in the analyses.

RESULTS

Attrition analyses

We found no significant differences between responders and drop-outs in SES[1], age at smoking onset, previous quit attempts (lifetime) and nonsmoker self-identity. Compared with drop-outs, responders were significantly older, more likely to be female, had been smoking longer, had stronger smoker self- and group-identities and weaker nonsmoker

1 Although for SES χ^2 was significant, no standardized residuals larger than 1.96 were found for specific cells, indicating absence of significant deviations from the expected counts.

group-identities and were less likely to have attempted to quit since the instigation of the smoking ban (see Appendix B).

Preliminary analyses

Exploration of zero-order correlations between SES and identity showed that SES was significantly and positively correlated with nonsmoker self-identity (r = .18, p = .01) and marginally significant and negatively correlated with smoker self-identity (r = -.14, p = .056), suggesting that the higher their SES, the more smokers see themselves as nonsmokers and the weaker they identify with smoking. Also, the correlation between SES and smoker group-identity was significant and positive (r = .17, p = .02), suggesting that identification with smokers increases with SES (see Appendix C for all correlations).

Hypotheses tests

Identity as a predictor of intention to quit and quit attempts

Intention to quit (T1).

To explore the hypotheses about the effects of identity and SES on intention to quit, we performed two hierarchical linear regression analyses with intention to quit at T1 and T2 as dependent variables. As expected, identity explained intention to quit beyond the control variables and SES (see Table 1). For intention to quit at T1, the first step showed that women, smokers who were less dependent on nicotine, and smokers who had been smoking for a shorter time had significantly stronger intentions to quit. Also, average SES smokers tended to have stronger intentions to quit than lower SES smokers. Importantly, identity predicted intention to quit beyond these variables. As expected, in Step 2 we found that smokers with a stronger nonsmoker self-identity had significantly stronger intentions to quit smoking. Smoker identities did not predict intention to quit. Step 3 subsequently showed a significant interaction between nonsmoker self-identity and higher vs. lower SES (F(1, 169) = 6.38, p =.01, ΔR^2 = .02; see Figure 1). Specifically, the relation between nonsmoker self-identity and intention to quit was stronger among smokers with lower SES (b = 1.95, p < .001) than among those with higher SES (b = 0.83, p < .01).[2]

2 In addition, in the context of these other variables a suppression effect was found, leading the smoker group-identity*SES (higher vs. lower) interaction to take on an unusual form. Specifically, smokers with lower SES had a stronger intention to quit when smoker group-identity was stronger, whereas smoker group-identity was unrelated to intention to quit among higher SES smokers, F(1,169) = 3.24, p = .07, ΔR^2 = .01. This contrary effect became nonsignificant when the analysis was repeated with only the smoker group-identity*SES interaction as predictor of intention to quit in Step 3 (controlled for gender, SES, age at smoking onset, years smoked, nicotine dependence, and identity variables), F(1,176) = 0.43, p = .51, ΔR^2 < .01. Further, regression coefficients for simple slopes became nonsignificant (ps > .10).

Table 1. Explaining 'intention to quit' smoking at T1 and T2 by T1 variables: Hierarchical linear regression analyses ($N = 188$).

	T1			T2			
Predictor	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Gender (female)	.18*	.15*	.15*	.12^{+}	.10	.09	.01
Age at smoking onset	-.09	-.09	-.12^{+}	.001	.01	.01	.07
Years smoked	-.20**	-.11	-.12^{+}	-.12	-.04	-.06	.003
Nicotine dependence	-.16*	-.03	-.04	-.10	.01	.01	.03
SES (average)[i]	.16^{+}	.13^{+}	.08	.17^{+}	.15^{+}	.10	.06
SES (high)[i]	.08	.04	< .001	.18*	.16^{+}	.14	.14^{+}
Smoker self-identity		-.04	-.07		-.03	-.06	-.02
Nonsmoker self-identity		.50**	.77**		.43**	.54**	.13
Smoker group-identity		-.01	.23^{+}		-.07	.14	.02
Nonsmoker group-identity		-.04	-.02		-.08	.08	.09
Smoker self-identity * SES (average)[i]			.08			.02	-.02
Smoker self-identity * SES (high)[i]			-.02			.02	.03
Nonsmoker self-identity * SES (average)[i]			-.10			.01	.06
Nonsmoker self-identity * SES (high)[i]			-.28*			-.12	.02
Smoker group-identity * SES (average)[i]			-.15			-.16	-.08
Smoker group-identity * SES (high)[i]			-.20^{+}			-.16	-.05
Nonsmoker group-identity * SES (average)[i]			.04			-.21*	-.23
Nonsmoker group-identity * SES (high)[i]			-.10			-.09	-.04
Intention to quit (T1)							.53**

Note. Values in the table are βs. Intention to quit T1 $R^2 = .14$ ($p < .001$) for Step 1, $\Delta R^2 = .22$ for Step 2 ($p < .001$), $\Delta R^2 = .05$ for Step 3 ($p = .08$); Intention to quit T2 $R^2 = .09$ ($p < .01$) for Step 1, $\Delta R^2 = .16$ for Step 2 ($p < .001$); $\Delta R^2 = .04$ for Step 3 ($p = .42$), $\Delta R^2 = .17$ for Step 4 ($p < .001$).

i. Compared with the reference category 'lower SES'.

$^{+}p < .10$; * $p < .05$; ** $p < .01$

Intention to quit (T2).

For intention to quit at T2, results showed that compared with lower SES smokers, smokers with both average and higher SES had stronger intentions to quit at T2. Also, female smokers tended to have stronger intentions to quit. Moreover, on top of these effects, stronger nonsmoker self-identity at T1 significantly predicted stronger intentions to quit at T2. We found no significant effects of smoker identities in Step 2, and no significant

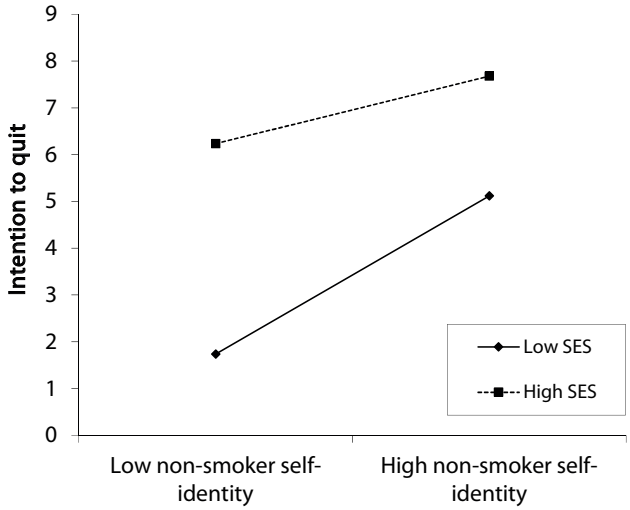

Figure 1. Interaction between nonsmoker self-identity and SES (higher vs. lower) on intention to quit.

interactions in Step 3 (all *p*s > .10).[3] Step 4 showed that smokers with stronger intentions to quit at T1 also had stronger intention to quit one year later (T2). Further, when intention to quit (T1) was added to the model, the association between nonsmoker self-identity and intention to quit (T2) became nonsignificant.

Quit attempts.

To explore the hypotheses about the effects of identity on quit attempts, we performed a hierarchical logistic regression analysis with quit attempts between T1 and T2 as dependent variable. The first step showed no effects of the controls and SES on quit attempts between T1 and T2 (Step 1, see Table 2). As expected, identity predicted quit attempts in Step 2, such that smokers with a stronger nonsmoker self-identity were significantly more likely to have attempted to quit between T1 and T2. We found no significant effects of smoker identities in Step 2, and no significant interactions in Step 3 (all *p*s > .10). Step 4 showed that smokers with stronger intentions to quit at T1 were more likely to have attempted to quit one year later.

3 In addition, in the context of these other variables a suppression effect was found, leading the nonsmoker group-identity*SES (average vs. lower) interaction to take on an unusual form. Specifically, smokers with average SES had a weaker intention to quit when nonsmoker group-identity was stronger, whereas nonsmoker group-identity was unrelated to intention to quit among lower SES smokers, $F(1,169) = 4.34$, $p = .04$, $\Delta R^2 = .02$. This contrary effect became marginally significant when the analysis was repeated with only the nonsmoker group-identity*SES interaction as predictor of intention to quit in Step 3 (controlled for gender, SES, age at smoking onset, years smoked, nicotine dependence, and identity variables), $F(1,176) = 2.78$, $p = .097$, $\Delta R^2 = .01$. Also, the zero-order correlation between nonsmoker group-identity and intention to quit is positive among lower SES smokers ($r = .34$, $p < .01$) and nonsignificant among average SES smokers ($p > .99$).

Table 2. Explaining whether 'quit attempts' were made between T1 and T2 (Y = 1, *n* = 67) or not (Y = 0, *n* = 121) by T1 variables: Hierarchical logistic regression analysis (*N* = 188).

	Model 1		Model 2		Model 3		Model 4	
Predictor	***B***	***OR (95% CI)*** [ii]	***B***	***OR (95% CI)*** [ii]	***B***	***OR (95% CI)*** [ii]	***B***	***OR (95% CI)*** [ii]
Gender (female)	-0.21	0.82 (0.42-1.59)	-0.16	0.85 (0.42-1.71)	-0.15	0.86 (0.43-1.76)	0.11	1.11 (0.53-2.35)
Age at smoking onset	0.01	1.01 (0.93-1.10)	0.02	1.02 (0.93-1.11)	0.02	1.02 (0.93-1.12)	0.05	1.05 (0.95-1.16)
Years smoked	-0.01	0.99 (0.96-1.01)	-0.01	1.00 (0.97-1.11)	-0.004	1.00 (0.97-1.03)	0.003	1.00 (0.97-1.03)
Nicotine dependence	0.03	1.03 (0.90-1.17)	0.08	1.09 (0.94-1.26)	0.08	1.08 (0.93-1.26)	0.10	1.11 (0.94-1.29)
SES (average)[i]	-0.03	0.97 (0.45-2.12)	0.06	1.06 (0.46-2.45)	0.02	1.02 (0.42-2.45)	0.14	1.15 (0.46-2.87)
SES (high)[i]	-0.44	0.65 (0.30-1.39)	-0.35	0.70 (0.31-1.61)	-0.31	0.73 (0.30-1.80)	-0.33	0.72 (0.28-1.84)
Smoker self-identity			0.11	1.11 (0.70-1.77)	0.35	1.42 (0.36-5.62)	0.27	1.32 (0.32-5.47)
Nonsmoker self-identity			0.82**	2.26 (1.43-3.58)	1.24	3.46 (0.77-15.47)	1.23	3.43 (0.73-16.05)
Smoker group-identity			-0.03	0.97 (0.69-1.36)	0.23	1.25 (0.43-3.62)	0.54	1.72 (0.56-5.29)
Nonsmoker group-identity			-0.05	0.96 (0.64-1.43)	0.37	1.45 (0.39-5.36)	0.47	1.60 (0.40-6.39)
Smoker self-identity * SES (average)[i]					-0.03	0.98 (0.30-3.22)	0.10	1.10 (0.33-3.76)
Smoker self-identity * SES (high)[i]					-0.37	0.69 (0.22-2.12)	-0.40	0.67 (0.21-2.18)
Nonsmoker self-identity * SES (average)[i]					-0.21	0.81 (0.22-3.00)	-0.42	0.66 (0.17-2.55)
Nonsmoker self-identity * SES (high)[i]					-0.45	0.64 (0.21-1.99)	-0.85	0.43 (0.13-1.41)
Smoker group-identity * SES (average)[i]					-0.14	0.87 (0.36-2.12)	-0.36	0.70 (0.28-1.77)
Smoker group-identity * SES (high)[i]					-0.30	0.74 (0.30-1.79)	-0.61	0.55 (0.21-1.42)
Nonsmoker group-identity * SES (average)[i]					-0.02	0.98 (0.34-2.86)	0.07	1.07 (0.34-3.37)
Nonsmoker group-identity * SES (high)[i]					-0.56	0.58 (0.21-1.57)	-0.77	0.43 (0.16-1.36)
Intention to quit (T1)							0.34**	1.41 (1.14-1.73)

Note. Step 1 R^2 = .02 (Cox & Snell), .03 (Nagelkerke), Model $\chi^2(6) = 3.57$, $p = .73$; Step 2 R^2 = .10 (Cox & Snell), .13 (Nagelkerke), Block $\chi^2(4) = 15.33$, $p < .01$; Step 3 R^2 = .11 (Cox & Snell), .15 (Nagelkerke), Block $\chi^2(8) = 3.00$, $p = .93$; Step 4 R^2 = .16 (Cox & Snell), .22 (Nagelkerke), Block $\chi^2(1) = 11.22$, $p < .01$.

i. Compared with the reference category 'lower SES'.

ii. OR = Odds Ratio; CI = Confidence Interval.

* $p < .05$; ** $p < .01$

Identity as a predictor of responses to the smoking ban

Next, we examined (above control variables) how identity factors relate to the way smokers respond to the smoking ban in hospitality venues. We performed hierarchical linear regression analysis to explain degree of rejecting, victimizing, active quitting and socially conscious smoking in response to the smoking ban (T2). Specific results can be found in Table 3.

Rejecting.

As expected, identity explained rejecting responses beyond control variables. Step 1 showed that higher nicotine dependence predicted significantly stronger rejecting responses to the smoking ban. Compared with lower SES smokers, higher SES smokers showed significantly weaker rejecting responses, and smokers with average SES showed marginally weaker rejecting responses than lower SES smokers.[4] Controlling for these effects, weaker nonsmoker self- and group-identities significantly predicted stronger rejecting responses (Step 2). Thus, the less smokers pictured themselves as nonsmokers and part of the group of nonsmokers, the more they rejected the smoking ban. We found no effects of smoker identities in Step 2, and no significant interactions in Step 3 (all *p*s > .10). Step 4 showed that smokers with weaker intentions to quit showed significantly stronger rejection responses.

Victimizing.

As expected, identity predicted victimizing responses beyond control variables and SES. Step 1 showed that smokers who were more dependent on nicotine, and who had been smoking for a longer time perceived themselves more as victims in response to the ban. On top of these effects, smokers with a weaker nonsmoker group-identity perceived themselves more as victims in response to the smoking ban (Step 2). We found no effects of smoker identities in Step 2, and no significant interactions in Step 3 (all *p*s > .10). Intention to quit did not predict victimizing responses in Step 4, and the association between nonsmoker group-identity and victimizing remained significant.

Active quitting.

As expected, identity explained active quitting responses beyond control variables. Step 1 showed that the lower smokers' nicotine dependence, the more they showed active quitting responses to the smoking ban. Also, controlling for these effects, smokers with stronger nonsmoker self- and group-identities showed more active quitting responses

4 In addition, in the context of these other variables a suppression effect was found, suggesting that older age at smoking onset marginally predicts more rejecting responses. However, the zero-order correlation between age at smoking onset and rejecting is small and nonsignificant ($r = .08$, $p = .29$).

Table 3. Explaining degree of responses to the smoking ban by T1 variables: Hierarchical linear regression analyses ($N = 188$).

	Rejecting				Victimizing			
Predictor	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 1*	*Model 2*	*Model 3*	*Model 4*
Gender (female)	-.09	-.06	-.07	-.04	.10	.13^{+}	.12^{+}	.12^{+}
Age at smoking onset	.15*	.15*	.16*	.13^{+}	-.07	-.06	-.04	-.03
Years smoked	.01	-.04	-.03	-.06	.17*	.14^{+}	.16*	.16*
Nicotine dependence	.22**	.12	.14^{+}	.13^{+}	.28**	.21**	.21**	.21**
SES (average)[i]	-.15^{+}	-.18*	-.17^{+}	-.15^{+}	-.09	-.11	-.09	-.09
SES (high)[i]	-.17*	-.18*	-.21*	-.21*	-.09	-.09	-.05	-.05
Smoker self-identity		-.05	-.18	-.19		.06	-.03	-.03
Nonsmoker self-identity		-.30**	-.30^{+}	-.12		-.11	-.26^{+}	-.30^{+}
Smoker group-identity		.09	.10	.15		-.04	-.23	-.24
Nonsmoker group-identity		-.16*	-.20	-.21^{+}		-.18*	-.28*	-.27*
Smoker self-identity * SES (average)[i]			.08	.10			.03	.03
Smoker self-identity * SES (high)[i]			.07	.07			.13	.13
Nonsmoker self-identity * SES (average)[i]			-.15	-.18			.15	.16
Nonsmoker self-identity * SES (high)[i]			.11	.05			.09	.10
Smoker group-identity * SES (average)[i]			-.03	-.07			.13	.14
Smoker group-identity * SES (high)[i]			.05	.01			.13	.14
Nonsmoker group-identity * SES (average)[i]			.10	.11			< .01	-.002
Nonsmoker group-identity * SES (high)[i]			.02	-.01			.15	.15
Intention to quit (T1)				-.23**				.05

Note. Values in the table are βs. Rejecting $R^2 = .09$ ($p < .01$) for Step 1, $\Delta R^2 = .15$ for Step 2 ($p < .001$), $\Delta R^2 = .04$ for Step 3 ($p = .38$), $\Delta R^2 = .03$ for Step 4 ($p < .01$); Victimizing $R^2 = .18$ ($p < .001$) for Step 1, $\Delta R^2 = .06$ for Step 2 ($p < .01$), $\Delta R^2 = .03$ for Step 3 ($p = .52$), $\Delta R^2 < .01$ for Step 4 ($p = .58$).

i. Compared with the reference category 'lower SES'.

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$

Table 3. Explaining degree of responses to the smoking ban by T1 variables: Hierarchical linear regression analyses ($N = 188$) (*cont.*).

	Active quitting				Socially conscious smoking			
Predictor	***Model 1***	***Model 2***	***Model 3***	***Model 4***	***Model 1***	***Model 2***	***Model 3***	***Model 4***
Gender (female)	.05	.03	.03	-.02	.06	.03	.05	.01
Age at smoking onset	-.01	-.01	-.04	.003	.04	.04	.03	.06
Years smoked	-.08	-.05	-.08	-.04	.04	.09	.09	.12
Nicotine dependence	-.20**	-.12	-.12	-.10	-.35**	-.26**	-.28**	-.27**
SES (average)[i]	-.04	-.02	-.06	-.09	-.06	-.05	-.02	-.04
SES (high)[i]	-.07	-.06	-.11	-.11	-.06	-.06	-.02	-.02
Smoker self-identity		.19*	.22	.24		-.04	.12	.13
Nonsmoker self-identity		.40**	.62**	.37*		.21*	.14	-.05
Smoker group-identity		-.12	.20	.12		-.02	-.18	-.23
Nonsmoker group-identity		.17*	.24+	.24*		.12	.13	.13
Smoker self-identity * SES (average)[i]			.002	-.03			-.09	-.11
Smoker self-identity * SES (high)[i]			-.06	-.05			-.13	-.13
Nonsmoker self-identity * SES (average)[i]			-.19	-.16			.11	.13
Nonsmoker self-identity * SES (high)[i]			-.14	-.05			-.01	.06
Smoker group-identity * SES (average)[i]			-.21*	-.16			.11	.15
Smoker group-identity * SES (high)[i]			-.25*	-.18			.10	.15
Nonsmoker group-identity * SES (average)[i]			.02	.01			.03	.02
Nonsmoker group-identity * SES (high)[i]			-.12	-.09			-.06	-.03
Intention to quit (T1)				.32**				.25**

Note. Values in the table are βs. Active quitting $R^2 = .05$ ($p = .15$) for Step 1, $\Delta R^2 = .22$ for Step 2 ($p < .001$), $\Delta R^2 = .04$ for Step 3 ($p = .26$), $\Delta R^2 = .06$ for Step 4 ($p < .001$); Socially conscious smoking $R^2 = .13$ ($p < .001$) for Step 1, $\Delta R^2 = .08$ for Step 2 ($p < .01$), $\Delta R^2 = .02$ for Step 3 ($p = .74$), $\Delta R^2 = .04$ for Step 4 ($p < .01$).

i. Compared with the reference category 'lower SES'.

$^+ p < .10$; * $p < .05$; ** $p < .01$

(Step 2).[5] We found no significant effects of smoker identities in Step 2, and no significant interactions in Step 3 (all *p*s > .10).[6] Step 4 showed that smokers with stronger intentions to quit showed stronger active quitting responses. Importantly, nonsmoker self- and group-identity remained significant predictors of active quitting when intention to quit was controlled for.

Socially conscious smoking.

As expected, identity explained socially conscious smoking responses beyond control variables. Step 1 showed that weaker nicotine dependence significantly predicted stronger socially conscious smoking responses to the smoking ban. Controlling for this, stronger nonsmoker self-identity significantly predicted stronger socially conscious smoking responses. We found no effects of smoker identities in Step 2, and no significant interactions in Step 3 (all *p*s > .10). Step 4 showed that smokers with stronger intentions to quit showed stronger socially conscious smoking responses. In conclusion, nonsmoker identity predicted intention to quit, quit attempts and responses to the smoking ban. Results further suggested that nonsmoker self-identity (T1) might be associated with intention to quit (T2) through intention to quit at T1.

DISCUSSION

The present study examined the role of identity factors and SES (educational level) in smoking behavior and responses to a smoking ban. To the best of our knowledge, this

5 In addition, in the context of these other variables a suppression effect was found, suggesting that smokers with a stronger smoker self-identity showed more active quitting responses to the smoking ban. This contrary effect changed into the expected direction and became nonsignificant when the analysis was repeated with only smoker self-identity as predictor of active quitting (controlled for control variables and SES): smoker self-identity $b = -0.08$, $p = .69$. Further, the zero-order correlation between smoker self-identity and active quitting is in the expected direction ($r = -.13$).

6 In addition, in the context of these other variables two suppression effects were found, leading the smoker group-identity*SES (average vs. lower) and smoker group-identity*SES (higher vs. lower) interactions to take on unusual forms. Specifically, whereas the smoker group-identity*SES (average vs. lower) interaction effect was significant ($F(1,169) = 4.02$, $p = .047$, $\Delta R^2 = .02$), simple slopes among lower and average SES smokers were nonsignificant (*p*s > .10). The interaction effect became nonsignificant when the analysis was repeated with only the smoker group-identity*SES interaction as predictor of intention to quit in Step 3 (controlled for gender, SES, age at smoking onset, years smoked, nicotine dependence, and identity variables), $F(1,176) = 0.65$, $p = .42$, $\Delta R^2 < .01$. Also, whereas the smoker group-identity*SES (higher vs. lower) interaction effect was significant ($F(1,169) = 4.37$, $p = .04$, $\Delta R^2 = .02$), the simple slope among higher SES smokers was only marginally significant ($b = -0.38$, $p = .099$) and the simple slope among lower SES smokers was nonsignificant ($p > .10$). The interaction effect became nonsignificant when the analysis was repeated with only the smoker group-identity*SES interaction as predictor of intention to quit in Step 3 (controlled for gender, SES, age at smoking onset, years smoked, nicotine dependence, and identity variables), $F(1,176) = 0.97$, $p = .33$, $\Delta R^2 < .01$.

was the first study in which the effects of smoker and nonsmoker self- and group-identity were both included and compared.

The results confirmed the importance of identity in changes in smoking behavior and responses to the smoking ban. Importantly, the results suggest that *nonsmoker* identity is more important than smoker identity in explaining smoking behavior and responses to the smoking ban. In other words, the extent to which smokers identify with nonsmoking and nonsmokers is more important than their identification with smoking and smokers. As we took into account other important influences in the analyses, we showed that *nonsmoker* identity was consistently associated with smoking behavior and responses to the smoking ban above and beyond standard predictors. In line with the hypotheses, results show that stronger nonsmoker self-identity was meaningfully associated with stronger intentions to quit smoking, both at the same time and one year later, and a higher likelihood of quit attempts one year later. Thus, when being a nonsmoker fits with how smokers see themselves they have stronger intentions to quit and are more likely to attempt to quit. Importantly, nonsmoker self-identity did not predict intention to quit (at T2) anymore when intention to quit (T1) was included in the model. Results might imply that nonsmoker self-identity (T1) is associated with intentions to quit one year later (T2) through intentions to quit (T1). One would indeed expect intention to quit to play a major role in predicting subsequent intentions to quit. Importantly, the direction of the relationship between identity and intention cannot be established in the current data. Alternatively, nonsmoker self-identity might be a component of a latent intention construct, in which case intention (T1) would predict intention one year later (T2) through nonsmoker self-identity (T1). Results further showed that SES moderated the association between nonsmoker self-identity and intention to quit (T1), such that the association between nonsmoker self-identity and intention to quit was stronger among lower SES smokers than among higher SES smokers. More generally intentions to quit were stronger among smokers with average or higher SES than among lower SES smokers. Results thus suggest that higher SES smokers have relatively strong intentions to quit smoking in general, and that their intentions to quit become somewhat stronger if they can picture themselves more as nonsmokers. However, lower SES smokers have relatively weak intentions to quit in general, but intentions to quit become much stronger if they can picture themselves as nonsmokers. Notably, nonsmoker self-identity was stronger among higher SES smokers than among lower SES smokers, suggesting that intentions to quit might be similar among lower and higher SES smokers if their nonsmoker self-identities were to be equally strong. Also, on top of the effects of background variables, results showed a major role of *nonsmoker* identity in predicting responses to the smoking ban. Smokers with weaker nonsmoker identities responded more negatively to the ban, whereas smokers with stronger nonsmoker identities responded more positively to the ban. Specifically, smokers with stronger

nonsmoker self-identities showed less rejecting responses (i.e., feeling cornered by the ban and resisting complying) and more active quitting (i.e., becoming motivated to quit smoking) and socially conscious smoking responses (i.e., agreeing to refrain from smoking in areas where smoking is not allowed) to the smoking ban, and smokers with stronger nonsmoker group-identities showed less rejecting and victimizing responses (i.e., feeling unable to quit because of perceived addiction to smoking) and more active quitting responses. Also, smokers with stronger intentions to quit showed weaker rejecting responses, and stronger active quitting and socially conscious smoking responses, but intention to quit was not significantly related to victimizing responses. Importantly, stronger nonsmoker self- and group-identities were still significantly associated with active quitting responses in the final model with intention to quit (T1) included. We further found that lower SES smokers showed more rejecting and victimizing responses to the smoking ban than higher SES smokers. To summarize the findings, nonsmoker identity predicted intentions to quit, quit attempts, and responses to the smoking ban, and the influence of nonsmoker self-identity on intention to quit differed between lower and higher SES smokers. Also, nonsmoker self-identity (T1) seemed to predict intentions to quit and quit attempts one year later (T2) through intentions to quit (T1).

Our findings relate to work by Van den Putte and colleagues (2009) who showed that a stronger quitter self-identity predicts stronger intentions to quit and a higher likelihood of quit attempts. In addition, we showed that the influence of nonsmoker self-identity on intention to quit is moderated by SES, showing that the association between nonsmoker self-identity and intention to quit was stronger among lower SES smokers than among higher SES smokers. As smoking is more prevalent among lower than higher SES groups (e.g., Reid et al., 2010), it is not surprising that the effects of identity differ in strength between lower and higher SES smokers. One explanation could be that lower SES smokers may perceive nonsmoking as part of a range of health promoting behaviors that does not fit within their social environment or social class. In line with this idea, a study among members of ethnic minority groups showed that healthy behaviors were perceived by ethnic minority members as characteristics of the higher status outgroup, whereas unhealthy behaviors were perceived as characterizing the lower status ingroup (Oyserman, Fryberg, & Yoder, 2007; see also Fordham & Ogbu, 1986). *How* SES influences the effects of identity is a question in need of further investigation. Both in our study and in the work by Van den Putte and colleagues, identity predicted intentions to quit and quit attempts even when controlling for other important influences. Identity, then, seems to be a relatively stable factor that influences behavior, in other words, smokers behave in ways that fit with who they (believe they) are (West, 2006). Extending previous research, we compared the effects of smoker and nonsmoker self- and group-identity directly. In contrast to previous work (e.g., Høie et al., 2010; Moan & Rise, 2005; Tombor et al., 2013; Van den Putte et al., 2009), we did not find that smoker identity predicted

intention to quit or quit attempts. However, smoker identity might have been predictive in these previous studies because *nonsmoker* identity was often not measured. In one study in which smoker and quitter self-identity were compared, quitter self-identity predicted both intention to quit and quit attempts, whereas smoker self-identity predicted quit attempts but not intention to quit (Van den Putte et al., 2009). Overall, these findings may suggest that the possible self as a nonsmoker is even more important in predicting smoking behavior than the current self as a smoker (see Markus & Nurius, 1986). Similarly, in contrast to findings from three experimental studies suggesting that stronger *smoker* self- or group-identities lead to adverse responses to antismoking measures or norms (Falomir-Pichastor & Invernizzi, 1999; Falomir-Pichastor et al., 2013; Freeman et al., 2001), our results instead suggest that weaker *nonsmoker* self- and group-identities are more important in predicting adverse responses to the smoking ban. Thus, smokers who responded negatively to the smoking ban by rejecting or victimizing did not seem to defend their strong *smoker* identity, but rather did or could not picture themselves as *nonsmokers* or as part of the group of nonsmokers. Again, *nonsmoker* identity was not measured in the three experimental studies. Possibly, effects of smoker identity would have been weaker if nonsmoker identity was measured. In sum, we conclude that nonsmoker identity in and of itself (all other things remaining the same) affects intentions and attempts to quit and responses to the smoking ban.

We found different effects of nonsmoker self-identity and group-identity, suggesting that the two are fundamentally different. Indeed, smokers may identify with nonsmoking as a behavior (i.e., self-identification as a nonsmoker), or nonsmokers as a group (i.e., group-identification as part of the group of nonsmokers) or both (Turner et al., 1987). Results showed that whereas only nonsmoker *self*-identity predicted intention to quit and quit attempts, both nonsmoker *self*- and *group*-identity predicted responses to the smoking ban, suggesting that smokers' responses to smoking bans might be more influenced by social factors than their smoking behavior. The current study extended qualitative work by Van der Heiden and colleagues (2013) by validating four responses to smoking bans using a quantitative measure. Thus, the four responses that were previously found could be reliably distinguished and predicted among a general sample of daily smokers.

The study also has limitations. First, the sample might not have been representative of all smokers due to (selective) attrition and the study would have benefited from a larger sample size. Specifically, smoking seemed to be more important to those participants who completed both surveys than to those who only completed (part of) the first questionnaire. For example, continued participants had significantly stronger smoker identities than drop-outs at T1. Also, successful quitters were not included in the analyses, because the subsample of fourteen successful quitters was considered too small to draw any meaningful conclusions about this group. However, this may suggest that the

sample of the present study may be those who are less open to change their smoking, a group highly relevant for policy efforts. More insight into identity processes within this group of smokers would appear to be of particular importance. Second, the number of items used to measure group-identity and each of the responses to the smoking ban was relatively small. The measure of responses might be further explored in future research. Related to this, responses to the smoking ban were measured four years after instigation of the ban. It is important to note that the smoking ban was still in effect when data were collected, and therefore participants responded to the current situation rather than to a historic event. While participants may have been ex-smokers between the introduction of the smoking ban and data collection, the fact that participants were smokers at the time when data were collected is what is most important for the current research questions. Third, as the current study has only two waves, we cannot exclude history and maturation biases. Importantly, longitudinal designs with more waves will also shed more light on the direction of associations between nonsmoker identity and intention to quit, thus, whether intention changes as a result of changes in identity, or the other way around. Fourth, as self-report measures were used, we cannot be sure whether participants had actually quit at T2. Biochemical validation would have allowed for more reliable measurement of smoking behavior. Finally, although the Theory of Planned Behavior (TPB; Ajzen, 1991) has been widely applied, we did not control for TPB constructs in our analyses. However, previous work has already established the independent importance of smoker self- and group-identity in predicting intention to quit, reduced smoking and quit attempts when TPB constructs were controlled for (Høie et al., 2010; Moan & Rise, 2005, 2006; Van den Putte et al., 2009; see also Rise, Sheeran, & Hukkelberg, 2010 for a meta-analysis).

Despite these limitations, we believe that if the current results can be replicated in future studies, this would suggest that smoking cessation interventions may profit from components that focus on identity change. However, for this it would be necessary to do additional experimental research on how one can assist smokers to make nonsmoking and the group of nonsmokers more important to 'who they are'. As smokers may identify with nonsmoking on a self-identity level and/or group-identity level (Turner et al., 1987), approaches to strengthen nonsmoker identity can focus on self-identity, group-identity or both. Based on 'possible selves' theory (Barreto & Frazier, 2012; Markus & Nurius, 1986), one possibility to strengthen nonsmoker identity may be to have smokers repeatedly write about themselves as (part of the group of) nonsmokers (Parry, Fowkes, & Thomson, 2001; Pennebaker, 2004, 2010). Also, imagery could be used to increase identification with nonsmoking (Prochaska et al., 1992). These techniques may help smokers with weaker intentions to quit to picture themselves as nonsmokers and move towards quitting smoking, whereas it may reinforce nonsmoker identity in smokers who already intend to quit smoking. Experimental studies should examine the effectiveness of such

methods in smokers with weaker and stronger quitting intentions. Similarly, if the results with regard to responses to the smoking ban can be replicated, other antismoking measures might be expected to be more effective if they are tailored to the identity of smokers, thereby focusing on *nonsmoker* identities. For example, antismoking measures could make use of questions that invite smokers to think about the self as a nonsmoker or as part of the group of nonsmokers in order to help them to move towards nonsmoking. Finally, results suggest that antismoking measures might be more effective if SES is taken into consideration.

In sum, results suggest that identity is important in smoking behavior and responses to antismoking measures. A better understanding of the role of identity in quitting smoking is needed to allow development of policies and interventions that may help more smokers to quit. Future research on the basis of the current findings should provide more insight into the different mechanisms by which smoker and nonsmoker identity are associated with intention and attempts to quit, as well as responses to smoking bans and other antismoking measures. It should also provide more insight into how SES influences these processes, and where and in what form effective intervention opportunities exist. The current work suggests that future research should explore the effectiveness of tailoring antismoking measures to smokers' identity, thereby taking the role of *nonsmoker* identities into account.

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APPENDIX A: RESPONSES TO THE SMOKING BAN SCALES

We conducted a principle component analysis (PCA) with orthogonal rotation (varimax) on nine items constructed to measure the four responses to the smoking ban. The KMO statistic had a value of .76, indicating adequate sample size. Bartlett's test of sphericity indicated that correlations between variables were sufficiently large to perform a PCA, $\chi^2(36) = 584.08$, $p < .001$. Before rotation, 3 components had eigenvalues over Kaiser's criterion of 1, and 4 components had eigenvalues over Jolliffe's criterion of .7. After rotation, 4 components had eigenvalues over 1, and in combination explained 76% of the variance. The scree plot showed an inflexion that justified retaining 4 components. Taken together, a 4-component solution seemed adequate. The items that clustered on the same component (based on highest rotated factor loadings) suggested that the four components represented rejecting, victimizing, active quitting and socially conscious smoking responses to the smoking ban. The item 'I think it sensible that smoking is not allowed in some places' was not included in a scale, as it loaded on both the rejecting (reversed) and socially conscious smoking component.

APPENDIX B: ATTRITION ANALYSES

Table 1A. Means and standard deviations of responders and drop-outs on ordinal and interval T1 variables, accompanied by *t*-statistics testing differences between groups.

	M (SD)		
Variable	**Drop-outs** *n* = 597-897	**Responders** *n* = 185-189	***t*-statistic**
Age	34.36 (13.81)	41.74 (13.20)	$t(1080) = -6.66$, $p < .001$
Age at smoking onset	16.57 (3.80)	16.40 (3.55)	$t(1023) = 0.57$, $p = .57$
Years smoked	17.68 (12.81)	24.78 (12.87)	$t(1023) = -6.86$, $p < .001$
Nicotine dependence	4.39 (2.40)	4.74 (2.46)	$t(933) = -1.77$, $p = .08$
Smoker self-identity	3.07 (.85)	3.28 (.87)	$t(806) = -3.01$, $p < .01$
Nonsmoker self-identity	2.91 (.91)	2.80 (.87)	$t(766) = 1.51$, $p = .13$
Smoker group-identity	3.08 (1.28)	3.48 (1.07)	$t(359.71) = -4.31$, $p < .001$
Nonsmoker group-identity	2.76 (.99)	2.52 (.92)	$t(766) = 3.01$, $p < .01$
Intention to quit	4.87 (2.00)	4.58 (2.20)	$t(273.19) = 1.69$, $p = .09$

Note. For each variable analyses were performed on all participants for whom data on this particular variable was available.

Table 1B. Means and standard deviations of drop-outs and responders on categorical T1 variables, accompanied by χ^2-statistics testing differences between groups.

		% of group (N), standardized residual if deviation is significant		
Variable	***Categories***	**Drop-outs**	**Responders**	**χ^2-statistic**
Previous quit attempts (lifetime)	Yes	79% (572)	80% (152)	$\chi^2(1) = .24$, $p = .62$
	No	21% (154)	20% (37)	
Quit attempts since smoking ban	Yes	76% (683)	63% (120)	$\chi^2(1) = 12.21$, $p < .001$, Cramer's $V = .11$
	No	24% (218)	37% (69)**	
Gender	Male	45% (409)	32% (60)*	$\chi^2(1) = 11.87$, $p < .01$, Cramer's $V = .10$
	Female	55% (492)	68% (129)*	
SES	Lower	32% (240)	32% (61)	$\chi^2(2) = 6.68$, $p = .04$, Cramer's $V = .08$
	Average	43% (325)	34% (64)	
	Higher	26% (195)	34% (64)	

Note. For each variable attrition analyses were performed on all participants for whom data on this particular variable was available.

* deviation from the expected cell count, $p < .05$; ** deviation from the expected cell count, $p < .01$

APPENDIX C. CORRELATIONS BETWEEN VARIABLES USED IN THE REGRESSION ANALYSES

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Intention to quit T1															
2 Intention to quit (T2)	.62**														
3 Quit attempts between T1 and T2[i] (T2)	.31**	.41**													
4 Rejecting (T2)	-.40**	-.29**	-.16*												
5 Victimizing (T2)	-.17*	-.34**	-.05	.11											
6 Active quitting (T2)	.47**	.42**	.18*	-.46**	-.35**										
7 Socially conscious smoking (T2)	.32**	.22**	.08	-.38**	-.13^{+}	.36**									
8 Gender (female)	.17*	.11	.06	-.07	.11	.04	.03								
9 SES[ii]	.10	.18*	.09	-.16*	-.20**	.02	-.03	-.04							
10 Age at smoking onset	-.03	.05	.03	.08	-.17**	.04	.12	-.04	.22**						
11 Years smoked	-.26**	-.20**	-.08	.08	.25**	-.10	-.02	-.09	-.24**	-.13+					
12 Nicotine dependence	-.17*	-.14^{+}	.002	.20**	.35**	-.20**	-.34**	.08	-.22**	-.25**	.18*				
13 Smoker self-identity	-.29**	-.24**	-.07	.19**	.28**	-.13	-.24**	-.09	-.14^{+}	-.12^{+}	.32**	.40**			
14 Nonsmoker self-identity	.55**	.46**	.28**	-.40**	-.30**	.46**	.33**	.05	.18*	.08	-.22**	-.27**	-.40**		
15 Smoker group-identity	-.10	-.11	-.03	.16*	.08	-.19**	-.16*	.03	.17*	.004	-.01	.18*	.38**	-.19*	
16 Nonsmoker group-identity	.21**	.14^{+}	.10	-.30**	-.27**	.35**	.28**	.09	-.03	.09	-.04	-.18*	-.32**	.44**	-.26**

Note. All variables were assessed at T1 unless indicated otherwise.

i. 0 = no quit attempts, 1 = one or more quit attempts.

ii. For correlations involving SES, Spearman's correlations were used instead of Pearson's correlations.

$^{+}$ $p < .10$ * $p < .05$ (two-tailed); ** $p < .01$ (two-tailed)