



Universiteit
Leiden
The Netherlands

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

Meijer, E.

Citation

Meijer, E. (2017, November 14). *This is [not] who I am : understanding identity in continued smoking and smoking cessation*. Retrieved from <https://hdl.handle.net/1887/57383>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/57383>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/57383> holds various files of this Leiden University dissertation

Author: Meijer, Eline

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

Date: 2017-11-14

CHAPTER

DISCUSSION

8

This dissertation started with quotes from two smokers, Esther and Louis, who smoked a similar number of cigarettes per day but had very different self-conceptualizations in relation to smoking. Whereas Louis perceived himself as 'a real smoker', Esther experienced conflict between her smoking behavior and who she perceived herself to be as a person. The six studies presented in this dissertation focused on such identities in relation to smoking and quitting, and examined 1) how different identities that are relevant to smoking affect smoking behavior, 2) how identity changes over time, and 3) whether associations between identity and smoking-related outcomes, as well as identity change processes, differ between people with lower and higher socio-economic status (SES).

A multi-method approach was used to answer the research questions, offering a comprehensive analysis of identity and identity change. Chapter 2 presented a longitudinal survey with a one-year follow-up, examining how smoker and nonsmoker self- and group-identities as well as socio-economic status (SES) predict intention to quit, quit attempts and responses to the Dutch smoking ban in hospitality venues (from now on referred to as "Ch2. Identity smoking longitudinal"). Chapter 3 showed the results of a cross-sectional study which investigated how SES influences smoking behavior, addressing both social support and identity factors (referred to as "Ch3. SES identity cross-sectional"). This was followed by an experimental study presented in Chapter 4 which aimed to strengthen quitter self-identity through a writing exercise (referred to as "Ch4. Quitter self-identity experimental"). Chapter 5 described the in-depth findings of a longitudinal qualitative study on identity change in the process of quitting smoking (referred to as "Ch5. Identity change longitudinal qualitative"). Furthermore, the large-scale longitudinal study presented in Chapter 6 examined reciprocal relations between identity, intention to quit and smoking behavior among smokers and ex-smokers (referred to as "Ch6. Identity smoking large-scale longitudinal"). Finally, Chapter 7 examined identity changes over time among smokers and ex-smokers, and whether these changes can be predicted by SES and psychosocial factors, within the same large-scale longitudinal study (referred to as "Ch7. Identity change large-scale longitudinal"). The results of these six studies are summarized below, and theoretical and practical implications, as well as limitations are discussed (see also Figure 1).

Research Question 1: How do different identities that are relevant to smoking affect smoking behavior?

Smokers may identify more or less strongly with smoking, quitting or nonsmoking as behaviors (i.e., self-identity), and with the groups of smokers, quitters and nonsmokers (i.e., group-identity). Up until now, the relative importance of these different identities for smoking behavior was unknown, as these had not been examined jointly before. One of the main aims of this dissertation was therefore to investigate how different identities relevant to smoking affect smoking behavior.

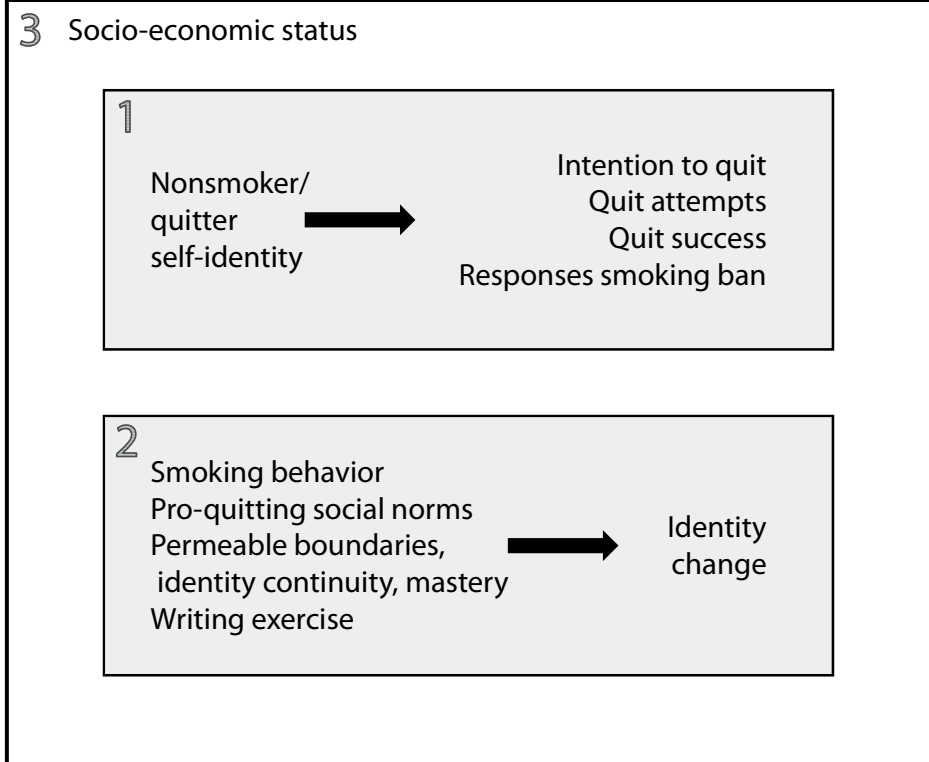


Figure 1. Overview of the answers to the research questions that were examined in this dissertation.

Identity is important for smoking and quitting

The studies presented in this dissertation clearly showed that identity matters. Corresponding with the propositions of PRIME theory and previous research on smoking and identity, we found that smokers are motivated to behave in line with the way they perceive themselves (Brown, 1996; Gibbons & Eggleston, 1996; Hertel & Mermelstein, 2012; Høie, Moan, & Rise, 2010; Moan & Rise, 2005, 2006; Shadel, Mermelstein, & Borrelli, 1996; Tombor, Shahab, Brown, Notley, & West, 2015; Tombor, Shahab, Brown, & West, 2013; Van den Putte, Yzer, Willemsen, & de Bruijn, 2009; Vangeli & West, 2012; West, 2006). Identity predicted intentions to quit, quit attempts, quit success and responses to the Dutch smoking ban in hospitality venues, even when controlled for other important and more typically examined factors such as the age of onset of daily smoking, the number of years that people had been smoking and their nicotine dependence.

Nonsmoker and quitter identities are more important than smoker identities

The comprehensive evaluation of identities related to smoking in this dissertation shed new light on which identities are most relevant to (changing) smoking behavior. The

studies consistently showed that the identities as a nonsmoker and quitter are more important than identity as a smoker. This dissertation was the first research project that could disentangle the relative importance of these different identities, as not only smoker identities but also nonsmoker and quitter identities, and self-identities as well as group-identities were investigated.

Results of the quantitative studies showed that smokers who more strongly perceive themselves as nonsmokers have stronger intentions to quit (Ch2. Identity smoking longitudinal), are more likely to attempt to quit (Ch2), and respond more positively to the smoking ban in hospitality venues (Ch2; see Table 1). Furthermore, smokers who perceive themselves more strongly as quitters also have stronger intentions to quit smoking (Ch3. SES identity cross-sectional; Ch6. Identity smoking large-scale longitudinal), and are more likely to quit smoking successfully (Ch6). Identification with smoking only played a role in one study, which showed that smokers who perceive themselves less strongly as smokers have stronger intentions to quit smoking (Ch3). However, smoker self-identity was not associated with quit intentions in two other studies (Ch2 and Ch6), and did not predict behavioral outcomes (i.e., quit attempts and quit success; Ch2 and Ch6, respectively). With regard to group identity, we found that stronger identification with the group of nonsmokers is associated with stronger intentions to quit (Ch3), and

Table 1. Examination of associations between identity constructs and smoking-related variables (RQ1) and moderation by SES (RQ3) in the chapters in this dissertation.

Identity constructs	Smoking-related variables (RQ1)			SES (RQ3)	
	<i>Intention to quit</i>	<i>Smoking behavior</i>	<i>Responses to smoking ban in hospitality venues</i>	<i>Differences in identity strength</i>	<i>Moderation association identity and smoking-related variables</i>
Self-identity					
Nonsmoker	2, 3, 5	2, 5	2	2, 3	2 (intention to quit), 3
Quitter	3, 5, 6	5, 6		3, 7	3, 6
Smoker	2, 3, 5, 6	2, 5, 6	2	2, 3, 7	2, 3, 6
Group-identity					
Nonsmoker	2, 3, 5	2, 5	2	2, 3	2, 3
Quitter	3, 5			3	3
Smoker	2, 3, 5, 6	2, 5, 6	2	2, 3	2, 3, 6

Note. Numbers in the table refer to the chapters in this dissertation, with numbers in bold indicating that a significant association was found in that chapter. Chapter 2 = Identity smoking longitudinal; Chapter 3 = SES identity cross-sectional; Chapter 5 = Identity change longitudinal qualitative; Chapter 6 = Identity smoking large-scale longitudinal; Chapter 7 = Identity change longitudinal quantitative. Given the deductive nature of the study presented Chapter 5 (interpretative phenomenological analysis), the analysis focused on a broader range of identity constructs than those mentioned here.

with stronger positive responses and weaker negative responses to the smoking ban in hospitality venues (Ch2). No effects of identification with the group of smokers emerged (Ch2, Ch3 and Ch6).

In line with these quantitative results showing the importance of nonsmoker and quitter identities, the qualitative study showed that smokers need to be able to picture themselves as nonsmokers in order to quit successfully (Ch5. Identity change longitudinal qualitative). All smokers who were included in this qualitative study intended to quit within two months (i.e., had a strong intention to quit), and most of them felt negative about being a smoker (i.e., had a weak smoker self-identity). However, only those participants who identified with nonsmoking, and increasingly perceived themselves as nonsmokers over time, reached stable abstinence. In sum, results consistently showed that nonsmoker and quitter identities are more relevant than smoker identities. Importantly, the experimental study (Ch4. Quitter self-identity experimental) showed that identification with quitting can be facilitated through a writing exercise, which will be discussed in more detail when the results relating to the second research question are described.

Self-identity is more important for smoking and quitting behavior than group-identity

Our results also seem to indicate that self-identity is more important for smoking and quitting than group-identity. Whereas nonsmoker and quitter self-identities were consistently associated with intentions to quit and behavioral outcomes (Ch2. Identity smoking longitudinal; Ch3. SES identity cross-sectional; Ch6. Identity smoking large-scale longitudinal), group-identification with nonsmokers was only associated with quit intentions in one study (Ch3), but this was not found in another study (Ch2). However, we found that both nonsmoker self-identity and group-identity were associated with responses to the smoking ban in hospitality venues. As such, self-identity may be more important than group-identities for an individual smoker's intentions to quit and quit attempts, whereas group-identities also play a role in responses to situations that are more socially embedded and can be perceived as threatening by group members, such as a smoking ban.

Take-home messages

In conclusion, the above studies together showed that identity is important for smoking behavior. In general, nonsmoker and quitter identities are more important for smoking and quitting behavior than smoker identities, and self-identities appeared to be more important than group-identities.

Research Question 2: How does identity change?

As outlined above, smokers need to be able to perceive themselves as quitters or nonsmokers in order for them to quit successfully. In other words, their identity needs to change. However, it is unclear how smokers come to perceive themselves more as quitters or nonsmokers. Similarly, the processes that allow ex-smokers to increasingly identify with nonsmoking over time are unknown.

Three longitudinal studies examined how identity may change spontaneously (Ch5. Identity change longitudinal qualitative; Ch6. Identity smoking large-scale longitudinal; Ch7. Identity change large-scale longitudinal), see also Table 2. The two large-scale longitudinal quantitative studies among smokers and ex-smokers showed that smoking behavior, social norms and SES affected identity change (Ch6 and Ch7; see RQ3 for findings regarding SES differences). These studies were complimented by an in-depth longitudinal qualitative study exploring the psychological processes that may enable identity change during the process of quitting smoking. In addition, an experimental study showed that quitter identity can be strengthened through a simple writing exercise (Ch4. Quitter self-identity experimental). The results of these studies are described in more detail below.

Table 2. Examination of change in identity constructs (RQ2) and moderation by SES (RQ3) in the chapters in this dissertation.

Factors related to identity change	Identity change (RQ2)			SES (RQ3)
	<i>Quitter self-identity</i>	<i>Smoker self-identity</i>	<i>Smoker group-identity</i>	<i>Moderation association factors^a and identity change</i>
Smoking behavior	5, 6, 7	5, 6, 7	5, 7	6
Intention to quit	6	6	6	6
SES	7	7		
Pro-quitting social norms	7	7		
Psychological processes (permeable identity boundaries, sense of identity continuity, sense of mastery of quitting)	5	5	5	
Intervention (writing exercise)	4			

Note. Numbers in the table refer to the chapters in this dissertation, with numbers in bold indicating that a significant association was found in that chapter. Chapter 4 = Quitter self-identity experimental; Chapter 5 = Identity change longitudinal qualitative; Chapter 6 = Identity smoking large-scale longitudinal; Chapter 7 = Identity change longitudinal quantitative.

Given the deductive nature of the study presented Chapter 5, the analysis focused on a broader range of identity constructs than those mentioned here, and statistical significance is not applicable for this methodology.

a. Factors mentioned under “Factors related to identity change”.

Smoking behavior shapes identity

Smoking behavior impacts identity, such that ‘who we are’ is partially based on ‘what we do’. Chapter 6 showed that quit success was associated with subsequent changes in identity. Quit success was a combined measure for smokers and ex-smokers, ranging from low on the scale (high frequency of smoking) to high (longer duration of abstinence). We found that more quit success was related to increased quitter self-identity and decreased smoker self- and group-identities one year later. Similarly, smokers who had stronger intentions to quit showed an increased identification with quitting, and decreased identification with smoking and smokers, one year later. In line with self-perception theory, these findings may suggest that behaviors are perceived by smokers and ex-smokers as indicative of their identity, such that ‘I smoke, so I am a smoker’ or ‘I have not smoked for a long time, so I am a nonsmoker’ (Bem, 1972; Tice, 1994). Correspondingly, continuing smokers come to perceive themselves more strongly as smokers over time, whereas identification with smoking decreases among ex-smokers who successfully stay abstinent (Ch7. Identity change large-scale longitudinal). Findings from the qualitative study also indicate that behavior may shape identity (Ch5. Identity change longitudinal qualitative). That is, several smokers said that they perceived themselves as smokers because they had been smoking for a long time.

Notably, although behavior is thus important for self-perception, identity is more than a mere reflection of past behavior. For example, identity encompasses an emotional evaluation of what it is like to be the person that an individual perceives himself to be (West, 2006). Correspondingly, studies in this dissertation (Ch2. Identity smoking longitudinal; Ch3. SES identity cross-sectional) and other work (Moan & Rise, 2005, 2006; Rise, Sheeran, & Hukkelberg, 2010; Van den Putte et al., 2009) show clear unique effects of identity on intentions to quit and quit attempts, above and beyond past smoking behavior.

Social norms shape identity

Results further showed that identity does not change in a social vacuum, but that identity is responsive to perceived social norms. Chapter 7 (Identity change longitudinal quantitative) showed that smokers and ex-smokers who perceive stronger pro-quitting social norms in their social environments increasingly perceive themselves as quitters over time. In addition, ex-smokers who perceive stronger pro-quitting social norms identify less strongly with smoking over time. These findings correspond with recent models on social identity change in the context of recovery from addiction, which underscore that pro-recovery social norms may facilitate identification with recovery (Best et al., 2015; Frings & Albery, 2015).

Identity change is facilitated by permeable identity boundaries, identity continuity and mastery

In addition, the longitudinal qualitative study offered an in-depth exploration of identity change in the process of quitting smoking (Ch5. Identity change longitudinal qualitative). Of the ten smokers who were included in this study, four quit successfully in the period during which the interviews took place. Moreover, two of these four participants showed an identity change toward a nonsmoker identity and reached successful abstinence, even after two years. In contrast, the other two did not show identity change and had relapsed at this follow-up measurement. This suggests that nonsmoking needs to become integrated into the self-concept in order for smoking behavior change to sustain over time.

Furthermore, identity change toward a nonsmoker identity was enabled by permeable identity boundaries, a sense of identity continuity and a sense of mastery of quitting. The absence of clear demarcated boundaries of identities in relation to smoking (e.g. smoking when 'not a smoker') allowed the two long-term quitters to navigate between their identities as smoker and nonsmoker. Instead, those who had less permeable and flexible representations of identity (e.g., the perception that a smoking history indicates a smoker identity) appeared to have more difficulty to come to see themselves as non-smokers.

Identity change also appeared to be facilitated by a sense of identity continuity, such that the two long-term quitters perceived themselves as essentially staying the same person in the process of change. In contrast, the two participants who did not show identity change after quitting, and who relapsed, experienced a sense of loss of self without smoking (e.g., feeling 'not myself' or 'amputated' without smoking). Finally, identity change appeared to be facilitated by a sense of mastery of quitting in the two long-term quitters, such that they felt proud of the progress they had made and capable of quitting.

Writing exercises may facilitate identity change

In addition to these studies on spontaneous identity change, we investigated in Chapter 4 (Ch4. Quitter self-identity experimental) whether identification with quitting can be facilitated among daily smokers, using a minimal intervention. This experimental study provided some initial support for the use of writing exercises to strengthen quitter self-identity. That is, quitter self-identity appeared to be strengthened through a simple writing exercise, although the effect was small and marginally significant.

Analyses of the content of the written responses further showed that quitter self-identity was especially (and significantly) strengthened among smokers who linked quitting smoking to their lifestyle (e.g., quitting fits with an active lifestyle) or who wanted to quit for health reasons. In addition, smokers who wanted to become a quit-

ter because of the positive aspects of quitting showed an increase in quitter identity. Increased quitter identity was not found for those who wanted to become a quitter to avoid the negative aspects of smoking. The negative aspects of smoking are more likely to be related to a weaker identification with smoking than to a stronger identification with quitting. In other words, these negative aspects as a motivator may be less relevant for quitter identities.

In addition to the writing exercise for quitter self-identity, this study also examined whether expected social support for quitting could facilitate identification with quitting. Social support was manipulated through experimental vignettes. However, given that the social support manipulation was unsuccessful, we were unable to assess whether participants could identify with quitting more easily if they were led to expect stronger support for quitting. In sum, although the effects of the writing exercise were relatively small, this chapter showed that writing exercises are likely a promising method to help smokers to increase their identification with quitting.

Take-home messages

In conclusion, the above showed that for spontaneous changes in identity smoking and quitting behavior and social norms are important. On a finer-grained psychological level, identity change is facilitated by permeable identity boundaries, a sense of identity continuity, and a sense of mastery of quitting. Quitter self-identity appears to be changeable through writing exercises.

Research Question 3: Do associations between identity and smoking-related outcomes and identity change processes differ with socio-economic status?

Differences in smoking and quitting behavior between smokers with lower and higher SES are well known: smoking is more prevalent and persistent among those with lower SES backgrounds. Given this, it seems likely that identity processes are also moderated by SES, and that identity may be differently related to smoking-related outcomes in lower and higher SES groups. However, these questions had not been examined up until now. This dissertation therefore investigated SES as a moderator of identity and identity processes.

Lower SES smokers are heavier smokers

This dissertation showed that smoking behavior and social processes related to smoking differ with SES. That is, in line with previous research it was found that lower SES smokers smoke more cigarettes per day than higher SES smokers (Ch3. SES identity cross-sectional), and have stronger physical dependence on smoking (Ch2. Identity smoking longitudinal; Ch3) and weaker intentions to quit than middle and higher SES smokers (Ch2, not found in Ch3). Furthermore, lower SES smokers respond more negatively to

the smoking ban in hospitality venues than higher SES smokers (Ch2). In addition, lower SES smokers have fewer nonsmokers in their social networks than higher SES smokers. Lower SES also seemed -albeit marginally significant- to expect more negative social support (i.e., unsupportive behaviors such as complaining about smoking) from their social environment if they were to attempt to quit smoking. However, they have an equal desire to receive positive social support as higher SES smokers (i.e., supportive behaviors such as complimenting on being abstinent; Ch3). These findings are in line with previous work that showed that smoking is more prevalent, persistent and socially accepted in lower SES groups, that lower SES smokers are less likely to quit successfully, and that those who attempt to quit receive less social support for quitting (Bricard, Jusot, Beck, Khlal, & Legleye, 2016; Fernandez et al., 2006; Honjo, Tsutsumi, Kawachi, & Kawakami, 2006; Pisinger, Aadahl, Toft, & Jorgensen, 2011; Reid, Hammond, Boudreau, Fong, & Siahpush, 2010; Sorensen, Emmons, Stoddard, Linnan, & Avrunin, 2002; Wetter et al., 2005; Wiltshire, Bancroft, Parry, & Amos, 2003).

Lower SES smokers and ex-smokers hold identities that make quitting difficult

This dissertation was the first to show that identity strength differs with SES. Specifically, the large-scale study presented in Chapter 7 (Identity change longitudinal quantitative) showed that lower SES smokers identify more strongly with smoking than middle and higher SES smokers. Similarly, lower SES *ex-smokers* identify more strongly with smoking than middle SES *ex-smokers*. In line with this, Chapter 2 (Identity smoking longitudinal) showed that nonsmoker self-identity is stronger among those with higher SES. Smoker self-identity seemed to stronger among those with lower SES, but this was marginally significant. In contrast to the findings for nonsmoker and smoker self-identity, in Chapter 2 identification with the group of smokers was also stronger among those with higher SES. However, Chapter 3 (Ch3. SES identity cross-sectional) showed almost no differences in identity between SES groups. These contrasting findings could be related to the sample, which was less balanced in terms of SES (i.e., relatively fewer lower SES participants) than the samples used in Chapter 2 and 7. Overall, it seems that lower SES is associated with stronger smoker self-identities and weaker nonsmoker self-identities.

Moreover, Chapter 2 showed that the relation between nonsmoker self-identity and intention to quit is stronger among lower than higher SES smokers. In other words, whereas lower SES smokers in general have weaker intentions to quit than higher SES smokers, their intention to quit becomes much stronger when they identify more strongly with nonsmoking. For higher SES smokers, who already have strong intentions to quit, intentions to quit only become somewhat stronger with stronger nonsmoker identities. However, this finding was not replicated in Chapter 3, as the relations between identity and intention to quit was not moderated by SES in this study. Relations

between quitter self-identity and intention to quit also did not differ with SES in Chapter 6 (Identity smoking large-scale longitudinal).

Identity is more robust to change among lower SES smokers and ex-smokers

In addition to differences in identity strength between SES groups, Chapter 7 (Identity change longitudinal quantitative) showed that identity is more robust to change among lower SES smokers and ex-smokers. Smoker self-identity increases more strongly over time among lower SES smokers (vs. higher SES smokers), such that smoking becomes integrated in the self-concept relatively quickly. After quitting, smoking stays part of the self-concept for a longer time among lower SES ex-smokers (vs. higher SES ex-smokers), even when they no longer smoke. Similarly, quitter self-identity increases more slowly over time among lower SES smokers and ex-smokers compared to their higher SES counterparts. In other words, lower SES ex-smokers have more difficulty to come to perceive themselves as quitters.

These findings fit with the SES differences in smoking behavior more generally. In addition, lower SES smokers may perceive nonsmoking as part of a range of health promoting behaviors that do not fit within their social environment or social class. For example, a study among members of ethnic minority groups showed that healthy behaviors such as exercising or watching diet were perceived as belonging with the ethnic majority outgroup, whereas unhealthy behaviors were considered as defining the ethnic minority ingroup (Oyserman, Fryberg, & Yoder, 2007). Relatedly, lower SES smokers and ex-smokers may have more difficulty to identify with quitting and nonsmoking because these identities does not easily fit with their social environment (Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009), where smoking is common and accepted, perhaps even valued (Honjo et al., 2006; Sorensen et al., 2002; Wiltshire et al., 2003). People with lower SES more generally have been found to have a weaker future time perspective (Guthrie, Butler, & Ward, 2009) and less clear self-concepts (Na, Chan, Lodi-Smith, & Park, 2016). As such, lower SES smokers might be less inclined to think about their future selves as quitters or nonsmokers.

Take-home messages

In conclusion, the above showed that smokers from lower SES backgrounds are heavier smokers than their higher SES counterparts, and their social environment appears to be less supportive of quitting. Those with lower SES also perceive themselves in ways that make quitting more difficult (i.e., stronger smoker self-identities, weaker quitter and nonsmoker self-identities). In addition, smoker and quitter self-identities are more robust to change among lower SES smokers and ex-smokers.

Implications

The results of this dissertation have implications for theory and practice. These implications are outlined below, and directions for future research are provided.

Theoretical implications

Self-identities related to the 'new behavior' of nonsmoking are important

The studies together showed that nonsmoker and quitter identities are more important for smoking and quitting behavior than smoker identities. The question that then remains is: Why is this so?

Theorizing on possible selves can explain why nonsmoker and quitter identities are more important for smoking and quitting behavior than smoker identities. That is, a key difference between these types of identities is that nonsmoker and quitter identities are associated with the new behavior (nonsmoking), whereas smoker identities are based on smokers' current behavior (smoking). As such, nonsmoker and quitter identities are 'possible selves' that smokers may become in the future, whereas the identity as a smoker can be seen as a 'current self' that smokers hold. Possible selves and current selves exert different influences on behavior. Possible selves serve as future goals that are highly personally relevant, and therefore exert a strong motivational influence on behavior in the present (Barreto & Frazier, 2012; Markus & Nurius, 1986; Oyserman, & James, 2011). People typically hold ideal selves and feared selves (i.e., their images of the person that they desire and fear to become, respectively), and are motivated to behave in ways that allow them to become their ideal selves and avoid becoming their feared selves. Nonsmoker and quitter identities can be seen as ideal selves. As such, smokers who essentially perceive themselves as nonsmokers will be motivated to behave in ways that allow them to become nonsmokers, such that they will attempt to quit smoking and make efforts to stay abstinent. However, smokers who lack a possible self as a nonsmoker do not have such a motivational guide for behavior, and are less likely to move toward nonsmoking.

Whereas nonsmoker and identities are, thus, possible selves that motivate behavior, smoker identities can be considered as current selves. People are motivated to maintain a positive view of who they are, their current self, and will therefore avoid behavior that conflicts with their identity and engage in identity management strategies when their identity is threatened (Ellemers, Spears, & Doosje, 2002; Hoek, Maubach, Stevenson, Gendall, & Edwards, 2013; Vohs & Heatherton, 2004). However, although current identities (e.g., smoker identity) may thus motivate continuation of behavior, they are less likely to serve as an impetus for behavior change (e.g., quitting smoking) because they do not contain a behavioral goal (e.g., becoming a nonsmoker).

Notably, nonsmoker and quitter identities -both possible selves- may each play different roles during the process of quitting smoking. The identity as a quitter can be

considered as a transitional identity that allows smokers to move from being a smoker to becoming a nonsmoker, whereas the identity as a nonsmoker is a more ultimate identity (Vangeli & West, 2012). Moreover, the identity as a quitter or nonsmoker is most likely to be a possible self before a quit attempt, affecting behavior by providing a personally relevant goal. However, these identities may become current selves in the process of quitting or after quitting successfully. PRIME theory suggests that current identities affect behavior through identity-based rules, such that people behave in line with well-established identities (West, 2006). People with strong (current) nonsmoker identities hold identity-based behavioral rules that prevent them from smoking, e.g. 'I am a nonsmoker, so I do not smoke'. In contrast, a weak smoker identity is less likely to be accompanied by such no-smoking rules, and is therefore less likely to sustain abstinence.

Our results also appear to indicate that self-identity is more important for smoking and quitting than group-identity. It could be the case that self-identity is closer to a person's sense of self than group identity, and therefore more strongly associated with (smoking) behavior. People hold multiple group identities and the influence of group-identity on behavior is likely to depend on the situational context (Tajfel & Turner, 1979, 1986; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), whereas a deeply entrenched self-identity is likely to exert its influence on behavior across situations, thereby creating behavioral stability (West, 2006). Consistent with theorizing on social identity, group identification is likely to take on a more prominent role when the group is under threat or when collective behavior becomes useful for obtaining better outcomes or preventing worse outcomes increasing or protecting outcomes (Branscombe, Ellemers, Spears, & Doosje, 1999; Ouwerkerk, De Gilder, & De Vries, 2001; Ouwerkerk & Ellemers, 2002; Ouwerkerk, Ellemers, & De Gilder, 1999). In line with this reasoning, identification with nonsmokers was related to responses to the smoking ban in hospitality venues, which may be more strongly embedded in social situations and threat than intentions to quit and quit attempts (Ch2).

In sum, this dissertation showed that the self-identities associated with the 'new behavior' of nonsmoking (i.e., nonsmoker and quitter self-identities) are particularly relevant to smoking cessation, and more so than identification with smoking. Although such identities associated with new behavior have been studied widely in possible selves research -which investigates people's perceptions of who they may become in the future-, theories on identity such as PRIME theory (West, 2006) and identity theory (Burke, 2006) focus more strongly on current identities. We recommend that identities associated with new behavior, in this case as nonsmokers or quitters, be incorporated in theories on identity as distinct from current identities. Similarly, identity should be incorporated in psychological theories such as the theory of planned behavior (Ajzen, 1988, 1991; see also Rise et al., 2010) and social cognitive theory (Bandura, 1991, 2001).

Moreover, research on identity and smoking cessation should examine quitter and nonsmoker identities in addition to smoker identities.

Identity conflict is not sufficient to initiate identity change

The qualitative study (Ch5. Identity change longitudinal qualitative) shed a new light on how identity may change in the process of quitting smoking. Identity shift theory (Kearney & O'Sullivan, 2003) and identity control theory (Burke, 2006) both propose that identity conflict may initiate identity change. The Chapter 5 study added that people need to be able to identify with their future identity in order for change to occur. Indeed, most of the smokers included in the study experienced conflict, but identity only changed in those who were able to identify with their future self as a nonsmoker. Similarly, identity shift theory proposes that identity change and behavior change facilitate one another, but findings from the research presented in Chapter 5 showed that this behavior change needs to be accompanied by a sense of mastery (i.e., feeling proud and capable of changing behavior) in order for it to enable identification with the new behavior.

Furthermore, whereas behavior change is, thus, part of identity shift theory, theories on identity (e.g., PRIME theory - West, 2006; social identity theory - Tajfel & Turner, 1979, 1986; Turner et al., 1987) typically focus strongly on how identity affects behavior than on how behavior affects identity. This dissertation showed that behavior also affects how people perceive themselves. If replicated, theories on identity may be advanced by explicitly incorporating behavior as a source of identity.

Practical implications

The results of this dissertation call for interventions that facilitate identification with quitting and nonsmoking among smokers and ex-smokers, as these are likely to contribute to successful smoking cessation. Future work should therefore strive for the integration of this knowledge into smoking cessation interventions. Based on the research in this dissertation and on research by others, several recommendations for such interventions can be made. Chapter 4 (Quitter self-identity experimental) showed that writing exercises can be a promising method, but as the effects were modest, future research should examine ways to make writing exercises more effective. For example, participants could be encouraged to spend more time thinking or writing about their mental images, or to write about their identity on more than one occasion (Frattaroli, 2006; King, 2001; Layous, Nelson, & Lyubomirsky, 2012; Murru & Ginis, 2010; Ouellette, Hessling, Gibbons, Reis-Bergan, & Gerrard, 2005).

Building on the findings of the qualitative study (Ch5. Identity change longitudinal qualitative), writing exercises may also include questions that help people to perceive the boundaries of their current identity and the new identity as being more permeable,

for example by asking about attributes of the new identity that they feel capable of obtaining. The qualitative study also showed that a sense of identity continuity and mastery of quitting may facilitate identity change. In order to facilitate a sense of self continuity, those who (intend to) undertake a quit attempt may be encouraged to focus on the core aspects of who they are that stay the same in the process of change, or that they can even express more strongly now that they are quitting smoking (e.g., self-perception as independent). Relatedly, questions that help smokers to focus on other identities that they perceive as matching with being a nonsmoker and conflicting with being a smoker (e.g., identity as a parent) may facilitate a stronger sense of a continuous self. Furthermore, smokers who are quitting smoking may acquire a stronger sense of mastery of quitting if they are stimulated to focus on the progress they have made with quitting so far. Questions that invite smokers to attribute their successes in quitting internally (i.e., perceiving the success as being caused by themselves, rather than external factors) are particularly likely to be helpful. Moreover, whereas the writing exercise in Chapter 4 focused on quitter identity as a desired identity, it may be beneficial to strengthen both desired (i.e., quitter, nonsmoker) and undesired (i.e., continuing smoker) identities within the same person. This is likely to facilitate strategies to both approach the desired future identity and avoid the undesired future identity (Oyserman & James, 2009).

For smoking cessation to be effective, the new identity needs to become strongly embedded in people's sense of who they are. It also needs to be accessible, especially in moments that constitute a risk for relapse, such as when experiencing cravings. Identities are more likely to be accessible if they are more comprehensive (Frings & Albery, 2015). For example, a nonsmoker identity that is represented as 'healthy, free, independent and a good mother' is more comprehensive than one consisting only of 'healthy'. Interventions should therefore encourage smokers to develop comprehensive representations of themselves as quitters or nonsmokers. Reminders or booster sessions may also be used to keep the new identity vivid and accessible (Frattaroli, 2006; King, 2001; Layous et al., 2012). For example, people in the initial phase of behavior change may be presented with parts of their own narratives on their smartphones.

Such identity-based interventions are more likely to be effective if they are tailored to participant characteristics, as smokers will then perceive the intervention as more personally relevant (Ritterband, Thorndike, Cox, Kovatchev, & Gonder-Frederick, 2009; Smit, Linn, & van Weert, 2015; Te Poel, Bolman, Reubsæet, & de Vries, 2009; Wangberg, Nilsen, Antypas, & Gram, 2011). Although identity interventions are personally relevant by nature, an interesting route to explore to further tailor the intervention is the modality through which the intervention is presented. People differ in their preferences for verbal or visual processing, such that writing exercises may benefit some people more than others (Blazhenkova, & Kozhevnikov, 2009; Linn, Alblas, van Weert, & Bol, 2015; Mayer & Massa, 2003; Smit et al., 2015). People with a stronger visual preference are expected

to respond better to a visually oriented intervention, in which they would, for example, draw or select pictures that fit with their new identity, rather than write about their new identity (Mizock, Russinova, & Shani, 2014; Mizock, Russinova, & DeCastro, 2015).

Although all smokers may benefit from such identity-based interventions, efforts to increase identification with nonsmoking and quitting should be aimed particularly at lower SES smokers and ex-smokers, as smoking behavior and identity are more resistant to change among those with lower SES. In addition, it is important to develop interventions to which people with lower SES respond well. It has been suggested that people with lower SES backgrounds prefer visual information over verbal information (Stanczyk, Bolman, Muris, & de Vries, 2011), such that identity interventions involving visual material may be more effective for lower SES smokers and ex-smokers. However, the effectiveness of visual approaches for lower SES groups has not consistently been shown (Stanczyk et al., 2014; Stanczyk, Crutzen, Bolman, Muris, & de Vries, 2013; Walthouwer, Oenema, Lechner, & de Vries, 2015). Furthermore, results showed that identity change is facilitated by pro-quitting social norms, but people with lower SES are more likely to be part of groups in which smoking is common and accepted. The optimal approach for lower SES smokers would therefore combine an identity-based intervention with efforts to increase social norms in favor of quitting in a neighborhood, at the workplace or in society at large, for example by adding such elements to antismoking campaigns.

Finally, the results of this dissertation showed that behavior impacts identity, such that people come to see themselves in terms of the behaviors that they (frequently) engage in. As such, changing smoking behavior may also be a vehicle to change smoking-related identity, for example through cognitive behavioral therapy approaches. In particular, parts of schema-focused therapy (Young, 1994), which is used to change core beliefs about the self and others, may also be useful to change self-perceptions of persistent smokers with strong smoker identities.

Main limitations

While the results present interesting new avenues to understand smoking cessation and the role of identity in smoking cessation, the studies presented in this dissertation of course have limitations. First, smoking status and quit attempts were measured through self-report, which may be subject to social desirability bias. Biochemical verification would have been a more objective alternative (Connor Gorber, Schofield-Hurwitz, Hardt, Levasseur, & Tremblay, 2009), but the nature of the studies -with most measurements taken online- did not allow for this. Importantly however, recent evidence suggests that self-report of smoking status is reliable and yields very similar results to biochemical verification of smoking status (Van der Aalst & De Koning, 2016).

Second, SES was operationalized as educational level, as is common in smoking research. A more comprehensive measure including income or occupation in addition

to education could also have been used (Schaap, van Agt, & Kunst, 2008). Although education affects occupation and income later in life, income and occupation may be considered a more accurate reflection of an individual's current socio-economic position. However, educational level has repeatedly been found to be a better indicator of risk of smoking and daily smoking than income and occupational class (Huisman, Kunst, & Mackenbach, 2005; Huisman et al., 2012; Schaap & Kunst, 2009). On a more practical note, people may be less willing to provide their income than their educational level (Ryder et al., 2011), as was the case in the studies described in Chapter 6 (Identity smoking large-scale longitudinal) and 7 (Identity change longitudinal quantitative) (those results not reported in these chapters). This particularly poses a problem when missing values are related to income levels (Ryder et al., 2011), for example when those with a lower income are less inclined to report their income level.

Third, the specific identity constructs that were measured differed somewhat between studies – this is both a strength and a possible weakness. Chapter 3 (SES identity cross-sectional) used a very elaborate measure of identity -encompassing smoker, nonsmoker and quitter self- and group-identities, with three component of group-identities being measured-, while the other studies measured more limited smoking-related identities. In addition, the specific items used to measure each of the identity constructs differed slightly between the studies. However, the finding that nonsmoker and quitter identities are more relevant than smoker identities emerged across identity measurements and smoking-related outcomes, underscoring the stability of this finding. This dissertation is then also the first line of work that offers a comprehensive analysis of the relative importance of different identity constructs, and the new insights provided by this approach are a strength of this dissertation.

Suggestions for future research

Other aspects of identity

The quantitative studies presented in this dissertation investigated smoker, nonsmoker and quitter self- and group-identities. Other aspects of identity may also be interesting to examine in future research. Novel self-conceptualizations emerged in the qualitative study (Ch5. Identity change longitudinal qualitative), with participants identifying as 'ex-smoker in rehab' or 'smoker who does not smoke'. In addition, smoking was related to other identities and self-views, which either conflicted (e.g., as a father, as autonomous) or matched (e.g., as a tough guy, as recalcitrant) with smoking. It would be interesting to examine the role of smoking in how smokers perceive themselves more broadly, beyond specific smoking-related identities. Furthermore, work on possible selves suggests that in addition to nonsmoker and quitter identities as ideal possible selves, feared possible selves such as that of an 'ill, continuing smoker' may be important (Barreto & Frazier, 2012; Markus & Nurius, 1986). In addition, the recently developed Smoker Identity Scale

includes items that tap into identity loss when quitting smoking, for example 'I am afraid if I do not smoke, I will not be the same' (Dupont et al., 2015). Given that a sense of loss of self impaired identity change in the qualitative study (Ch5), this perception of smoking as essential for a continuous sense of self is likely to be relevant. Moreover, identity preference has recently been proposed as a potentially relevant concept, that is, the relative strength of one identity (e.g., smoker) over another identity (e.g., nonsmoker) (Frings & Albery, 2015). Smokers can be expected to engage in a quit attempt when their nonsmoker identity is stronger than their smoker identity, but may be held back when both identities are equally strong.

Implicit smoking-related identities

Recent work further suggested that the measurement of implicit identities in relation to smoking may be useful. Most work on smoking and identity to date, including this dissertation, focused on explicit identities, which are accessible through introspection and self-reflection and can therefore be measured through self-report (Lindgren et al., 2016). Implicit identities are considered to be more impulsive and reflexive and less controllable than explicit identities. Although people thus have less insight into their implicit identities, these may be faster in affecting behavior than explicit identities. Phrased differently, implicit identities may have even stronger effects on the impulses and urges that lead to behavior than explicit identities (West, 2006). The measurement of implicit identities may also be less affected by social desirability concerns (Lindgren et al., 2016), which could potentially affect explicit measures of identity. Moreover, implicit identities may be subject to contextual factors (Devos & Banaji, 2003; Gawronski & Cesario, 2013; Mitchell, Nosek, & Banaji, 2003; Wittenberg, Judd, & Park, 2001), meaning that they could be fruitful concepts to examine in relation to influences of SES context.

Implicit identities may be measured through a modified implicit association test (IAT) (Frings & Albery, 2015; Lindgren, Neighbors, Gasser, Ramirez, & Cvencek, 2016) or a modification of the recently developed relational responding task (RRT) (De Houwer, Heider, Spruyt, Roets, & Hughes, 2015; Tibboel, De Houwer, Dirix, & Spruyt, 2017). In a modified IAT for identity, participants are asked to sort pairs of stimuli and stronger associations -for example between 'me' and 'smoker'- are assumed to result in relatively shorter reaction times (Lindgren et al., 2016). The RRT (De Houwer et al., 2015), which is similar to the IAT, measures implicit beliefs and has already been used to measure implicit beliefs about smoking urges among smokers (Tibboel et al., 2017). In this study, participants indicated whether statements about smoking urges were true or false according to different instructions (e.g., respond as if experiencing an urge to smoke). Analogously, for the measurement of implicit identity statements such as 'Smoking is an important part of who I am' can be used, with participants receiving instructions to respond as if they see themselves as smokers or, alternatively, as if they see themselves

as nonsmokers. Importantly, although implicit measures of identity appear promising, findings in the field of alcohol use and drug addiction suggest that explicit and implicit measures are complimentary and are both valuable (Frings & Albery, 2015; Lindgren et al., 2016).

A remaining question: How does identity translate into behavior?

Although the studies in this dissertation clearly showed that identity leads to behavior change, the specific processes through which this happens are less clear. The literature offers a number of possible mechanisms, which remain to be investigated in the context of smoking and more broadly. It could be, as suggested by PRIME theory (West, 2006), that identity affects behavior through identity-based rules. Alternatively, in line with possible selves theory, identity may provide people with clearer goals for whom they want, and do not want, to become in the future (Barreto & Frazier, 2012; Markus & Nurius, 1986; Oyserman & James, 2011). In line with self determination theory, identity may also increase internally driven motivation for behavior (Ryan & Deci, 2000). Self-determination theory distinguishes between intrinsic motivation (i.e., engaging in behavior because of the inherent satisfaction that this activity provides) and extrinsic motivation for behavior (i.e., engaging in behavior to obtain a separable outcome). Intrinsic motivation affects behavior through intrinsic regulation processes (e.g., satisfaction/enjoyment). Extrinsic motivation may affect behavior through different regulation styles (i.e., external, introjected, identified, and integrated) that can be closer to, or further away from, intrinsic regulation. The type of extrinsic regulation that is considered to be closest to intrinsic regulation is 'integrated regulation', which 'occurs when identified regulations are fully assimilated to the self' (Ryan & Deci, 2002, p. 72). In other words, being motivated to engage in behavior because this fits with central self-views is close to engaging in behavior because this is, in itself, satisfying.

Another interesting route to explore concerns the neural processes that are associated with identity. Brain activity in the medial prefrontal cortex (MPFC) is reported to reflect self-related processing, and functional magnetic resonance imaging (fMRI) studies have shown that activity in the MPFC mediates the effects of health communication messages on behavior (for a review see Kaye, White, & Lewis, 2016). Studies in the field of smoking indeed showed that exposure to tailored smoking cessation messages led to stronger MPFC activity than non-tailored messages (Chua et al., 2009). Furthermore, smokers who showed stronger MPFC activation in response to tailored smoking cessation messages were more likely to quit smoking four months later (Chua et al., 2011). Similarly, brain activity in an MPFC region in response to smoking cessation messages predicted successful quitting, controlling for self-reported intention to quit, self-efficacy and ability to relate to the messages (Falk et al., 2011). In a similar way, MPFC activation in response to identity-based messages and interventions can be measured and

used to predict subsequent smoking cessation. For example, brain activity in relevant MPFC regions can be measured among smokers who participated in an identity-based writing intervention before the fMRI session, and are presented in a fMRI scanner with self-generated statements about their future self as a nonsmoker. Between-participant differences in MPFC activity in response to these statements can then be used -as a proxy of depth of self-relevant processing- to predict smoking cessation following the intervention, beyond self-report measures of explicit identity. In sum, different routes from identity to behavior have been forwarded, but it is, as yet, unknown how identity exactly affects behavior. Research into these processes will advance theorizing on identity.

CONCLUSIONS

Using a multimethod approach, the studies presented in this dissertation examined identity and identity change in relation to smoking and quitting among lower and higher SES groups. Three main conclusions can be drawn. First, results showed that nonsmoker and quitter identities are more important than smoker identities for intentions to quit, quit attempts, (long-term) quit success and responses to the Dutch smoking ban in hospitality venues. In addition, self-identities seemed more important than group-identities. Second, identity changes in response to smoking behavior and social norms, and identity change is facilitated by permeable identity boundaries, a continuous sense of self, and a sense of mastery of quitting. Third, lower SES smokers and ex-smokers identify more strongly with smoking - and lower SES smokers identify less strongly with nonsmoking - than their higher SES counterparts, and in lower SES groups identity is more resistant to change. As outlined above, these findings have important implications for theory and practice.

Let us now return to Esther and Louis, the two smokers who were introduced at the beginning of this dissertation. Although they both intended to quit, only Louis attempted to do so. Esther continued to smoke, despite the conflict that she experienced between her smoking behavior and identity. She could not picture herself as a nonsmoker and this held her back from quitting. Louis tried to quit smoking and managed to stay abstinent during the study, although he continued to struggle with being 'a smoker who does not smoke'. Nonsmoking did not become part of his identity, and the follow-up showed that he had relapsed. However, two other smokers, Iris and Julia, quit smoking during the study, showed an identity transition toward a nonsmoker identity, and reached stable abstinence. It is hoped that this dissertation contributes to the development of identity-based interventions that will be integrated into the healthcare system and help more smokers who wish to quit smoking to do so successfully and enduringly.

It [smoking] is a closed period in my life. And that, you carry it with you, further. It wears out more and more. And then, that, you spread your wings and you are completely loose, free again. (Iris, T3)

REFERENCES

- Ajzen, I. (1988). *Attitudes, personality, and behavior*. Buckingham, UK: Open University Press.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, 50(2), 248-287.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52(1), 1-26. doi: 10.1146/annurev.psych.52.1.1
- Barreto, M. L., & Frazier, L. D. (2012). Coping with life events through possible selves. *Journal of Applied Social Psychology*, 42(7), 1785-1810. doi: 10.1111/j.1559-1816.2012.00918.x
- Bem, D. J. (1972). Self-perception theory. *Advances in Experimental Social Psychology*, 6, 1-62. doi: 10.1016/S0065-2601(08)60024-6.
- Best, D., Beckwith, M., Haslam, C., Alexander Haslam, S., Jetten, J., Mawson, E., & Lubman, D. I. (2015). Overcoming alcohol and other drug addiction as a process of social identity transition: the social identity model of recovery (SIMOR). *Addiction Research & Theory*, 24(2), 111-123. doi: 10.3109/16066359.2015.1075980
- Blazhenkova, O., & Kozhevnikov, M. (2009). The new object-spatial-verbal cognitive style model: Theory and measurement. *Applied Cognitive Psychology*, 23(5), 638-663. doi: 10.1002/acp.1473
- Branscombe, N. R., Ellemers, N., Spears, R., & Doosje, B. (1999). The context and content of social identity threat. In N. Ellemers, R. Spears, & B. Doosje (Eds.), *Social identity: Context, commitment, content* (pp. 35-58). Oxford, UK: Blackwell.
- Bricard, D., Jusot, F., Beck, F., Khat, M., & Legleye, S. (2016). Educational inequalities in smoking over the life cycle: an analysis by cohort and gender. *International Journal of Public Health*, 61, 101-109.
- Brown, J. M. (1996). Redefining smoking and the self as a nonsmoker. *Western Journal of Nursing Research*, 18(4), 414-428. doi: 10.1177/019394599601800404
- Burke, P. J. (2006). Identity change. *Social Psychology Quarterly*, 69(1), 81-96.
- Chua, H. F., Liberzon, I., Welsh, R. C., & Strecher, V. J. (2009). Neural correlates of message tailoring and self-relatedness in smoking cessation programming. *Biological Psychiatry*, 65(2), 165-168. doi: 10.1016/j.biopsych.2008.08.030
- Chua, H. F., Ho, S. S., Jasinska, A. J., Polk, T. A., Welsh, R. C., Liberzon, I., & Strecher, V. J. (2011). Self-related neural response to tailored smoking-cessation messages predicts quitting. *Nature Neuroscience*, 14(4), 426-427. doi: 10.1038/nn.2761
- Connor Gorber, S., Schofield-Hurwitz, S., Hardt, J., Levasseur, G., & Tremblay, M. (2009). The accuracy of self-reported smoking: a systematic review of the relationship between self-reported and cotinine-assessed smoking status. *Nicotine & Tobacco Research*, 11(1), 12-24. doi: 10.1093/ntr/ntn010
- De Houwer, J., Heider, N., Spruyt, A., Roets, A., & Hughes, S. (2015). The relational responding task: toward a new implicit measure of beliefs. *Frontiers in Psychology*, 6, 319. doi: 10.3389/fpsyg.2015.00319
- Devos, T., & Banaji, M. R. (2003). Implicit self and identity. *Annals of the New York Academy of Sciences*, 1001(1), 177-211. doi: 10.1196/annals.1279.009
- Dupont, P., Tack, V., Blecha, L., Reynaud, M., Benyamina, A., Amiroche, A., & Aubin, H. J. (2015). Smoker's identity scale: Measuring identity in tobacco dependence and its relationship with confidence in quitting. *American Journal on Addictions*, 24(7), 607-612. doi: 10.1111/ajad.12272
- Ellemers, N., Spears, R., & Doosje, B. (2002). Self and social identity. *Annual Review of Psychology*, 53(1), 161-186. doi: 10.1146/annurev.psych.53.100901.135228

- Falk, E. B., Berkman, E. T., Whalen, D., & Lieberman, M. D. (2011). Neural activity during health messaging predicts reductions in smoking above and beyond self-report. *Health Psychology, 30*(2), 177-185. doi: 10.1037/a0022259
- Fernandez, E., Schiaffino, A., Borrell, C., Benach, J., Ariza, C., Ramon, J. M., . . . Kunst, A. (2006). Social class, education, and smoking cessation: Long-term follow-up of patients treated at a smoking cessation unit. *Nicotine & Tobacco Research, 8*(1), 29-36. doi: 10.1080/14622200500264432
- Frattaroli, J. (2006). Experimental disclosure and its moderators: a meta-analysis. *Psychological Bulletin, 132*(6), 823-865. doi: 10.1037/0033-2909.132.6.823
- Frings, D., & Albery, I. P. (2015). The Social Identity Model of Cessation Maintenance: formulation and initial evidence. *Addictive Behaviors, 44*, 35-42. doi: 10.1016/j.addbeh.2014.10.023
- Gawronski, B., & Cesario, J. (2013). Of mice and men: What animal research can tell us about context effects on automatic responses in humans. *Personality and Social Psychology Review, 17*(2), 187-215. doi: 10.1177/1088868313480096
- Gibbons, F. X., & Eggleston, T. J. (1996). Smoker networks and the "typical smoker": A prospective analysis of smoking cessation. *Health Psychology, 15*(469-477).
- Guthrie, L. C., Butler, S. C., & Ward, M. M. (2009). Time perspective and socioeconomic status: a link to socioeconomic disparities in health? *Social Science and Medicine, 68*(12), 2145-2151. doi: 10.1016/j.socscimed.2009.04.004
- Hertel, A. W., & Mermelstein, R. J. (2012). Smoker identity and smoking escalation among adolescents. *Health Psychology, 31*(4), 467-475. doi: 10.1037/a0028923
- Hoek, J., Maubach, N., Stevenson, R., Gendall, P., & Edwards, R. (2013). Social smokers' management of conflicted identities. *Tobacco Control, 22*(4), 261-265. doi: 10.1136/tobaccocontrol-2011-050176
- Høie, M., Moan, I. S., & Rise, J. (2010). An extended version of the theory of planned behaviour: Prediction of intentions to quit smoking using past behaviour as moderator. *Addiction Research & Theory, 18*(5), 572-585. doi: 10.3109/16066350903474386
- Honjo, K., Tsutsumi, A., Kawachi, I., & Kawakami, N. (2006). What accounts for the relationship between social class and smoking cessation? Results of a path analysis. *Social Science and Medicine, 62*(2), 317-328. doi: 10.1016/j.socscimed.2005.06.011
- Huisman, M., Kunst, A. E., & Mackenbach, J. P. (2005). Inequalities in the prevalence of smoking in the European Union: comparing education and income. *Preventive Medicine, 40*(6), 756-764. doi: 10.1016/j.ypmed.2004.09.022
- Huisman, M., Van Lenthe, F. J., Giskes, K., Kamphuis, C. B., Brug, J., & Mackenbach, J. P. (2012). Explaining socio-economic inequalities in daily smoking: a social-ecological approach. *European Journal of Public Health, 22*(2), 238-243. doi: 10.1093/eurpub/ckr039
- Iyer, A., Jetten, J., Tsivrikos, D., Postmes, T., & Haslam, S. A. (2009). The more (and the more compatible) the merrier: Multiple group memberships and identity compatibility as predictors of adjustment after life transitions. *British Journal of Social Psychology, 48*(4), 707-733.
- Kaye, S. A., White, M. J., & Lewis, I. (2016). The use of neurocognitive methods in assessing health communication messages: A systematic review. *Journal of Health Psychology, 1359105316630138*. doi: 10.1177/1359105316630138
- Kearney, M. H., & O'Sullivan, J. (2003). Identity shifts as turning points in health behavior change. *Western Journal of Nursing Research, 25*(2), 134-152. doi: 10.1177/0193945902250032
- King, L. A. (2001). The health benefits of writing about life goals. *Personality and Social Psychology Bulletin, 27*(7), 798-807.

- Layous, K., Nelson, S. K., & Lyubomirsky, S. (2012). What is the optimal way to deliver a positive activity intervention? The case of writing about one's best possible selves. *Journal of Happiness Studies*, 14(2), 635-654. doi: 10.1007/s10902-012-9346-2
- Lindgren, K. P., Neighbors, C., Gasser, M. L., Ramirez, J. J., & Cvencek, D. (2016). A review of implicit and explicit substance self-concept as a predictor of alcohol and tobacco use and misuse. *American Journal of Drug and Alcohol Abuse*, 1-10. doi: 10.1080/00952990.2016.1229324
- Linn, A. J., Alblas, M., van Weert, J., & Bol, N. (2015). Een kwestie van voorkeur? Een experimentele studie naar het aanpassen van gezondheidsinstructies aan de voorkeur voor modaliteit van de ontvanger. *Tijdschrift voor Communicatiewetenschap*, 43(4), 362-377.
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41, 954-969.
- Mayer, R. E., & Massa, L. J. (2003). Three facets of visual and verbal learners: cognitive ability, cognitive style, and learning preference. *Journal of Educational Psychology*, 95(4), 833-846. doi: 10.1037/0022-0663.95.4.833
- Mitchell, J. P., Nosek, B. A., & Banaji, M. R. (2003). Contextual variations in implicit evaluation. *Journal of Experimental Psychology: General*, 132(3), 455-469. doi: 10.1037/0096-3445.132.3.455
- Mizock, L., Russinova, Z., & Shani, R. (2014). New roads paved on losses: Photovoice perspectives about recovery from mental illness. *Qualitative Health Research*, 24(11), 1481-1491. doi: 10.1177/1049732314548686
- Mizock, L., Russinova, Z., & DeCastro, S. (2015). Recovery narrative photovoice: Feasibility of a writing and photography intervention for serious mental illnesses. *Psychiatric Rehabilitation Journal*, 38(3), 279-282. doi: 10.1037/prj0000111
- Moan, I. S., & Rise, J. (2005). Quitting smoking: Applying an extended version of the theory of planned behavior to predict intention and behavior. *Journal of Applied Biobehavioral Research*, 10, 39-68.
- Moan, I. S., & Rise, J. (2006). Predicting smoking reduction among adolescents using an extended version of the theory of planned behaviour. *Psychology & Health*, 21(6), 717-738. doi: 10.1080/14768320600603448
- Murru, E. C., & Ginis, K. A. M. (2010). Imagining the possibilities: The effects of a possible selves intervention on self-regulatory efficacy and exercise behavior. *Journal of Sport and Exercise Psychology*, 32(4), 537-554.
- Na, J., Chan, M. Y., Lodi-Smith, J., & Park, D. C. (2016). Social-class differences in self-concept clarity and their implications for well-being. *Journal of Health Psychology*, online first.
- Ouellette, J. A., Hessling, R., Gibbons, F. X., Reis-Bergan, M., & Gerrard, M. (2005). Using images to increase exercise behavior: prototypes versus possible selves. *Personality & Social Psychology Bulletin*, 31(5), 610-620. doi: 10.1177/0146167204271589
- Ouwerkerk, J. W., de Gilder, D., & de Vries, N. K. (2000). When the going gets tough, the tough get going: Social identification and individual effort in intergroup competition. *Personality and Social Psychology Bulletin*, 26(12), 1550-1559. doi: 10.1177/01461672002612009
- Ouwerkerk, J. W., & Ellemers, N. (2002). The benefits of being disadvantaged: Performance-related circumstances and consequences of intergroup comparisons. *European Journal of Social Psychology*, 32(1), 73-91. doi: 10.1002/ejsp.62
- Ouwerkerk, J. W., Ellemers, N., & de Gilder, D. (1999). Group commitment and individual effort in experimental and organizational contexts. In N. Ellemers, R. Spears, & B. Doosje (Eds.), *Social identity: Context, commitment, content* (pp. 184-204). Oxford, England: Blackwell.
- Oyserman, D., & James, L. (2011). Possible identities. In S. J. Schwartz, K. Luyckx, & V. L. Vignoles (Eds.), *Handbook of Identity Theory and Research* (pp. 117-145). New York: Springer.

- Oyserman, D., Fryberg, S. A., & Yoder, N. (2007). Identity-based motivation and health. *Journal of Personality and Social Psychology*, 93(6), 1011-1027. doi: 10.1037/0022-3514.93.6.1011
- Oyserman, D., & James, L. (2009). Possible selves: From content to process. In K. Markman, W. M. P. Klein, & J. A. Suhr (Eds.), *Handbook of Imagination and Mental Stimulation* (pp. 373-394). New York: Psychology Press.
- Pisinger, C., Aadahl, M., Toft, U., & Jorgensen, T. (2011). Motives to quit smoking and reasons to relapse differ by socioeconomic status. *Preventive Medicine*, 52(1), 48-52. doi: 10.1016/j.ypmed.2010.10.007
- Reid, J. L., Hammond, D., Boudreau, C., Fong, G. T., & Siahpush, M. (2010). Socioeconomic disparities in quit intentions, quit attempts, and smoking abstinence among smokers in four western countries: Findings from the International Tobacco Control Four Country Survey. *Nicotine & Tobacco Research*, 12 Suppl, S20-33. doi: 10.1093/ntr/ntq051
- Rise, J., Sheeran, P., & Hukkelberg, S. (2010). The role of self-identity in the theory of planned behavior: A meta-analysis. *Journal of Applied Social Psychology*, 40(5), 1085-1105.
- Ritterband, L. M., Thorndike, F. P., Cox, D. J., Kovatchev, B. P., & Gonder-Frederick, L. A. (2009). A behavior change model for internet interventions. *Annals of Behavioral Medicine*, 38(1), 18-27. doi: 10.1007/s12160-009-9133-4
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. doi: 10.1037/0003-066X.55.1.68
- Ryder, A. B., Wilkinson, A. V., McHugh, M. K., Saunders, K., Kachroo, S., D'Amelio, A., Jr., . . . Etzel, C. J. (2011). The advantage of imputation of missing income data to evaluate the association between income and self-reported health status (SRH) in a Mexican American cohort study. *Journal of Immigrant and Minority Health*, 13(6), 1099-1109. doi: 10.1007/s10903-010-9415-8
- Schaap, M. M., & Kunst, A. E. (2009). Monitoring of socio-economic inequalities in smoking: learning from the experiences of recent scientific studies. *Public Health*, 123(2), 103-109. doi: 10.1016/j.puhe.2008.10.015
- Schaap, M. M., van Agt, H. M., & Kunst, A. E. (2008). Identification of socioeconomic groups at increased risk for smoking in European countries: looking beyond educational level. *Nicotine & Tobacco Research*, 10(2), 359-369. doi: 10.1080/14622200701825098
- Shadel, W. G., Mermelstein, R., & Borrelli, B. (1996). Self-concept changes over time in cognitive-behavioral treatment for smoking cessation. *Addictive Behaviors*, 21, 659-663.
- Smit, E. S., Linn, A. J., & van Weert, J. C. (2015). Taking online computer-tailoring forward: The potential of tailoring the message frame and delivery mode of online health behaviour change interventions. *European Health Psychologist*, 17(1), 25-31.
- Sorensen, G., Emmons, K., Stoddard, A. M., Linnan, L., & Avrunin, J. (2002). Do social influences contribute to occupational differences in quitting smoking and attitudes toward quitting? *American Journal of Health Promotion*, 16(3), 135-141.
- Stanczyk, N. E., Bolman, C., Muris, J. W., & de Vries, H. (2011). Study protocol of a Dutch smoking cessation e-health program. *BMC Public Health*, 11(1), 847. doi: 10.1186/1471-2458-11-847
- Stanczyk, N. E., Bolman, C., van Adrichem, M., Candel, M., Muris, J., & de Vries, H. (2014). Comparison of text and video computer-tailored interventions for smoking cessation: randomized controlled trial. *Journal of Medical Internet Research*, 16(3), e69. doi: 10.2196/jmir.3016
- Stanczyk, N. E., Crutzen, R., Bolman, C., Muris, J., & de Vries, H. (2013). Influence of delivery strategy on message-processing mechanisms and future adherence to a Dutch computer-tailored smoking cessation intervention. *Journal of Medical Internet Research*, 15(2), e28. doi: 10.2196/jmir.2153

- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Monterey, CA: Brooks/Cole Publishing Company.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *The psychology of intergroup relations* (pp. 7-24). Chicago, IL: Nelson-Hall.
- Te Poel, F., Bolman, C., Reubsæet, A., & de Vries, H. (2009). Efficacy of a single computer-tailored e-mail for smoking cessation: results after 6 months. *Health Education Research*, 24(6), 930-940. doi: 10.1093/her/cyp036
- Tibboel, H., De Houwer, J., Dirix, N., & Spruyt, A. (2017). Beyond associations: Do implicit beliefs play a role in smoking addiction?. *Journal of Psychopharmacology*, 31(1), 43-54. doi: 10.1177/0269881116665327
- Tice, D. M. (1994). Pathways to internalization: When does overt behavior change the self-concept? In T. M. Brinthaup & R. P. Lipka (Eds.), *Changing the self: Philosophies, techniques, and experiences* (pp. 229-250). Albany, NY: SUNY Press.
- Tombor, I., Shahab, L., Brown, J., Notley, C., & West, R. (2015). Does non-smoker identity following quitting predict long-term abstinence? Evidence from a population survey in England. *Addictive Behaviors*, 45, 99-103. doi: 10.1016/j.addbeh.2015.01.026
- Tombor, I., Shahab, L., Brown, J., & West, R. (2013). Positive smoker identity as a barrier to quitting smoking: findings from a national survey of smokers in England. *Drug and Alcohol Dependence*, 133(2), 740-745. doi: 10.1016/j.drugalcdep.2013.09.001
- Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford: Basil Blackwell.
- Van der Aalst, C. M., & de Koning, H. J. (2016). Biochemical verification of the self-reported smoking status of screened male smokers of the Dutch-Belgian randomized controlled lung cancer screening trial. *Lung Cancer*, 94, 96-101. doi: 10.1016/j.lungcan.2016.02.001
- Van den Putte, B., Yzer, M., Willemsen, M. C., & de Bruijn, G. (2009). The effects of smoking self-identity and quitting self-identity on attempts to quit smoking. *Health Psychology*, 28(535-544).
- Vangeli, E., & West, R. (2012). Transition towards a 'non-smoker' identity following smoking cessation: an interpretative phenomenological analysis. *British Journal of Health Psychology*, 17(1), 171-184. doi: 10.1111/j.2044-8287.2011.02031.x
- Vohs, K. D., & Heatherton, T. F. (2004). Ego threat elicits different social comparison processes among high and low self-esteem people: Implications for interpersonal perceptions. *Social Cognition*, 22(1), 168-191.
- Walthouwer, M. J., Oenema, A., Lechner, L., & de Vries, H. (2015). Comparing a video and text version of a web-based computer-tailored intervention for obesity prevention: A randomized controlled trial. *Journal of Medical Internet Research*, 17(10), e236. doi: 10.2196/jmir.4083
- Wangberg, S. C., Nilsen, O., Antypas, K., & Gram, I. T. (2011). Effect of tailoring in an internetbased intervention for smoking cessation: randomized controlled trial. *Journal of Medical Internet Research*, 13(4), e121. doi: 10.2196/jmir.1605
- West, R. (2006). *Theory of addiction*. Oxford: Blackwell, Addiction Press.
- Wetter, D. W., Cofta-Gunn, L., Irvin, J. E., Fouladi, R. T., Wright, K., Daza, P., . . . Gritz, E. R. (2005). What accounts for the association of education and smoking cessation? *Preventive Medicine*, 40(4), 452-460. doi: 10.1016/j.ypmed.2004.07.001
- Wiltshire, S., Bancroft, A., Parry, O., & Amos, A. (2003). 'I came back here and started smoking again': perceptions and experiences of quitting among disadvantaged smokers. *Health Education Research*, 18(3), 292-303. doi: 10.1093/her/cyf031

Wittenbrink, B., Judd, C. M., & Park, B. (2001). Spontaneous prejudice in context: variability in automatically activated attitudes. *Journal of Personality and Social Psychology, 81*(5), 815-827. doi: 10.1037//0022-3514.81.5.815

Young, J. E. (1994). *Cognitive therapy for personality disorders: A schema-focused approach*. Sarasota, FL: Professional Resource Press.