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Conditional Effects of Gain-Loss Framed Narratives among Current Smokers at Different Stages of Change

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Abstract

This study examines how current smokers respond differently to gain-loss framed anti-smoking narratives depending on their stages of change to quit smoking. An experiment ($N = 461$) was conducted with a 2 (narrative perspective: first-person vs. third-person) X 2 (framing: gain vs. loss) factorial design having smoker's stage of change (pre-contemplation vs. contemplation/preparation) as a moderator. We observed differential framing effects depending on smoker's current stages of change only when they were exposed to first-person narratives. For pre-contemplators, a loss-framed (vs. a gain-framed) first-person narrative induced greater quit intentions and stage progression. Conversely, among contemplators and preparers, a gain-framed (vs. a loss-framed) first-person narrative led to greater quit intentions and stage progression. These interactive patterns were partly mediated by self-referencing and perceived similarity. This study proposes an alternative mechanism to explain the conditional framing effect by stages of change and highlights the importance of tailoring messages to smoker's psychosocial characteristics and needs.

Keywords: message framing, narrative perspective, perceived similarity, stages of change, self-referencing

Conditional Effects of Gain-Loss Framed Narratives among Current Smokers at Different Stages of Change

In the United States, cigarette smoking is the largest cause of preventable disease and death, resulting in more than 480,000 deaths per year (CDC, 2016). Even though quitting smoking can significantly reduce health risks and possibly even reduce cancer-related deaths by a third, as of 2014, about 17% of US adults continue to smoke (CDC, 2016). To reduce the smoking rate, a sizable budget is allocated to anti-smoking communication campaigns every year (Davis, Farrelly, Duke, Kelly, & Willett, 2012), and a wide range of literature discusses the effectiveness of anti-smoking campaigns (e.g., Brennan, Durkin, Wakefield, & Kashima, 2016; Chung, 2016; Shen, 2015). This study aims to identify effective campaign strategies to increase smokers' intentions to quit smoking, depending on their stages of change.

The Stages of Change Model (SCM; Prochaska, Diclemente, & Norcross, 1992) describes the process by which an individual initiates and maintains health behavior change and emphasizes tailored message strategies that reflect different behavioral and psychological characteristics at different stages of change. Several scholars provide guidelines for developing such tailored messages (e.g., Maibach & Cotton, 1995; Slater, 1999), yet little research investigates the utility of distinct narrative approaches at different stages of change. Health communication researchers have documented the efficacy of narratives for promoting health behavioral intentions, compared to a non-narrative approach (e.g., Braddock & Dillard, 2016; Zebregs, van den Putte, Neijens, & de Graaf, 2015). In particular, the narrative approach has been considered most useful for targetting those who are resistant to persuasion such as current smokers (Moyer-Gusé, 2008; Dal Cin, Zanna, & Fong, 2004). To better understand the types of narratives that are relatively more persuasive for targeting each stage of change, we examine

variations of health narratives that use different perspectives (first vs. third-person) and message framing (gain vs. loss) in the context of anti-smoking narratives.

Stages of Change to Quit Smoking

The SCM (SCM; Prochaska, Diclemente, & Norcross, 1992), originally developed in the context of smoking cessation (Prochaska & DiClemente, 1983), suggests that behavioral change is a long-term process, involving progression through five key stages: pre-contemplation, contemplation, preparation, action, and maintenance stages. In the *pre-contemplation* stage, individuals have no intention to change behavior in the next six months. Pre-contemplators forced into therapy often fail to adopt the desired behavior, as they are not ready to change. In the *contemplation* stage, individuals consider initiating behavior change within six months. Contemplators recognize the need for behavior change and thus begin to weigh the pros and cons of the problem and solution. In the *preparation* stage, individuals plan to adopt behavior change within a month or have taken action but failed in the past year. In the *action* stage, individuals have engaged in behavior change for less than six months. Finally, when individuals maintain the behavior change for more than six months, they enter the *maintenance* stage. Stage progression is often not a linear process; instead, it can be dynamic and unpredictable, with the possibility of individuals regressing and relapsing a number of times in their attempts to adopt behavior change (Prochaska et al., 1992).

The SCM suggests that the course of action required depends on the stage that each individual is in, due to different psychological states and informational needs required to progress to the next stage (Dijkstra et al., 1998a, 1998b). The SCM places particular emphasis on the distinction between people with the intention to change and those who do not intend to change, as those groups respond differently to persuasive messages (Prochaska et al., 1992). In short,

current smokers intending to quit smoking (i.e., contemplators and preparers) tend to accept and recognize the relevance of anti-smoking messages more than those without the intention to quit (i.e., pre-contemplators). For example, a study showed that those who do not intend to quit generated a lower proportion of favorable thoughts after being exposed to anti-smoking information than those who intended to quit (Wong & McMurray, 2002). In another study, pre-contemplators reacted more defensively to anti-smoking fear messages, and thus formed less favorable attitudes about cessation and fewer intentions to quit, as compared to contemplators and preparers (Cho & Salmon, 2006). These results suggest the need for different message strategies to be used in targeting people who intend to change and those who do not.

Narrative Strategies to Promote Quit Intentions by Stages of Change

Although narrative approach has received notable attention from health communication researchers, its utility for improving smokers' quit intentions by their stages of change remains unexplored. Several researchers highlight the importance of carefully isolating the effects of specific narrative features in order to have a clearer understanding of the persuasive efficacy of narratives (e.g., Chen, Bell, & Taylor, 2016; Nan, Futerfas, & Ma, 2017). Framing and narrative perspective, two fundamental narrative features, have the potential to jointly influence the extent to which smokers at different stages of change are influenced by anti-smoking narratives because they are capable of influencing how readers relate themselves and perceive similarity to narrative characters.

Framing. Anti-smoking messages can either emphasize the negative consequences and costs (losses) of not quitting smoking or the positive outcomes and benefits (gains) of quitting smoking. Prospect theory (Kahneman & Tversky, 1979) posits that people are more likely to take risks when presented with a loss-framed message (and vice versa for a gain-framed message).

For prevention behaviors, like smoking cessation (Toll et al., 2014), researchers have suggested a persuasive advantage of a gain-frame over a loss-frame (e.g., Rothman & Salovey, 1997; McCall & Martin Ginis, 2004). Although gain-loss framing is a widely studied concept in health communication research, relatively little attention has been paid to framing in a narrative context. In a study (Gray & Harrington, 2011), a narrative featuring a story character who exercised regularly and successfully got in shape (gain-framed) was more persuasive than a story with a character who did not exercise regularly and failed to get in shape (loss-framed). In another study, however, the predicted framing effect was not found when the information was presented as a narrative, suggesting that the traditional effects of gain-loss framing might not always apply in a narrative setting (Steinhardt & Shapiro, 2015). In light of the SCM, the utility of gain-loss framed narratives in improving quit intentions may change in accordance with smokers' current stages of change to quit smoking.

Prior research shows that highly involved audiences (i.e., who engage in central processing) tend to react more favorably to loss-frames (vs. gain-frames), and vice versa for audiences with low involvement (i.e., who engage in peripheral processing; Donovan & Jalleh, 1999; Steward, Schneider, Pizarro, & Salovey, 2003). Several researchers have thus proposed that loss-framing should be more effective for smokers with the intention to quit (i.e., high involvement), while gain-framing should be more effective for those without the intention to quit (i.e., low involvement; e.g., Wong & McMurray, 2002; Cornacchione & Smith, 2012). Empirical evidence in support of those propositions is largely absent, however, perhaps because smokers tend to centrally process anti-smoking information regardless of their stage of change or the type of message frame to which they are exposed (Cornacchione & Smith, 2012). Because pre-contemplators tend to react defensively to anti-smoking messages (Cho & Salmon, 2006), they

are prone to biased, central processing, rather than peripheral processing. Thus, it may not be sufficient to explain potentially different effects of loss- and gain-framing among pre-contemplators and contemplators based on different modes of information processing associated with issue involvement.

This study, instead, proposes self-referencing and perceived similarity as alternative mechanisms to explain the conditional framing effect among smokers at different stages of change in a narrative context. Studies propose that self-referencing and perceived similarity act as important mechanisms that promote narrative persuasion (e.g., Dunlop, Wakefield, & Kashima, 2010; Escalas, 2007; de Graaf, 2014; Moyer-Gusé, 2008). When smokers receive an anti-smoking narrative that reflects their psychological and informational needs, they are more likely to compare information in the narrative to self-relevant information stored in their memories (i.e., self-referencing) and/or to perceive their own similarity to the narrative character (i.e., perceived similarity); they may thus be more persuaded by the story.

In order to form quit intentions among smokers in the pre-contemplation stage, knowledge and awareness about smoking risks typically needs to be raised (Maibach & Cotton, 1995; Slater, 1999). Compared to gain-frames, loss-framed narratives are generally more effective in this regard, in the sense that they provide specific examples of the negative outcomes that smokers will face if they do not quit smoking. Because pre-contemplators do not yet intend to quit smoking, they may feel that a smoker who decides not to quit in a loss-framed narrative is more relevant and similar to themselves than a smoker who decides to quit in a gain-framed narrative. With this increased sense of similarity and self-referencing, pre-contemplators may be better able to accept the information about smoking risks in a loss-framed message. Consistent

with this prediction, one study found that message believability was rated higher, though only marginally, with loss-frames (vs. gain) among pre-contemplators (Cornacchione & Smith, 2012).

On the other hand, to encourage contemplators and preparers to maintain or further enhance their intentions to quit smoking, their own perceived ability to actually quit smoking needs to be increased (Maibach & Cotton, 1995; Slater, 1999). According to social cognitive theory (Bandura, 1986), when people observe a person who is similar to them being rewarded for performing a certain action, they are likely to model the observed action with increased efficacy to achieve the same positive outcome. In a study (Lee & Shapiro, 2016), participants were more likely to model a story character's successful weight loss behaviors if they perceived that they were similar to the character. Because contemplators and preparers already plan to quit smoking, they are likely to perceive the story character in the gain-framed narrative, who successfully quit smoking, as similar and relevant to their future self and thus to feel that they too can quit smoking. We thus predict that a gain-framed narrative should be more effective for contemplators and preparers than a loss-framed narrative. This interactive pattern between narrative framing and stage-of-change is likely to be more pronounced when smokers are exposed to testimonials than exemplars.

Narrative perspective. Narrative perspective or point of view is a fundamental story feature that changes how narratives are delivered to audience members. First-person narratives (often referring to testimonials) are told from the protagonist's perspective, sharing emotions and inner thoughts experienced in the course of the narrative event. Third-person narratives (often referring to exemplars), on the other hand, are narrated by an external observer and the narrator may or may not describe the protagonist's inner thoughts and emotions (van Peer & Pander Maat, 1996). In social psychology, instructing people to read a story written from a first-person

perspective or to write a passage from the first-person perspective has been found to heighten self-identity and promote assimilation of the narrative theme into individuals' sense of self (Wang & Hamilton, 2013; Wheeler, Jarvis, & Petty, 2001). When an anti-smoking narrative that matches smokers' informational needs is told from the first-person perspective (vs. third-person), smokers may be better able to self-reference the story content and to consider the similarity between themselves and the narrative character, thereby increasing their intentions to quit smoking. We thus propose a mediated moderation as follows:

Hypothesis 1 (H1): For pre-contemplators, (a) a loss-frame (vs. a gain-frame) will produce greater quit intentions when combined with a first-person narrative, and (b) the difference between gain- and loss-framing is expected to attenuate with a third-person narrative.

Hypothesis 2 (H2): For contemplators and preparers, (a) a gain-frame (vs. a loss-frame) will produce greater quit intentions when combined with a first-person narrative, and (b) the difference between gain- and loss-framing is expected to attenuate with a third-person narrative.

Hypothesis 3 (H3): (a) Self-referencing and (b) perceived similarity will mediate the interactive effect between perspective, framing and the stages of change onto intentions to quit smoking.

Method

Participants and Procedure

We conducted an experiment with a 2 (narrative perspective: first-person vs. third-person) X 2 (framing: gain vs. loss) factorial design having smoker's stage of change (pre-contemplation vs. contemplation/preparation stages) as a moderator. A total of 461 current smokers were

recruited from a Qualtrics online panel. We included only those who have smoked at least 100 cigarettes in their lives and who currently smoke every day or on some days (CDC, 1994; Healthy People, 2010). Eligible participants first indicated their current stage placement with a single-item measure that assessed their readiness to quit smoking. After participants answered questions on regulatory focus, which served as a control variable, they were randomly assigned to one of four message conditions and reported their self-referencing, perceived similarity, and intentions to quit smoking.

Participants' ages ranged from 18 to 65 ($M = 43.4$, $SD = 12.6$) and 47.5% were male. The majority of the participants were non-Hispanic White (75.3%), followed by Hispanic (10.4%), non-Hispanic Black (8.2%), Asians (3.5%) and others (2.6%). On average, participants smoke 16 cigarettes per day ($SD = 8.71$; $Range = 1-45$), and had been smoking for 24.6 years ($SD = 13.5$; $Range = 1-55$).

Stimuli Messages

We developed four distinct messages (Appendix A): a gain-first person perspective ($n = 116$), a gain-third person perspective ($n = 115$), a loss-first person perspective ($n = 119$), and a loss-third person perspective ($n = 111$).

Gain and loss-frames. Consistent with prior research that manipulates framing in narratives (Gray & Harrington, 2011), the main character in the gain-frame condition complies with the advocated behavior and achieves desirable outcomes, whereas the main character in the loss-frame condition does not comply, leading to undesirable outcomes. In both the gain and loss-framed narratives, the main character ("Taylor") started smoking at age 17 and soon developed an addiction to smoking. In the gain-framed narrative, Taylor took his family's advice to quit smoking and thus successfully reduced his chances of getting cancer. In the loss-framed

narrative, Taylor ignored his family's advice and ended up having oral cancer that required the removal of a portion of his jaw.

First and third-person perspective. Narrative perspective was manipulated by altering the grammatical pronouns in narratives while keeping all other aspects identical. In the first-person narrative, the story was written using first-person pronouns (e.g., "I," "my") as if the main character narrated his or her own story. In the third-person narratives, the story was written using third-person pronouns (e.g., "he," "his") as if narrated by an external observer. By manipulating only the pronouns used, the contents of the two perspective conditions were kept identical.

O'Keefe (2003) states that "when message variations are defined in terms of intrinsic features, message manipulation checks are unnecessary" (p. 251-252). Because both manipulations can be considered as intrinsic message features, separate manipulation checks were not performed. Existing experimental studies that manipulated framing and narrative perspectives typically do not conduct manipulation checks (e.g., Gray & Harrington, 2011; Nan et al., 2017).

Measures

Stages of change to quit smoking. Following previous studies on SCM (e.g., Prochaska et al., 1994), a mutually exclusive stage categorization scheme was used. Pre-contemplators ($n = 203$) were defined as smokers with no intention to quit within the next 6 months, contemplators ($n = 190$) as smokers who were seriously considering quitting within the next 6 months but not within the next 30 days, and preparers ($n = 68$) as smokers who were seriously planning to quit within the next 30 days. The contemplation stage was merged with the preparation stage because both stages involve intentions to change, albeit over different time spans (6 months and 1 month, respectively). These two groups showed largely consistent patterns in hypotheses testing. Prior

research also combines the contemplation and preparation stages to examine message effects (e.g., Cho & Salmon, 2006; Wong & McMurray, 2002).

Self-referencing. On a 5-point scale (1 = *not at all*; 5 = *a great deal*; Burnkrant and Unnava, 1995), participants rated how much the story made them think about themselves and their experience and how much they thought about what it would be like if the events shown in the story happened to themselves ($\alpha = .93$, $M = 3.28$, $SD = 1.18$).

Perceived similarity. Three measures assessed perceived similarity (1 = *strongly disagree*; 5 = *strongly agree*): e.g., “What the story says about this person shows that he seems a lot like the person I actually am,” “My real self is similar to the main character” ($\alpha = .90$, $M = 3.44$, $SD = 1.05$).

Intention to quit smoking/stage progression. Intention to quit smoking was assessed with three questions (1 = *very unlikely*, 5 = *very likely*): “How likely would you be to quit smoking within the next 6 months?,” “If you were faced with the decision of whether to quit smoking today, how likely is it that you would choose to quit smoking?” and “How likely would you be to quit smoking in the future?” ($\alpha = .80$, $M = 3.22$, $SD = 1.13$).

Regulatory focus. We measured regulatory focus as a control variable because it has been found to influence framing effects (e.g., Yi & Baumgartner, 2009). For each sub-dimension, seven items were used (1 = *not at all true of me*; 5 = *very true of me*; Lockwood, Jordan, & Kunda, 2002): (1) prevention focus ($\alpha = .79$, $M = 3.31$, $SD = .86$); (2) promotion focus: ($\alpha = .88$, $M = 3.91$, $SD = .83$).

Analytic Approach

We first tested whether the random assignment was successful. A series of analysis of variance (ANOVA) and chi-squared tests revealed no condition difference in participants’

gender, age, ethnicity, or amount of smoking per day. Thus, randomization was deemed successful.

We found strong correlations between quit intention, self-referencing, and perceived similarity, $r(461) = .47, .51, .71$, all $ps < .001$. Thus, to examine H1 and H2, we ran an analysis of covariance (MANCOVA) on quit intention, self-referencing and perceived similarity, with message conditions and stages of change as predictors and regulatory focus as a covariate. Following this, focused post-hoc tests were conducted to investigate significant interactions (Hayes, 2005). To examine whether self-referencing and perceived similarity mediate the interactive effect of perspective, framing, and stages of change on quit intentions (H3), we tested for mediated moderation using Hayes's (2013) PROCESS macro for SPSS. Finally, as a post-hoc analysis, we conducted logistic regressions to confirm effects on stage progression using a binary index of quit intentions following previous studies on SCM (e.g., Prochaska et al., 1994; Cornacchione & Smith, 2012).

Results

Conditional Framing Effects by Stages of Change

Using a MANCOVA, we found a significant interaction between perspective, framing and stages of change at the multivariable level, Wilks' Lambda, $F(3, 449) = 4.09, p = .007$, partial $\eta^2 = .03$.

Quit intentions. At the univariate level, a significant 3-way interaction on intentions to quit smoking was found, $F(1, 451) = 10.71, p = .001$, partial $\eta^2 = .02$ (Figure 1). When split by the perspective condition, the framing by stage of change interaction was significant only in the first-person condition, $F(1, 229) = 11.00, p = .001$, partial $\eta^2 = .05$ (third-person condition, $F(1, 220) = 1.94, p = .17$). When the pre-contemplation group was exposed to a first-person narrative,

a loss-frame ($M_{loss} = 3.04$, $SE = .14$) produced significantly higher quit intentions than a gain-frame ($M_{gain} = 2.52$, $SE = .16$), $F(1, 97) = 6.40$, $p = .01$, partial $\eta^2 = .06$. The opposite pattern emerged in the contemplation/preparation group; a first-person loss-frame ($M = 3.65$, $SE = .09$) produced significantly lower quit intentions than a first-person gain-frame ($M = 3.92$, $SE = .09$), $F(1, 130) = 3.78$, $p = .05$, partial $\eta^2 = .03$. Thus, H1a and H2a were supported.

However, no framing difference was observed after reading a third-person narrative in both the pre-contemplation group, $F(1, 98) = .93$, $p = .34$, partial $\eta^2 = .01$, and the contemplation/preparation group, $F(1, 120) = 1.20$, $p = .28$, partial $\eta^2 = .01$. Thus, H1b and H2b were supported.

Self-referencing and perceived similarity. We also found a significant 3-way interaction on self-referencing, $F(1, 451) = 4.84$, $p = .03$, partial $\eta^2 = .01$, and a marginal interaction on perceived similarity, $F(1, 451) = 3.26$, $p = .07$, partial $\eta^2 = .01$, at the univariate level. When split by the perspective condition, the framing by stage of change interaction was significant only in the first-person condition both on self-referencing, $F(1, 229) = 10.60$, $p = .001$, partial $\eta^2 = .04$, and on perceived similarity, $F(1, 229) = 7.52$, $p = .007$, partial $\eta^2 = .03$. When the contemplation/preparation group read a first-person narrative, a gain-frame produced significantly higher self-referencing ($M_{gain} = 3.79$, $SE = .10$; $M_{loss} = 3.35$, $SE = .10$) and perceived similarity ($M_{gain} = 3.78$, $SE = .10$; $M_{loss} = 3.41$, $SE = .10$) than a loss-frame, $F(1, 130) = 9.35$, $p = .003$, partial $\eta^2 = .07$; $F(1, 130) = 6.78$, $p = .01$, partial $\eta^2 = .05$, respectively. When the pre-contemplation group was exposed to a first-person narrative, the opposite patterns were detected, but they did not reach the statistical significance: (1) self-referencing, $M_{loss} = 3.13$, $SE = .14$; $M_{gain} = 2.74$, $SE = .16$, $F(1, 97) = 3.28$, $p = .07$, partial $\eta^2 = .03$, and (2) perceived similarity, $F = 2.14$, $p = .15$, partial $\eta^2 = .02$.

Consistent with the pattern found on quit intentions, no framing difference was observed after reading a third-person narrative in both the pre-contemplation group (self-referencing: $F(1, 98) = .08, p = .79$; perceived similarity, $F(1, 98) = .04, p = .83$) and the contemplation/preparation group (self-referencing, $F(1, 120) = .04, p = .84$; perceived similarity, $F(1, 120) = .13, p = .72$).

Test of mediated moderation. We examined whether self-referencing and perceived similarity mediate the interaction between framing, perspective and stages of change on quit intentions using the PROCESS macro (Model 12). In light of a strong correlation between perceived similarity and self-referencing, we ran a multiple mediated moderation model entering both of the proposed mediators in one model. This approach allowed us examine to what extent a specific mechanism mediates, conditional on the presence of the other mediator. Controlling for regulatory focus, both self-referencing (index = $-.17$, 95% CI = $[-.40, -.02]$) and perceived similarity (index = $-.10$, 95% CI = $[-.29, -.01]$) emerged as significant partial mediators. The conditional indirect effect of framing was significant only when the contemplation/preparation group was exposed to the first-person narrative (a) via self-referencing, $B = .09$, 95% CI = $[.03, .19]$, and (b) via perceived similarity, $B = .06$, 95% CI = $[.01, .15]$. Thus, H3 was supported. Figure 2 presents the mediated moderation.

Post-hoc analysis: Stage progression. Because the SCM emphasizes stage progression as an outcome (Prochaska et al., 1992; Cornacchione & Smith, 2012), we additionally examined whether the conditional framing effects lead to stage progression using logistic regressions separately for the two segments. To this end, we created binary indexes of stage progression guided by the SCM (Prochaska et al., 1992). Pre-contemplators who indicated that they are very likely or likely to quit smoking within the next 6 months ($n = 35$, 17.3%) were coded as

progressed to the contemplation stage. For contemplators/preparers, we binary coded based on whether they formed intentions to quit smoking today ($n = 137$, 53.1%).

Focusing on pre-contemplators, there was a significant perspective-framing interaction on quitting within 6 months controlling for regulatory focus ($OR = 7.44$, $p = .02$). When pre-contemplators read a first-person narrative, the odds of a loss-frame forming an intention to quit within 6 months were 3.08 times greater than the odds for a gain-frame ($p = .08$). The perspective-framing interaction also approached significance on quitting today among contemplators and preparers ($OR = .39$, $p = .07$). When contemplators and preparers read a first-person narrative, the odds of a loss-frame forming an intention to quit today reduced by a factor of .49 compared to those of a gain-frame ($p < .05$). We found no framing effect in the third-person narrative for both segments (pre-contemplator: $OR = .42$, $p = .14$; contemplator and preparer: $OR = 1.24$, $p = .58$).

Discussion

This study examined smokers' distinct responses to anti-smoking narratives depending on their stages of change, focusing on the interplay between narrative perspective and gain-loss framing. When smokers read a first-person narrative, gain-loss framing had the opposite impact, depending on their stage placement. For pre-contemplators, a loss-framed first-person narrative led to higher quit intention and stage progression, compared to a gain-framed first-person narrative; the reverse was found among contemplators and preparers. Self-referencing and perceived similarity were important mechanisms that explained the conditional effects between perspective and framing in improving quit intentions.

When exposed to a first-person narrative, contemplators and preparers were more likely to self-reference the positive outcomes of quitting and to perceive similarity to the character who

successfully quit smoking, both of which potentially strengthen their sense of efficacy to quit smoking. Increased self-referencing and perceived similarity, in turn, helped contemplators and preparers further improve their intentions to quit smoking, consistent with a previous study (Cornacchione & Smith, 2012). Although we expected the opposite pattern among pre-contemplators, self-referencing and perceived similarity did not differ by framing conditions. No framing effect on perceived similarity and self-referencing among pre-contemplators may reflect their defensive resistance, not wanting to accept their relevance and similarity to the story character who suffers from the negative consequences of failing to quit smoking.

Regardless of the stage of change, no framing difference was observed when a third-person narrative was used. Studies have found that the use of first-person pronouns increases people's sense of identity (Wang & Hamilton, 2013; Wheeler et al., 2001); through the more heightened sense of self that first-person narratives encourage, audiences may be better able to reflect on themselves and perceive similarity to the narrative character, especially when the narrative addresses their psychological and information needs, as compared to when they read third-person narratives. Framing effects in narratives may thus be present only when audience members experience a heightened sense of self, since framing differences are guided by value function heuristics relevant to the self (Kahneman & Tversky, 1979). Also, because narrative reading involves other factors such as character judgment and involvement, audience members may be influenced by other motivations beyond the value function heuristics required to interpret gains and losses (Steinhardt & Shapiro, 2015). Future work should further investigate boundary conditions for the effects of gain-loss framed narratives.

This study contributes to the existing literature on narrative persuasion and framing research. First, it constitutes one of the few health narrative studies that examine the persuasive

effects of gain-loss framing. In non-narrative contexts, researchers have addressed the need for considering moderators of gain-loss framing effects (O’Keefe & Jensen, 2006, 2007, 2009). Our study responds to this call in narrative messages and suggests narrative perspective, a simple but inescapable textual property, as a boundary condition for the effect of gain-loss framed narratives. Secondly, this study contributes toward a better understanding of the conditional framing effects among smokers at different stages of change by suggesting specific mechanisms (i.e., self-referencing and perceived similarity) that lead to improved quit intentions and stage progression. Our finding, thus, offers an alternative explanation to the inconsistent findings reported in prior research regarding the interplay between framing and stages of change (e.g., Wong & McMurray, 2002; Cornacchione & Smith, 2012). Combining theories on narrative persuasion, framing, and stages of change, this study successfully demonstrates the importance of tailoring messages to match audiences’ psychological characteristics in order to improve the persuasive efficacy of narratives.

Understanding how smokers process and respond to anti-smoking messages has important practical implications. Anti-smoking campaigns, such as the Centers for Disease Control and Prevention’s Tips from Former Smokers campaign, have successfully employed first-person testimonials to address negative or positive consequences of smoking (Davis et al., 2017; Huang et al., 2015). Our findings further suggest that the stages of change toward quitting smoking can serve as a useful audience-segmentation tool for these campaigns. Depending on smokers’ readiness to stop smoking, anti-smoking campaigns should employ different testimonial frames in order to remain relevant and effectively persuade smokers. Pre-contemplators usually make up the majority of current smokers in any given population (Prochaska et al., 1994). To address this important segment in anti-smoking campaigns, depicting the negative consequences of smoking

through a smoker's perspective may raise self-awareness about the risks they face and enhance their intentions to quit smoking, thus pushing them to move to the contemplation stage. On the other hand, when targeting contemplators and those actively preparing to quit smoking, portraying a protagonist who has successfully quit smoking and is rewarded for it can further strengthen their positive intentions to quit smoking and increase their likelihood of stage progression.

Limitations and Future Studies

This study has a few limitations that should be mentioned. First, we focused on current smokers, with a limited number from the preparation stage. We combined contemplators and preparers to create two sub-groups of smokers that reflected their intentions to quit smoking or not, which is consistent with prior studies (Cho & Salmon, 2006; Wong & McMurray, 2002). This simple grouping of smokers according to their quit intentions makes it easier for practitioners to identify target segments of smokers, so that the appropriate message strategy can be used to encourage smoking cessation. While we found largely consistent patterns between the contemplators and preparers, however, these two segments may respond differently to certain anti-smoking messages, as they vary in the time spans they envision leading up to behavior change. More research is needed to test different message strategies targeted at smokers' stages of change beyond the ones examined in this study.

Also, we used the same criteria to assess the stage progression of contemplators and preparers, despite the difference in the immediacy of their expected behavior change. It would have been more technically precise to examine whether contemplators formed intentions to quit within the next 30 days, instead of today, to gauge their stage movement. Although we observed predicted message effects on quit intentions, it is uncertain whether these effects would lead to

actual behavior change. Future work should confirm message effects on actual smoking cessation in a longitudinal study design.

Lastly, our findings should be cautiously interpreted and applied to other contexts as we employed a single message in a particular health context. There has been some evidence that persuasive effects can be varied depending on delivery mode or message context (Braverman, 2008; Shen, Sheer, & Li, 2015; Rothman et al., 1999); future work should replicate our findings with multiple message conditions in a variety of health settings (e.g., drug use, alcohol addiction) and in different delivery modes (e.g., audio, audiovisual).

Conclusion

To address smoking as a public health concern, first-person testimonials appear to be more effective when matched with the psychological and informational needs of smokers, which vary in accordance with their respective stages of change. This study addresses boundary conditions and specific mechanisms for the conditional effects of gain-loss framed narratives in improving quit intentions among current smokers at different stages of change.

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Figure 1. Quit intentions by Experimental Conditions and Stages of Change. Numbers above bars are cell means (*SEs*). Accounted for regulatory focus. * denotes $p < .05$ for the focused contrasts between framing conditions. Pre-contemplation Group (Loss Frame, $n_{1st} = 55$, $n_{3rd} = 50$; Gain Frame, $n_{1st} = 46$, $n_{3rd} = 52$). Contemplation & Preparation Group (Loss Frame, $n_{1st} = 64$, $n_{3rd} = 61$; Gain Frame, $n_{1st} = 70$, $n_{3rd} = 63$).

Figure 2. Test of Mediated Moderation ($n = 461$). Unstandardized coefficients [95% confidence intervals]. (a) The effect of a gain-frame (vs. loss) on self-referencing ($B = -.83$, $CI = [-1.56, -.09]$) and perceived similarity ($B = -.63$, $CI = [-1.32, .06]$) depends on the perspective by stage of change interaction. Conditional indirect effect of framing among contemplators and preparers in the first-person condition (a-1) via self-referencing and (a-2) via perceived similarity. (b) The residual direct effect of framing depends less on the moderation of perspective*stage of change ($B = -.88$, $CI = [-1.54, -.23]$, $p = .01$). The effects of (c-1) self-referencing and (c-2) perceived similarity on quit intention.

Appendix A. Message Conditions

1. [First-person/ Third-person] Loss-Framed Narratives (284/292 words)

When **[I/ Taylor]** was young, smoking was considered as one of the "cool" stuffs. **[I wanted to fit in with my friends, so I took my first puff at age 17 / Wanting to fit in with his friends so badly, he took his first puff at age 17]**. What began as a casual habit very soon turned into an addiction. Smoking helped **[relieve my/ Taylor relieve]** stress from work. And this went on for ten years. The thing is, **[I/ Taylor]** never actually thought seriously about the consequences of smoking. **[I/He]** thought that **[since I was young, I would be/ being young would make him]** immune to all sorts of diseases associated with smoking. Sure, **[I/he]** had discolored teeth, and bad breath caused by smoking, but they weren't anything too serious to **[me/him]**. **[I/Taylor]** never thought that more serious stuff like blackened lungs and clotted brains plastered on the cigarette packaging would happen to **[me/him]**. **[My/His]** family was concerned and tried persuading **[me/him]** to quit smoking. As usual, **[I/he]** ignored all of them. In 2010, at age 27, **[my/ Taylor's]** life changed forever. After spotting an ulcer-like growth inside **[my/his]** mouth, **[I/he]** went to see a doctor. It was oral cancer.... The cancer had already spread to **[my/his]** jawbone and the doctors had to remove a portion of **[my/Taylor's]** jaw. **[I'm/Taylor is]** missing a quarter of **[my/his]** face now and have to live with people's stares all the time. **[My/His]** failure to quit smoking back then had made **[me/him]** prone to so many diseases. **[Taylor frequently thinks to himself nowadays,]** "If there's one thing I could tell my younger self, it would be not to take that first puff ever. Smoking is not cool at all. Not when it almost cost me my whole life."

2. [First-person/ Third-person] Gain-Framed Narratives (288/295 words)

When [I/Taylor] was young, smoking was considered as one of the "cool" stuffs.

[I/Taylor] wanted to fit in with [my/his] friends, so [I/he] took [my/his] first puff at age 17.

What began as a casual habit very soon turned into an addiction. Smoking helped [relieve my/Taylor relieve] stress from work. And this went on for ten years. The thing is, [I/Taylor] never

actually thought seriously about the consequences of smoking. [I/he] thought that since [I/he]

was young, [I/he] would be immune to all sorts of diseases associated with smoking. But

[my/his] family thought otherwise and tried persuading [me/him] to quit smoking to avoid

getting these diseases. Not wanting to disappoint [them/his family], [I/Taylor] tried to quit by

reducing [my/his] smoking frequencies. As [I/he] smoked lesser and lesser, [I/Taylor] began to

feel less reliant on using smoking as a stress relief outlet... After a while, [I/he] completely

stopped smoking. Surprisingly, the bad breath [I/Taylor] used to have when [I/he] was smoking

disappeared. It has been five years since [I/Taylor] quit smoking. A recent trip to the doctor's

has reaffirmed that [my/Taylor's] decision to quit smoking was correct. The doctor told

[me/him] that within 5 years of quitting, [I have/he has] cut [my/his] chance of getting cancer of

the mouth, throat, esophagus, and bladder in half. [I am/ Taylor is] glad that [I do/he does] not

have to associate [myself/himself] with the blackened lungs and clotted brains as so often

displayed on cigarette packaging too. [Taylor thinks to himself frequently nowadays,] "I really

cannot imagine what life will be like to live with these diseases, or even worse, death at a time

when it is supposed to be the peak of my youth."