

## Smokers' "Bulletproof Vest": Formation Mechanisms and Interventions for Self-Exempting Beliefs

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### Abstract

Smokers' self-exempting beliefs have a significant impact on smoking cessation and smoking behavior. Previous studies have used cognitive dissonance theory to explain the formation process of smokers' self-exempting beliefs, thereby neglecting the particularity of these beliefs. The formation of smokers' self-exempting beliefs involves three processes: cognitive dissonance and rationalization, highlighting of self-specialness, and belief competition and consolidation. Based on this, interventions for smokers' self-exempting beliefs may adopt measures such as hypocrisy induction intervention, motivational interviewing, and question-based smoking warning messages. Future research needs to investigate the mechanisms by which smokers' self-exempting beliefs influence smoking cessation intentions, the factors affecting the formation process, and effective intervention measures, taking into account the characteristics of smokers in our country.

### Full Text

## Smokers' "Bulletproof Vest": The Formation Mechanism and Interventions of Self-Exempting Beliefs

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### Abstract

Smokers' self-exempting beliefs significantly influence smoking behavior and cessation outcomes. Previous research has employed cognitive dissonance theory

to explain the emergence of these beliefs, yet this approach overlooks the distinctive characteristics of self-exempting beliefs. The formation of smokers' self-exempting beliefs involves three sequential processes: cognitive dissonance and rationalization, self-specificity highlighting, and belief competition and consolidation. Based on this framework, interventions targeting self-exempting beliefs may include hypocrisy induction, motivational interviewing, and question-based smoking warnings. Future research should investigate the mechanisms through which self-exempting beliefs affect quitting intentions, identify factors influencing their formation, and develop effective interventions tailored to the characteristics of Chinese smokers.

**Keywords:** smokers, rationalization beliefs, self-exempting beliefs, smoking cessation

Reducing smoking prevalence remains a critical global public health priority. Individual health behaviors are closely linked to behavior-related beliefs, and smokers' intentions and attempts to quit are significantly influenced by self-exempting beliefs. Self-exempting beliefs represent a common form of rationalization, also known as risk-minimizing beliefs or disengagement beliefs, referring to the conviction held by individuals engaging in risky behaviors that they can personally avoid the associated risks when confronted with risk information (Borland et al., 2009; Huang et al., 2020; Yang et al., 2014). Research by Guillaumier et al. (2016) found that smokers with higher levels of self-exempting beliefs tend to have lower motivation to quit. Yang et al. (2014) demonstrated that, after controlling for demographic factors, higher levels of self-exempting beliefs predict greater odds of daily smoking. These findings underscore the importance of addressing self-exempting beliefs among smokers.

Smokers frequently harbor self-exempting beliefs related to smoking. McMaster and Lee (1991) surveyed current and former smokers, revealing that both groups perceived their personal risk of developing cancer from smoking as significantly lower than that of others. Studies focusing on older smokers—a population more vulnerable to smoking-related diseases—found that they commonly held self-exempting beliefs of being “lucky” (Smith et al., 2021). Additionally, research shows that smokers tend to employ various justifications to deny personal health risks, with 37.3% believing “I can still smoke, which means my health is fine,” 42.3% asserting “My health hasn't been harmed at all,” and 28.3% thinking “I probably have genes that protect me from smoking hazards” (Huang et al., 2019).

Currently, domestic research on smokers' self-exempting beliefs remains limited, with most scholars treating smoking-related self-exempting beliefs as merely one dimension of smoking rationalization beliefs and applying general theories of rationalization to explain their formation (Chen et al., 2022; Huang et al., 2019; Huang et al., 2020). However, self-exempting beliefs possess unique characteristics that distinguish them from other types of rationalization beliefs. This paper reviews the connotation, formation mechanisms, and intervention strategies for smokers' self-exempting beliefs, aiming to inform more effective approaches to

promoting quitting intentions and successful cessation among Chinese smokers.

## The Connotation of Smokers' Self-Exempting Beliefs

Self-exempting beliefs constitute a type of rationalization belief. Rationalization beliefs arise when individuals develop convictions to reduce cognitive dissonance caused by inconsistencies between their cognitions and behaviors (Festinger, 1957). Research on smokers has identified several types of smoking rationalization beliefs, including self-exempting beliefs, functional beliefs about smoking, risk-generalization beliefs, social acceptability beliefs, safe-smoking beliefs, and beliefs about smoking's harmfulness (Borland et al., 2009; Huang et al., 2020). Among these, self-exempting beliefs exhibit particular distinctiveness, as they emphasize the individual's perceived immunity to smoking-related harm (Chapman et al., 1993). While smokers holding other rationalization beliefs primarily challenge the notion that "smoking is harmful"—for instance, those with safe-smoking beliefs may think "smoking high-quality cigarettes is safe"—those with self-exempting beliefs focus on themselves. They may acknowledge the objective fact that "smoking is harmful to health" but actively seek evidence to deny that they personally will suffer harm, believing instead that "my body is stronger than others, so smoking won't hurt me." Through this process, smokers alleviate the cognitive dissonance arising from the conflict between their smoking behavior and knowledge of its harmful effects.

Researchers have further analyzed the dimensions of self-exempting beliefs. Oakes et al. (2004) proposed four dimensions: "bulletproof beliefs," "skeptical beliefs," "jungle beliefs," and "worth it" beliefs. Among these, "bulletproof beliefs" refer to smokers' convictions that certain personal traits or behaviors immunize them against smoking-related diseases. Subsequent research indicates that the "bulletproof beliefs" dimension best represents self-exempting beliefs (Yang et al., 2019; Huang et al., 2020). First, this dimension emphasizes smokers' perceived personal traits or behaviors, aligning with the self-focused nature of self-exempting beliefs. Second, it emphasizes immunity, consistent with the core notion of being exempt from harm. Thus, for smokers holding self-exempting beliefs, they perceive themselves as protected from smoking-induced diseases, much like wearing a "bulletproof vest."

## The Formation Process of Smokers' Self-Exempting Beliefs

The formation of smokers' self-exempting beliefs occurs when they encounter objective information or phenomena about smoking's health hazards and develop beliefs akin to "I can avoid smoking's harm." Specifically, this formation involves three stages. First, cognitive dissonance drives smokers toward rationalization. Next, among various rationalization options, smokers highlight their self-specificity to select self-exempting beliefs. Finally, through repeated validation, the self-exempting belief becomes consolidated into a habitually employed "bulletproof vest."

### **Driver: Cognitive Dissonance and Rationalization**

Cognitive dissonance serves as the prerequisite for self-exempting beliefs. Classic cognitive dissonance theory posits that when behavior conflicts with cognition, individuals experience psychological discomfort and are motivated to modify either their cognition or behavior to restore consistency (Festinger, 1957). When confronted with compelling evidence that “smoking is harmful to health,” smokers who cannot refute or even accept this information develop the cognition that “smoking is harmful.” This cognition conflicts with their ongoing smoking behavior, creating psychological discomfort. To resolve this conflict, smokers adjust their “smoking is harmful” cognition by generating smoking rationalization beliefs, thereby alleviating the discomfort. Research shows that despite awareness of smoking’s potential harms, most smokers continue the behavior, either believing they possess some capacity to immunize themselves against smoking hazards or thinking that certain health behaviors can offset smoking’s risks (Guillaumier et al., 2016; Huang et al., 2020; Yang et al., 2014).

In theory, individuals facing cognition-behavior conflicts can either adjust their cognition or change their behavior. For smokers, quitting is considerably more difficult than modifying smoking-related cognitions. Most smokers perceive benefits in smoking, including mood improvement, enhanced attention, weight control, and facilitation of social activities (Sidhu et al., 2022). Empirical studies demonstrate that smokers’ negative emotions significantly predict nicotine dependence and smoking impulsivity (Poormahdy et al., 2022), and they frequently use smoking to regulate emotions (Feng, 2019; Dir et al., 2016; Yang et al., 2017). Additionally, quitting requires overcoming numerous obstacles, such as high nicotine dependence. Research indicates that nicotine dependence produces strong withdrawal symptoms that weaken quitters’ perceived behavioral control, reducing quitting intentions and leading to cessation failure (Chen et al., 2021; Grant et al., 2020). Given the difficulties of quitting and the perceived advantages of continuing, smokers typically refuse to change their behavior and instead prioritize adjusting their smoking-related cognitions.

### **Selection: Self-Specificity Highlighting Process**

While cognitive dissonance precedes the generation of rationalization beliefs, multiple forms of smoking rationalization exist beyond self-exempting beliefs, including functional beliefs, beliefs about quitting being harmful, social acceptability beliefs, and risk-generalization beliefs (Huang et al., 2020). The cognitive dissonance perspective alone fails to explain why smokers specifically select self-exempting beliefs. The key distinction lies in smokers’ highlighting of self-specificity. Smokers holding self-exempting beliefs differentiate themselves from others, seeking reasons to argue that smoking harms others but not themselves. They typically accomplish this through two processes: perceiving differential smoking risks and maintaining self-worth.

First, perceiving differential smoking risks. The Health Belief Model posits that

individuals' adoption of healthy behaviors depends on their beliefs about health consequences and behavioral effectiveness (Rosenstock, 1966). According to this model, low perceived risk encourages continued smoking. In a study examining reasons for denying smoking risks, most smokers believed that smoking-related diseases result from multiple factors, not smoking alone (Peretti-watel et al., 2007). Consequently, smokers tend to believe that individual risk for smoking-related diseases varies. Furthermore, according to the availability heuristic, individuals who have not experienced a particular event largely believe it will not happen to them in the near future (Tversky & Kahneman, 1973). Research shows that smokers' risk perception positively predicts negative outcome expectations for future smoking (Li et al., 2023). Therefore, smokers who have not yet experienced health threats, considering individual differences in disease risk, are likely to overestimate their ability to prevent smoking-related diseases and perceive their future smoking risk as lower than others'.

Second, maintaining self-worth. Self-worth theory posits that everyone has a motive to maintain and demonstrate their own value (Covington, 1984). Individuals engaging in irrational behaviors often perceive threats to their self-image or self-worth due to these behaviors. Smokers frequently experience stigmatization, being perceived by others as “unhealthy,” “dirty,” or “lacking willpower” (Choi & Noh, 2020). The stigma-induced identity threat model suggests that perceived stigma poses a serious threat to smokers' self-worth, prompting cognitive strategies to counter this threat (Major & O'Brien, 2005; Sorgen et al., 2021). The most common strategy involves finding reasons to affirm personal advantages, such as “I'm different from other smokers; my family has good genes,” “My body has a built-in immune system against smoking hazards,” “I have a young, strong body that can avoid smoking harm,” or “I have good diet and exercise habits that can resist smoking hazards” (Huang et al., 2020). Through this process, smokers defend against identity threats from stigmatization and maintain their self-worth.

### **Consolidation: Belief Competition and Stabilization**

Self-exempting beliefs emerge when propositions linking smoking with harmlessness become consolidated through competition with other smoking-related propositions. As noted, smokers differentiate themselves from others, forming a connection between “my smoking” and “harmlessness,” generating propositions like “I can avoid smoking-related diseases, but others cannot.” How do these self-exempting propositions prevail among numerous alternatives to become stable beliefs?

The Associative-Propositional Evaluation (APE) model explains attitude selection and formation (Gawronski & Bodenhausen, 2014). The APE model suggests that people have automatic affective associations with specific objects and attributes. When activated, these associations produce evaluative responses that enter the reasoning system and generate corresponding propositions. However, the validity of propositions derived from automatic affective responses is

influenced by other relevant propositions, including general non-evaluative social propositions and propositional evaluations of other attitude objects. When propositions are inconsistent, individuals may restore consistency by denying one proposition or generating an additional proposition to resolve the inconsistency.

According to the APE model, smokers resolve inconsistency by generating the additional proposition “my smoking is harmless.” Different association activations produce different evaluative responses. When the association between smoking and the positive concept “harmless” is activated, it generates a positive evaluative response toward smoking, which translates into the proposition “I like smoking.” This positive affective proposition (“I like smoking”) is inconsistent with the propositional evaluation of another attitude object (“disease is terrible”) and general non-evaluative social propositions (“smoking causes disease”). In this situation, smokers may base their judgment on the positive affective response and engage in new reflection and reasoning (“my family has no cancer history,” “I am a lucky person,” “I use protective behaviors to clean my lungs”), thereby generating new relevant propositions (“I can avoid smoking-related diseases, but others cannot”). Because this proposition effectively reduces cognitive dissonance, it becomes reinforced and fixed as a self-exempting belief.

Based on this analysis, we present the following diagram of the formation mechanism of smokers’ self-exempting beliefs (Figure 1 [Figure 1: see original paper]). The first stage, “Driver: Cognitive Dissonance and Rationalization,” resembles the formation of other smoking rationalization beliefs, representing smokers’ cognitive adjustments to reduce dissonance. The second stage, “Selection: Self-Specificity Highlighting,” involves smokers differentiating themselves from others and selecting self-exempting beliefs specifically to address dissonance, generating the proposition “my smoking is harmless.” The third stage, “Consolidation: Belief Competition and Stabilization,” involves self-exempting propositions competing with other smoking-related propositions and gradually consolidating into stable self-exempting beliefs.

## Interventions for Smokers’ Self-Exempting Beliefs

Numerous studies have investigated interventions targeting health-related cognitions, including school-based interventions grounded in the Theory of Planned Behavior (Zhao et al., 2019), anti-smoking campaigns using denormalization strategies (Choi & Noh, 2020), and experiential group interventions based on social cognitive theory (Simmons et al., 2013). Although these interventions promote cessation by altering smokers’ cognitions, they lack specificity regarding which cognitions to target. Based on the characteristics of self-exempting belief formation, the following strategies can be employed. Specifically, according to the “Driver: Cognitive Dissonance and Rationalization” stage, hypocrisy induction and motivational interviewing can help smokers maintain awareness of smoking’s harmfulness while changing their behavior. According to the “Selection: Self-Specificity Highlighting” stage, question-based smoking warnings

can help smokers enhance their perception of personal smoking risks.

### **Hypocrisy Induction Intervention**

When experiencing cognitive dissonance, smokers tend to change their cognition about smoking's harmfulness and generate rationalization beliefs. The primary intervention goal is to encourage smokers to change their behavior rather than their risk cognitions when facing dissonance, thereby blocking self-exempting belief formation at the "Driver" stage. Hypocrisy induction interventions help individuals reduce cognitive-change tendencies and increase behavioral-adjustment tendencies when resolving dissonance (Simmons et al., 2013). This approach triggers cognitive dissonance by making individuals aware of inconsistencies between their cognitions and behaviors (Freijy & Kothe, 2013). In the hypocrisy induction paradigm, participants must publicly articulate values consistent with social morality, making them aware of inconsistencies between their current cognitions and past behaviors (Freijy & Kothe, 2013). For example, drivers might be asked to publicly declare the dangers of dangerous driving while being reminded of their own past dangerous driving behaviors, inducing cognitive dissonance (Gauld et al., 2021). This dissonance makes drivers aware of their own hypocrisy, thereby motivating behavioral change. Therefore, hypocrisy induction interventions may prevent self-exempting beliefs by strengthening smokers' beliefs about smoking's harmfulness and promoting behavior change.

Researchers have applied this paradigm to smoking interventions. Peterson et al. (2008) required smokers in the hypocrisy condition to deliver a video speech about smoking hazards based on provided information, while control participants merely read about smoking hazards. Both groups then completed a questionnaire about their own smoking behavior to remind them of their past actions and induce dissonance. Results showed that smokers in the hypocrisy condition had significantly higher quitting intentions than controls. Simmons et al. (2013) further developed an internet-based hypocrisy induction smoking intervention and examined its effects on quitting intentions. Smokers were randomly assigned to four groups: two hypocrisy induction groups (online and offline) who browsed health information and created anti-smoking promotional videos for adolescents, publicly expressing beliefs inconsistent with their behavior; and two control groups who received either standard online didactic interventions or created non-smoking-related videos. Results indicated that hypocrisy induction interventions were more effective than control interventions in increasing quit rates among daily smokers, with online interventions proving more effective than offline ones. Additional research found that anti-smoking advertisements using hypocrisy induction were more effective than fear appeals in increasing smokers' quitting intentions (Yoo & Jim, 2020).

### **Motivational Interviewing**

Beyond maintaining smokers' awareness that smoking harms their health, another intervention direction involves promoting behavioral change. A key rea-

son smokers choose to change their risk cognitions is the perceived difficulty of quitting—in other words, low quitting self-efficacy. Self-efficacy regarding health behaviors is considered a crucial factor in promoting healthy behavior (Bektas et al., 2021). Enhancing smokers' quitting self-efficacy can increase their confidence in controlling and changing their smoking behavior. Research shows that quitting self-efficacy positively predicts smokers' quitting motivation (Smith et al., 2021) and quitting intentions (Chen et al., 2021). Motivational interviewing is an effective method for enhancing self-efficacy, aiming to elicit behavior change by helping individuals explore and resolve ambivalence (Lindson-Hawley et al., 2015). When interventionists guide participants to autonomously choose their behavior change, participants internalize the motivation for change and develop a sense of capability (Lindson-Hawley et al., 2015). Therefore, enhancing quitting self-efficacy can help weaken smokers' self-exempting beliefs.

Researchers have applied motivational interviewing to smoking cessation. For instance, one study randomly assigned smokers to either an intervention group receiving four sessions of motivational interviewing or a control group receiving brief quitting advice. Assessments at pre-intervention, post-intervention, and three-month follow-up revealed that the intervention group showed increased quitting self-efficacy significantly higher than the control group (Mujika et al., 2014). Further research demonstrates that combining motivational interviewing with other interventions yields better cessation outcomes. Pardavila-Belio et al. (2019) administered motivational interviewing to college student smokers, supplemented with email-based cessation promotion and group therapy before and after the interviews. Results showed that this combined approach more effectively increased both quitting self-efficacy and quitting intentions among college smokers.

### **Question-Based Smoking Warning Messages**

During the second formation stage of self-exempting beliefs (“Selection: Self-Specificity Highlighting”), smokers seek reasons to argue that smoking harms others but not themselves. Therefore, a key intervention target is dismantling smokers' self-immunity hypotheses. Health information interventions have long been used to increase smokers' quitting intentions (Springvloet et al., 2015; Van Meurs et al., 2022; Yang, 2019). While some studies demonstrate effectiveness, others note limitations. For example, Van Meurs et al. (2022) found that health information interventions are less effective among low socioeconomic status smokers. Strong anti-smoking messages can also trigger defensive responses, leading smokers to ignore or deny smoking threats (Glock et al., 2013). Conventional health information interventions may fail to dismantle self-immunity hypotheses. As previously noted, smokers' belief in their ability to avoid smoking-related diseases leads them to underestimate personal smoking risks when confronted with harmfulness information. Enhancing smokers' perception of personal smoking risks can help prevent self-exempting belief formation.

Altering the format of smoking warnings may be an effective way to prevent

smokers from denying personal health risks. Question-based smoking warnings are more effective than statement-based warnings in helping smokers perceive personal smoking risks. Persuasion research indicates that self-generated information is typically considered more credible than externally provided information (Baldwin et al., 2013). Therefore, when harmfulness information is derived from one's own reflection rather than external sources, smokers are more likely to recognize smoking's personal harm. Glock et al. (2013) reformulated smoking warnings by converting statements into questions—for example, changing “Smoking causes fatal lung cancer” to “What does smoking do to your lungs?”—to encourage smokers to contemplate personal health consequences. Results showed that question-based warnings produced higher smoking risk cognition than graphic or text-only warnings. Further research found that question-based warnings also improved short-term smoking behavior (Muller et al., 2016).

## Future Research Directions

### Conducting Indigenous Research on Chinese Smokers' Self-Exempting Beliefs

Domestic research on smokers' rationalization beliefs is relatively mature, but empirical studies on smoking-related self-exempting beliefs remain scarce. Future research should specifically examine self-exempting beliefs among Chinese smoking populations. First, self-exempting beliefs possess unique characteristics. Although they belong to the broader category of rationalization beliefs, different types of rationalization beliefs have distinct formation mechanisms and influencing factors. For example, social acceptability beliefs are partly influenced by social norms (Huang et al., 2019), as smoking among high socioeconomic status men is largely accepted in China. Second, self-exempting beliefs exhibit cultural variations. For instance, Malaysians view tobacco as a “hot” food and commonly hold the self-exempting belief that smoking harms can be offset by consuming “cool” foods (Jackson et al., 2004). In Chinese culture, cigarettes reflect social and cultural values. Some smokers consider tobacco consumption patriotic because the industry provides substantial tax revenue to the state (Huang et al., 2019). Tobacco use is normalized by cultural customs, with cigarettes regarded as expensive consumer goods, gifts, and integral to social etiquette (Chen, Zhao, et al., 2021). Furthermore, behaviors such as encouraging others to smoke (Zhang et al., 2022) and spreading self-exempting beliefs (Yang et al., 2014) frequently occur in social interactions among Chinese smokers. Therefore, self-exempting belief formation is not merely an individual cognitive process but also a result of smoking socialization. Future research must consider culturally specific influences on self-exempting beliefs in China.

Moreover, indigenous measurement tools for self-exempting beliefs must be developed based on Chinese smokers' characteristics. Most items in scales used in previous Chinese research were derived from Oakes et al.'s (2004) study of Australian smokers, without considering the positive metaphorical associations of tobacco in Chinese culture. Therefore, locally developed measurement tools

need refinement. Additionally, most studies rely on self-report measures, which may suffer from social desirability bias and limited ecological validity. Future research should develop implicit measurement tools. Currently, some domestic researchers have begun developing smoking-related belief measures for Chinese populations (Huang et al., 2020).

### **Exploring Mechanisms Through Which Self-Exempting Beliefs Influence Quitting Intentions**

Although researchers have examined the relationship between self-exempting beliefs and quitting intentions, the complex mechanisms remain unclear. Future studies should investigate not only direct effects but also potential moderating and mediating variables. For example, self-exempting beliefs may influence smokers' outcome expectations or strengthen smoker identity, thereby affecting quitting intentions. Cultural values such as *guanxi* (关系) and other social values may moderate the impact of self-exempting beliefs on quitting intentions. Research has shown that smoker identity and *guanxi* values mediate and moderate, respectively, the relationship between smoking rationalization beliefs and quitting intentions (Chen et al., 2023; Chen, Zhao, et al., 2021; Chen et al., 2022). However, the specific mechanisms for self-exempting beliefs require further investigation. Longitudinally, research should examine the role of self-exempting beliefs across different stages of behavior change. Smoking cessation typically involves precontemplation, contemplation, preparation, action, and maintenance stages (Chen et al., 2018). Future longitudinal studies should investigate changes in self-exempting beliefs across these stages, behavioral patterns among smokers with different belief levels, and the reciprocal effects of quitting outcomes on self-exempting beliefs, to inform stage-appropriate interventions that reduce relapse risk.

Additionally, while neurophysiological evidence for belief change following cognitive dissonance has emerged (Tandetnik et al., 2021; Voigt et al., 2019), different beliefs serve distinct functions (Huang et al., 2019) and involve specialized brain regions. Future research should employ cognitive neuroscience techniques to investigate causal relationships between different types of smoking rationalization beliefs and corresponding brain regions, thereby better understanding links between self-exempting beliefs and specific quitting behaviors. For example, neuroimaging could examine brain structure differences among smokers holding different rationalization beliefs, or explore ERP component differences in self-exempting belief activation between social smoking and regular smoking contexts. Cognitive neuroscience could also examine the time course of self-exempting belief formation and consolidation, as well as single activation episodes during smoking, to refine theoretical models of self-exempting belief formation.

## Investigating Influencing Factors in the Formation Process of Self-Exempting Beliefs

This paper proposes an integrated theoretical framework for self-exempting belief formation, but its explanatory power and ecological validity require empirical testing. Self-exempting beliefs likely result from multiple factors, and researchers must investigate these influences to test and supplement the formation framework. Identifying formation factors is also crucial for intervention development. Age represents an important demographic variable whose role in self-exempting belief formation warrants investigation. Previous research has examined age-related differences in smoking beliefs (Smith et al., 2021) but has not identified specific causal mechanisms. Adolescents may be more likely than adults to hold optimistic biases about smoking risks, leading to risk behaviors (Popova & Halpern-Felsher, 2016), possibly due to developmental imbalances between cognitive control and reward systems (Zhang & Zhu, 2021). Examining individual characteristics and environmental factors will help refine the theoretical framework of self-exempting belief formation.

Furthermore, research should explore factors influencing the activation of self-exempting beliefs to enable effective intervention. While belief formation involves repeated reasoning about propositions, belief activation depends on external stimuli. Smokers' self-exempting beliefs essentially represent associations between "smoking" and "harmlessness," with different external stimuli activating different associations (Gawronski & Bodenhausen, 2014). Repeated activation of the "smoking-harmlessness" association consolidates self-exempting beliefs. Research has examined the relationship between smoking visibility and positive smoking beliefs (Lagerweij et al., 2019). Social smoking is also common among smokers (Chen, Zhao, et al., 2021), with many smoking behaviors occurring during social interactions. Studies show that self-exempting beliefs spread through social networks (Yang et al., 2014). Future research should examine the relationship between social smoking cues and self-exempting belief activation to inform interventions.

## Developing Interventions Targeting Smokers' Self-Exempting Beliefs

The effectiveness of interventions targeting self-exempting beliefs requires real-world validation. Currently, few empirical studies focus on self-exempting belief interventions. Based on the theoretical framework, hypocrisy induction, motivational interviewing, and question-based warnings may weaken self-exempting beliefs and promote cessation. Future research must verify their specific effects on self-exempting beliefs. Additionally, combined interventions should be considered to construct a comprehensive intervention system addressing the entire cessation process. Virtual reality technology has been used in clinical assessment and treatment for various psychological disorders, including depression, OCD, and phobias (Jin et al., 2022). Future interventions could integrate virtual reality to create immersive experiences that enhance smokers' awareness of personal smoking risks and target self-exempting beliefs.

For policymakers, future tobacco control policies should be adjusted based on the characteristics of self-exempting beliefs. Early interventions based on health behavior theories emphasized health education, warning information, and persuasive messaging (Chen, Shu, et al., 2021), primarily promoting cessation by highlighting smoking harms while neglecting the role of self-exempting beliefs. The distinctive feature of self-exempting beliefs is that smokers believe they can personally avoid smoking harms rather than denying the objective fact that smoking is harmful. Future anti-smoking campaigns should emphasize the personal relevance of smoking harms to prevent smokers from using self-exempting beliefs to justify continued smoking. Additionally, researchers have proposed that behaviorally informed nudging strategies can cultivate smokers' implicit beliefs in their capacity to change behavior (Zhang & Wang, 2023). Future policy could integrate nudging strategies into conventional tobacco control approaches to alter smokers' self-exempting beliefs.

In conclusion, future research must thoroughly examine issues related to self-exempting beliefs among Chinese smokers to inform tobacco control policy and intervention practice in China.

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