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Outcome presence and regulatory fit: Competing explanations for the advantage of gains and losses over non-gains and non-losses

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Abstract

This research studies goal framing, which focuses on the communication of either the potential benefits associated with performing an action or the potential negative consequences of not doing so. Several studies report that messages presenting gains and losses are more persuasive than those presenting non-gains and non-losses. The literature has mostly explained this advantage with regulatory fit. This article notes that two theories can explain the advantage, namely, regulatory fit and feature positivity (outcome presence). However, the former explanation has received significantly more attention in the framing literature than the latter. We also explain that it is difficult to distinguish the two effects empirically because regulatory fit within the message and outcome presence coincide. Consequently, demonstrating an advantage of gains and losses over non-gains and non-losses, which many studies have, is not sufficient to support any of the effects. Previous studies have neither discussed the competing explanations nor tried to distinguish them. This article explains that the two theories make different predictions with regard to a moderator and the critical mediators. We use the different predictions to obtain more insights into the relevance of the competing explanations. This article conducts two experiments and studies the moderating effect of premessage regulatory focus and the mediating effects of processing fluency and outcome imagination. We conclude that the framing literature should devote more attention to outcome presence.

1 | INTRODUCTION

This research studies goal framing, which focuses on the communication of either the potential benefits associated with performing an action or the potential negative consequences of not doing so (Levin et al., 1998). The literature on message framing often distinguishes the outcome type and outcome valence of a message (e.g., Cesario et al., 2008; Higgins, 2002). Outcome type describes whether the key term used to describe the outcome of an action relates to a gain (e.g., wealth) or relates to a loss (e.g., poverty). Outcome valence describes whether the

outcome has positive or negative valence. Accordingly, messages can present gains (e.g., being wealthy), non-gains (e.g., not being wealthy), losses (e.g., being poor), and non-losses (e.g., not being poor) (Brendl et al., 1995; Higgins, 2002), as given in Table 1.

Several studies show that gains and losses are more persuasive than non-gains and non-losses, and authors have mostly explained the advantage with the argument that gains and losses are messages with high regulatory fit within the message, whereas non-gains and non-losses are not (e.g., Daryanto et al., 2010; Idson et al., 2000; Lee & Aaker, 2004; Li & Lee, 2021). However, this article explains that

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studies that demonstrate the above advantage of gains and losses over non-gains and non-losses do not prove that regulatory fit causes the effect because there is an alternative explanation that the literature has hardly considered, namely, the feature-positive effect (Dijkstra et al., 2011). Therefore, strictly speaking, it is unknown whether gains and losses prove more persuasive than non-gains and non-losses because of regulatory fit within the message, because of feature positivity or because both mechanisms are at play. Interestingly, previous studies have neither discussed the competing explanations nor tried to distinguish them. However, if the literature ascribes effects to a theory that may or may not have caused the effect, our shared estimation of the relevance of that theory may not be accurate. To date, regulatory fit within the message has received significantly more attention in the framing literature than feature positivity, which may be unjustified. Research is needed that considers both explanations.

TABLE 1 Gains, non-gains, non-losses, and losses and their characteristics

Outcome valence	Outcome type	
	Gain-related	Loss-related
Positive	Gain (outcome is present) <ul style="list-style-type: none"> • “If you eat plenty of fruits and vegetables, it will ... contribute to your feeling of accomplishment” (Yi & Baumgartner, 2009). • If you incorporate some physical activity ..., you will be a size slimmer (experiment 2). 	Non-loss (outcome is absent) <ul style="list-style-type: none"> • “If you eat plenty of fruits and vegetables, ... you will not experience a feeling of incompetence” (Yi & Baumgartner, 2009). • If you incorporate some physical activity ..., you will not be a size larger (experiment 2).
Negative	Non-gain (outcome is absent) <ul style="list-style-type: none"> • “If you do not eat enough fruits and vegetables, you ... miss out on feeling accomplished” (Yi & Baumgartner, 2009) • If you do not incorporate some physical activity ..., you will not be a size slimmer (experiment 2). 	Loss (outcome is present) <ul style="list-style-type: none"> • “If you do not eat enough fruits and vegetables, ... you may experience a feeling of incompetence” (Yi & Baumgartner, 2009) • If you do not incorporate some physical activity ..., you will be a size larger (experiment 2).

This article aims to contribute to a better understanding of framing effects and the question of what drives the advantage of gains and losses over non-gains and non-losses. Because a variable that represents regulatory fit within the message equals the variable outcome presence (see Table 2), it is difficult to differentiate the competing effects empirically. However, the two theories make different predictions with regard to the moderating effect of individuals' premessage regulatory orientation and with regard to the critical mediators they put forth. We use the different predictions to obtain more insights into the relevance of the two explanations. This article studies the moderating effect of premessage regulatory orientation (experiments 1 and 2) and the mediating effects of processing fluency and outcome imagination (experiment 2). We discuss the evidence the findings provide for the competing explanations.

2 | ALTERNATIVE EXPLANATIONS FOR THE ADVANTAGE OF GAINS AND LOSSES OVER NON-GAINS AND NON-LOSSES

Table 1 illustrates three message characteristics that this article discusses: Outcome type, outcome valence, and outcome presence.

Gains are characterized by a gain-related outcome type and positive outcome valence. Losses are characterized by a loss-related outcome type and negative outcome valence. Non-gains are characterized by a gain-related outcome type and negative outcome valence. Non-losses are characterized by a loss-related outcome type and positive outcome valence. In addition, gains and losses depict feature-positive, that is, present, outcomes (e.g., being healthy, having a disease), whereas non-gains and non-losses depict absent outcomes (e.g., not being healthy, not having a disease).

In most studies, gains and losses proved more persuasive than non-gains and non-losses (e.g., Cesario et al., 2013; Daryanto et al., 2010; Dijkstra et al., 2011; Lee & Aaker, 2004; Li & Lee, 2021; Spiegel et al., 2004; Yi & Baumgartner, 2009). Below we present two theories that predict this advantage.

2.1 | Regulatory fit within the message: The fit between message type and valence

Regulatory focus theory (RFT) provides the following arguments for the advantage of gains and losses over non-gains and non-losses. RFT

TABLE 2 Illustration of the concurrence of regulatory fit within the message (outcome type \times outcome valence) and outcome presence

	Outcome type (gain-related = 1)	Outcome valence (positive = 1)	Regulatory fit (message with fit = 1)	Outcome presence (message with presence = 1)
Gain	1	1	1	1
Non-gain	1	0	0	0
Non-loss	0	1	0	0
Loss	0	0	1	1

(Higgins, 1997) describes how individuals' promotion versus prevention orientation determines information processing. A promotion focus involves approach as a strategic means and thus yields sensitivity to gain-related outcomes (gains and non-gains). A prevention focus involves avoidance as a strategic means and thus yields sensitivity to loss-related outcomes (losses and non-losses) (Higgins, 1997, p. 1282; Crowe & Higgins, 1997). If a message corresponds to the individual's regulatory focus, the individual will experience regulatory fit, which makes the message "feel right" and easier to process (Cesario et al., 2004, 2008). Furthermore, the outcome type that a message presents primes the message receivers' regulatory focus (Daryanto et al., 2010; Förster et al., 1998; Higgins et al., 2020). For example, a message that presents the outcome wealth is expected to evoke a promotion orientation, whereas a message that presents the outcome poverty is expected to evoke a prevention orientation (Higgins, 1997; Lee & Aaker, 2004). Because a promotion orientation is sensitive to approach as a strategic means, it should correspond more with the eagerness to approach a gain than with the vigilance to avoid a non-gain. Hence, a gain represents a message with regulatory fit, whereas a non-gain lacks fit (Lee & Aaker, 2004, p. 206). Likewise, since a prevention orientation is sensitive to avoidance as a strategic means, it should correspond more to vigilance to avoid a loss than to eagerness to approach a non-loss. Hence, a loss represents a message with regulatory fit, whereas a non-loss lacks fit (Lee & Aaker, 2004, p. 206). Taken together, according to regulatory fit theory (Avnet et al., 2006; Higgins, 2002), among gain-related messages (gain and non-gain), a gain is easier to process than a non-gain. Among loss-related messages (loss and non-loss), a loss is easier to process than a non-loss (Cesario et al., 2004, 2008). Because processing fluency increases persuasion (Lee & Labroo, 2004; Schwarz, 2004), the above explanations predict that gains and losses are more persuasive than non-gains and non-losses. Several authors have related to the above theory to explain the advantage of gains and losses over non-gains and non-losses (e.g., Daryanto et al., 2010; Idson et al., 2000; Lee & Aaker, 2004; Li & Lee, 2021).

2.2 | The feature-positive effect: Outcome presence

The feature-positive effect has its origins in discrimination learning (Newman et al., 1980). It provides the following explanation for the advantage of gains and losses over non-gains and non-losses. Research demonstrates that when processing information, humans (and other animals) focus on the presence of features and events, whereas they pay less attention to their absence and have difficulties using non-occurrence as a cue (Jenkins & Sainsbury, 1970; Newman et al., 1980). Present features and events are relatively specific information, whereas the information that absent features and events contain is less specific and more ambiguous (Cioffi, 1994; Stephan et al., 2017). For example, a red car is more specific information than a non-red car. Thus, mental representation is easier when an outcome is

present than when it is absent, and feature presence, compared to absence, is more likely to activate an individual's memories and imaginations (Brendl et al., 1995; Dijkstra et al., 2011). For example, having fun, being sick, or meeting a friend are more likely to evoke mental images than their absent counterparts, such as not meeting a friend. Consequently, individuals are more likely to imagine present outcomes that a message emphasizes than absent outcomes, and gains and losses depict present outcomes, whereas non-gains and non-losses depict absent outcomes. Outcome imagination increases message effectiveness in several ways (Berry & Carson, 2010). Outcome imagination decreases consumers' tendency to generate critical thoughts (Anand & Sternthal, 1987; Escalas, 2004; Green & Brock, 2000), positively affects attitudes (Babin & Burns, 1997; Broemer, 2004; Praxmarer, 2011; Welbourne et al., 2008) and increases the perceived likelihood of experiencing the outcome, which may increase self-efficacy and motivation (Gregory et al., 1982). Thus, the feature-positive effect predicts that gains and losses should be more persuasive than non-gains and non-losses. Dijkstra et al. (2011) appeal to the feature-positive effect to explain the advantage of gains and losses over non-gains and non-losses.

2.3 | Which of the explanations drives the advantage?

Regulatory fit (see 2.1) and feature positivity (see 2.2) make the same predictions. Distinguishing the effects is challenging because regulatory fit and feature positivity coincide. Gains and losses are messages with high regulatory fit within the message and, at the same time, depict present outcomes. Non-gains and non-losses are messages with low regulatory fit within the message and, at the same time, depict absent outcomes. Thus, a variable that represents outcome presence (1 = present: gain/loss; 0 = absent: non-gain/non-loss) also represents regulatory fit within the message (1 = fit: gain/loss; 0 = non-fit: non-gain/non-loss). In addition, the interaction between outcome type and outcome valence represents a main effect of regulatory fit (Koenig et al., 2009). See Table 2 for an illustration. Hence, studies that demonstrate the advantage of gains and losses over non-gains and non-losses may support either of the two explanations. Thus far, it is unclear whether regulatory fit, feature positivity or both drive this advantage.

3 | THE DIFFERENT PREDICTIONS THE TWO THEORIES MAKE

Because differentiating the two effects is challenging, we use an approximation to obtain more insights into the relevance of the two effects. The two theories make different predictions with regard to the moderating effect of individuals' premessage regulatory orientation and with regard to the critical mediators they put forth. Considering the moderator and the specific mediators may help distinguish the two competing effects empirically.

3.1 | Individuals' premessage regulatory focus

3.1.1 | Regulatory fit

In Section 2.1, we explained that the outcome type of a message may prime an individual's regulatory focus (Higgins, 1997) and that the thereby evoked promotion (or prevention) focus determines individuals' sensitivity to positive (or negative) outcome valence, which constitutes regulatory fit within the message. Now, we discuss how the regulatory orientation that consumers may carry with them prior to message contact may interact with regulatory fit within the message. Prior to message exposure, promotion or prevention concerns may be more salient in the consumer's mind, either chronically or situationally (Higgins, 1997). First, many individuals have acquired a promotion or prevention orientation through childhood socialization that is chronically more salient (e.g., Cesario et al., 2004; Crowe & Higgins, 1997). Second, exposure to promotion or prevention concerns that precedes the message, such as a newspaper article, a conversation or, as used in experimental studies, regulatory focus manipulation (e.g., Freitas & Higgins, 2002; Labroo & Lee, 2006), can make a promotion or prevention orientation situationally more salient (Crowe & Higgins, 1997). We term the regulatory orientation that characterizes the receivers before they come in contact with the message premessage regulatory focus. Individuals' premessage regulatory focus should interact with the effect of regulatory fit within the message. Premessage promotion focus should make individuals more sensitive to gain-related messages than to loss-related messages (Cesario et al., 2004; Craciun et al., 2017; Higgins, 1997). In addition, gain-related messages should confirm and encourage individuals' promotion focus. Because a promotion focus is sensitive to approach as a strategic means, it should be more in line with the eagerness to approach a gain than with the vigilance to avoid a non-gain. Thus, among individuals with a premessage promotion focus, a gain should be more persuasive than a loss, a non-gain, or a non-loss (Shah et al., 1998; Pounders et al., 2015). A premessage prevention focus should make individuals more sensitive to loss-related messages than to gain-related messages (Cesario et al., 2004; Higgins, 1997). In addition, loss-related messages should confirm and encourage individuals' prevention focus. Because a prevention focus is sensitive to avoidance as a strategic means, it should be more in line with the vigilance to avoid a loss than with the eagerness to approach a non-loss. Thus, among individuals with a

premessage prevention focus, a loss should be more persuasive than a gain, a non-gain, or a non-loss (Pounders et al., 2015; Zhao & Pechmann, 2007). Taken together, the RFT predicts that, depending on the individual's premessage regulatory focus, either gains or losses are most effective (Shah et al., 1998). For example, if a campaign aimed at persuading individuals to incorporate physical activities into their daily lives in favor of their body size (see the examples in Table 1): Among individuals with a premessage promotion orientation, the message emphasizing being slimmer with physical activity should be most persuasive, whereas among individuals with a premessage prevention orientation, the message emphasizing being more corpulent without physical activity should be most persuasive. If empirical studies find that the advantage of gains and losses over non-gains and non-losses depends on individuals' premessage regulatory focus, they should provide evidence for the effect of regulatory fit within the message. If regulatory fit and the feature-positive effect jointly increase message effectiveness, this same pattern should show.

3.1.2 | The feature-positive effect

The feature-positive effect holds that individuals are more likely to imagine present outcomes than absent outcomes and that outcome imagination increases message effectiveness (Brendl et al., 1995; Dijkstra et al., 2011). The feature-positive effect does not predict an interaction with individuals' premessage regulatory focus. Gains and losses should be most effective, independent of premessage regulatory focus. Thus, a feature-positive effect (with no additional regulatory fit effect) should lead to the following pattern: Within an individual's premessage regulatory focus, a main effect of outcome presence should show. If empirical studies that consider individuals' premessage regulatory focus find only a main effect of feature positivity and no interaction, the findings may provide evidence that the feature-positive effect is at work.

Figure 1 illustrates the different predictions. We do not propose hypotheses on the presence or absence of an interaction effect. This article presents two experiments in an exploratory manner and discusses the insights they provide on the two effects. First, we will test whether gains and losses are more persuasive than non-gains and non-losses, which both theories predict (see the main effects in Figure 1). Then, we will test whether there is an interaction with individuals' premessage regulatory focus or

The role of individuals' premessage regulatory focus according to the two theories

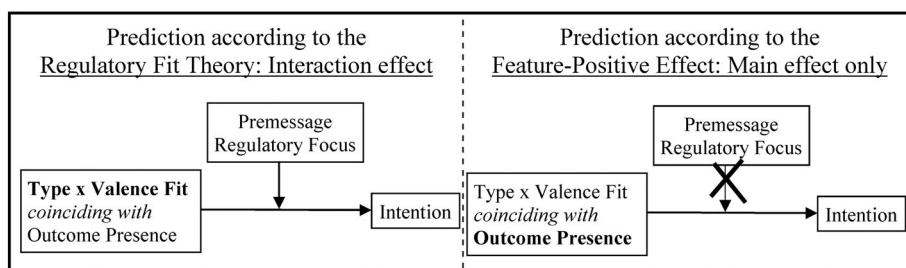


FIGURE 1 The role of individuals' premessage regulatory focus according to the two theories

whether gains and losses are equally effective regardless of premessage regulatory focus. Experiment 1 considers individuals' chronic regulatory focus. Experiment 2 manipulates individuals' premessage regulatory focus.

3.2 | The mediators processing fluency and outcome imagination

The two theories describe their own processes that may explain the advantage of gains and losses over non-gains and non-losses, and both theories put forth a mediator that is supposed to drive the effect. See Figure 2 for an illustration.

3.2.1 | Regulatory fit

Regulatory fit theory suggests that processing fluency drives the advantage of gains and losses over non-gains and non-losses. The theory proposes that outcome type primes the individual's regulatory focus and that matching a message to the individual's focus makes the message easier to process (Labroo & Lee, 2006; Lee & Aaker, 2004; Lee et al., 2010; Mayer & Tormala, 2010). Moreover, processing fluency is a positive experience, drives message acceptance, and thereby increases persuasion (Lee & Labroo, 2004; Schwarz, 2004). Hence, according to regulatory fit theory, processing fluency is the main driver of the persuasive advantage of gains and losses over non-gains and non-losses (Cesario et al., 2008; Lee & Aaker, 2004; Lee & Higgins, 2009) and mediates the effect of regulatory fit within the message on compliance intention. Lee and Aaker (2004) demonstrated the proposed mediation.

3.2.2 | The feature-positive effect

According to the feature-positive effect, outcome imagination drives the proposed advantage of gains and losses over non-gains and non-losses. The theory suggests that individuals are more likely to imagine present outcomes than absent outcomes and that outcome imagination increases message effectiveness (Brendl et al., 1995; Dijkstra et al., 2011). Thus, according to the feature-positive effect, outcome imagination mediates the effect of outcome presence on intention. Previous studies have not considered outcome imagination as a mediator.

We do not propose hypotheses on the mediators. Experiment 2 tests both mediators and discusses the findings.

4 | EXPERIMENT 1

This experiment studies the moderating effect of individuals' premessage regulatory focus, as explained in Section 3.1 and illustrated in Figure 1. The design is a 2 (outcome type: gain-related versus loss-related) \times 2 (outcome valence: positive versus negative) between-subjects design. This design also embodies outcome presence because the combinations of gain-related outcome type and positive valence (gain) and of loss-related outcome type and negative valence (loss) represent not only regulatory fit but also outcome presence (see Table 2). We examine whether the outcome type \times outcome valence interaction, which may represent the effect of regulatory fit or outcome presence, depends on individuals' premessage regulatory focus. In experiment 1, we consider individuals' chronic regulatory orientation as premessage regulatory focus.

4.1 | Method

4.1.1 | Participants and procedure

A total of 240 students participated in the paper-and-pencil study at a German university. We collected the data at the beginning of five different lectures. First, attending students were asked for participation and informed that the experiment pretested texts for a potential campaign. They received information about the time required to fill in the questionnaire (approximately 5 min) and data privacy and that they were not allowed to talk during the experiment. The students did not receive compensation. Before distributing the questionnaire, students were told that they could wait outside the lecture halls if they did not want to participate (fewer than five students left). Furthermore, we asked students to take their seats somewhat apart from each other. We distributed the different versions of the questionnaire in a strict order in each lecture, which is comparable to random assignment. Because our messages focused on the objective of being slimmer/less corpulent, they did not apply to participants who felt that they were too skinny. We decided ex ante to exclude such participants, and the questionnaire used the following measure to identify them: "How do you perceive your current weight/figure?" (-4 = I find myself too skinny; $+4$ = I find myself too corpulent). Before data analysis, we excluded 29 participants who selected a response below the midpoint (-1 or less). This resulted in 211 respondents for the analyses. A total of 61% of the participants were female, and their mean age was 23.9 years.

The mediators that the two theories propose

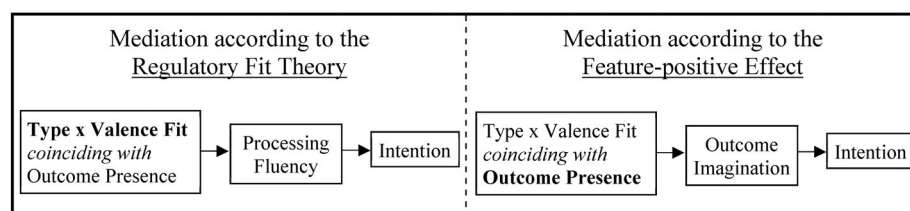


FIGURE 2 The mediators that the two theories propose

4.1.2 | Stimuli

The messages emphasized the advantage of integrating physical activity into daily life. See Appendix 1 for the messages. The outcomes that the messages presented were being slimmer with physical activities (gain), being more corpulent without ... (loss), missing out on being slimmer ... (non-gain), preventing from being more corpulent with ... (non-loss). Originally, we created two versions of each message (e.g., the two versions of the gain were “one size slimmer” and “7% slimmer”). However, our analyses demonstrated that the mean values and the effects did not differ at all between the “one size” and the “%” message versions (see Appendix 2 for an illustration). Thus, we grouped the messages together into gains, non-gains, losses, and non-losses and present the findings together. The messages that experiment 1 used were originally written in German. We translated them to English, and a research assistant translated them back to German. Congruency was attained in each case.

4.1.3 | Measures

Appendix 3 lists the items of the measures that we report below and the mean values. To identify respondents who perceived themselves to be too skinny, we asked the participants about their body perception (see Participants). Before the respondents were presented a message, we measured their chronic regulatory focus with six items adapted from Lockwood et al. (2002). Three of the items focused on a promotion orientation (e.g., “realizing my personal goals and dreams is very important to me”). The other three items focused on a prevention orientation (e.g., “protecting what I have is more important to me than striving for more”). As proposed by Lockwood et al. (2002, p. 861), we averaged the items belonging to each of the subscales (α of the prevention-items = .71, α of the promotion-items = .67) and created a measure of dominant regulatory focus by subtracting the prevention score from the promotion score. We also measured how relevant “looking good” and “health” were to the respondents. After message exposure, we used two items adapted from Dijkstra et al. (2011) to measure compliance intention ($r = 0.72$; $p < .001$).

The items were translated to German by one author and a research assistant. The translations were discussed with regard to their intended meaning and the natural use of language. Then, another research assistant translated the items back into English. The intended meaning was maintained in each case.

TABLE 3 Mean values (SD) of compliance intention across the messages (experiment 1)

Compliance intention			
Gain/loss:	4.58 (1.54)	Gain	4.83 (1.40)
• High regulatory fit		Loss	4.33 (1.64)
• Present outcome			
Non-gain/non-loss:	4.08 (1.48)	Non-gain	4.22 (1.52)
• Low regulatory fit		Non-loss	3.94 (1.45)
• Absent outcome			

4.2 | Analyses and results

We used SPSS for our analyses. Table 3 shows the mean values of compliance intention across the messages. As expected, compliance intention was higher when the messages presented gains and losses than when they presented non-gains and non-losses ($M_{\text{gain/loss}} = 4.58$ vs. $M_{\text{non-gain/non-loss}} = 4.08$; $t[209] = 2.40$, $p = .009$).

Like Lockwood et al. (2002) we split the aggregated dominant regulatory focus score into two groups (median = 0.34), resulting in the following two groups: promotion-orientation dominant versus prevention-orientation dominant ($M_{\text{promotion dominant}} = 1.91$ vs. $M_{\text{prevention dominant}} = -1.02$; $t[209] = 18.29$, $p < .001$). We conducted two ANOVAs (see Table 4): ANOVA 1 with outcome type, outcome valence, and individuals' premessage regulatory focus (prevention or promotion) as independent variables; and ANOVA 2 with outcome type, outcome presence (gain and loss vs. non-gain and non-loss), and individuals' premessage regulatory focus as independent variables. Compliance intention was the dependent variable in both analyses. All effects were highly robust and did not change noticeably whether we controlled for issue involvement or not. Since the two involvement items capture different facets, their correlation was only .49 ($p < .001$). Independent of how we included them in the two models

TABLE 4 The effects of outcome type \times outcome valence, outcome presence, and the moderating effect of premessage regulatory focus (experiment 1)

ANOVA 1	Compliance intention	
	F	p
Constant	11.416	.000
Outcome type	2.639	.106
Outcome valence	0.125	.724
Premessage regulatory focus (RF)	0.543	.462
Outcome type \times outcome valence	4.248	.041 ^a
Outcome type \times RF	0.843	.360
RF \times outcome valence	0.332	.565
Outcome type \times RF \times outcome valence	0.138	.711
Covariate: Issue involvement	4.287	.040 ^a
ANOVA 2	Compliance intention	
	F	p
Constant	1696	.000
Outcome type	2.639	.106
Outcome presence	4.248	.041 ^a
Premessage regulatory focus (RF)	0.543	.462
Outcome type \times RF	0.843	.360
Outcome type \times outcome presence	0.125	.724
RF \times outcome presence	0.138	.711
Outcome type \times RF \times outcome presence	0.332	.565
Covariate: issue involvement	4.287	.040 ^a

^a $p < .05$.

(separately, aggregated, or not at all), the effects of the independent variables did not change significantly. Below, we report the results of ANOVAs 1 and 2 with the aggregated involvement variable as a covariate.

In line with previous studies (e.g., Daryanto et al., 2010), the findings of ANOVA 1 demonstrate a significant interaction effect of outcome type and outcome valence ($F[1, 202] = 4.25, p = .041$). Messages with gain-related outcome type and positive valence (gains) or with loss-related outcome type and negative valence (losses) are more effective than messages with gain-related outcome type and negative valence (non-gains) or with loss-related outcome type and positive valence (non-losses). Above, we argued that the effect of regulatory fit within the message, that is, the interaction effect between outcome type and outcome valence, coincides with the presence effect. A comparison of ANOVA 1 and 2 demonstrates the coincidence: the main effect of outcome presence in ANOVA 2 ($F[1, 202] = 4.25, p = .041$) statistically equals the interaction effect of outcome type and outcome valence in ANOVA 1. The analyses illustrate that one cannot distinguish the two effects empirically. Hence, the interaction effect between outcome type and outcome valence (ANOVA 1) as well as the main effect of outcome presence (ANOVA 2) may demonstrate an effect of regulatory fit within the message, a feature-positive effect, or both. However, the two theories make different predictions about the moderating role of premessage regulatory focus that we report below.

4.2.1 | The moderating effect of premessage regulatory focus

There was no three-way interaction effect of outcome type \times outcome valence \times premessage regulatory focus in ANOVA 1 ($F[1, 202] = .138, p = .711$). In line with this, ANOVA 2 did not show a significant two-way-interaction effect of outcome presence and individuals' premessage regulatory focus ($F[1, 202] = .138, p = .711$). The analyses showed only a main effect of presence (ANOVA 2) and the corresponding two-way interaction of outcome type and outcome valence (ANOVA 1). Appendix 4 reports the mean values of compliance intention across the messages, dependent on premessage regulatory focus.

According to our first experiment, gains and losses are more effective than non-gains and non-losses, and the advantage of gains and losses does not depend on premessage regulatory focus.

4.3 | Discussion of experiment 1

In Section 3.1, we explained that when the regulatory fit effect is operating, the advantage of gains and losses should depend on individuals' premessage regulatory focus. In this case, a three-way interaction of premessage regulatory focus \times outcome type \times outcome valence should show. We also explained that when empirical studies find only a main effect of feature positivity and no interaction with

premessage regulatory focus, the findings may provide evidence for the feature-positive effect. The findings of experiment 1 may provide evidence for the feature-positive effect but do not provide evidence for the regulatory fit effect. To re-examine the potential moderating effect of premessage regulatory focus, experiment 2 manipulates premessage regulatory focus and reruns the above analyses.

5 | EXPERIMENT 2

In the second experiment, we manipulated individuals' premessage regulatory focus and replicated the analyses of the moderating effect of premessage regulatory focus that experiment 1 presented. The experiment used a 2 (premessage regulatory focus: prevention versus promotion) \times 2 (outcome type: gain-related versus loss-related) \times 2 (outcome valence: positive versus negative) between-subjects design. Again, the design also embodied outcome presence (see Table 2). In addition, this study considers the two potential mediators, processing fluency and outcome imagination, that Section 3.2 introduced. For better comparison, we used the message content that we used in experiment 1.

5.1 | Method

5.1.1 | Participants and procedure

We conducted experiment 2 online using Amazon's Mechanical Turk (MTurk). Again, our messages do not apply to participants who feel that they are too skinny. We used a screening question similar to the screening question in study one (see Measures) to instantly exclude them from participation. A total of 828 MTurk workers passed the screening question and completed the online survey. They were randomly assigned to one of the messages. Before beginning the questionnaire, they received information about compensation (1.20 USD), the time required (6 min), and data privacy. We also informed them that the study was about pretesting a message. Because the literature reports that a proportion of MTurk workers do not attend to studies thoroughly (Smith et al., 2016), we predefined the following procedure for quality assurance based on the recommendation by Smith et al. (2016). First, we included two attention tasks in the questionnaire ("Please now tick the box on the far left, which denotes the answer fully disagree" and "Now please tick the box for fully agree. The box on the far right denotes this answer"). Second, since experienced participants may look out for such tasks, we additionally pretested the time required to read the tasks and respond to the questionnaire. The questionnaire contained 730 words, and the extreme minimum time required was above 3 min, while the median was 6 min. Based on the quality assurance procedure, we excluded 70 respondents who did not pay attention to the attention tasks and 74 respondents who completed the questionnaire in less than 180 s (the median completion time in the MTurk sample was 321 s). The above procedure resulted in 684 respondents for the analyses. The

respondents were residents of the United States, and 47% were female. Mean age was 41 years ($SD = 13.7$). Approximately 6% were younger than 25, 68% were between 25 and 50, 21% were between 51 and 65, and 5% were older than 65. Fewer than 1% reported that they had no school diploma, 6% reported that a high school diploma was their highest degree, 15% had some college credit, 10% had an associate degree, 46% had a bachelor's degree, 16% had a master's degree, 2% had a professional degree, and 3% had a doctorate degree (the few remaining answers were trade/technical training and rather not answer). A total of 67% reported that they were employed, 15% self-employed, 5% retired, 6% unemployed, 3% homemakers, and 3% students (the few remaining answers were military, unable to work, and rather not answer).

5.1.2 | Regulatory focus manipulation

We manipulated regulatory focus with the procedure of Freitas and Higgins (2002). We randomly assigned respondents to either the promotion or prevention condition. Participants in the promotion condition read "Please think about something you ideally would like to do. In other words, please think about a hope or aspiration that you currently have". Participants in the prevention condition read "Please think about something that you think you ought to do. In other words, please think about a duty or obligation you currently have". Then, participants in the promotion condition (prevention condition) were asked to write down the hope or aspiration (duty or obligation) and describe it.

5.1.3 | Stimuli

Appendix 5 shows the four messages that we used.

5.1.4 | Measures

Appendix 6 lists the items of the measures that we report below and the mean values. The screening question (see participants and procedure) was: How do you feel about your current weight/body size? The response scale was $-4 = \text{far too thin}$; $0 = \text{ok}$; $+4 = \text{greatly overweight}$. Individuals who selected a scale point below zero could not participate. We measured issue involvement, that is, how relevant their physical appearance was to the respondents, with three items ($\alpha = .90$). For our manipulation check (prevention versus promotion), we used the measure of Roy and Phau (2014) and Pham and Avnet (2004) and asked respondents whether right now, they were more inclined to do what they ought to do or what they want to do ($1 = \text{what I ought to do}$, $7 = \text{what I want to do}$). Respondents in the promotion groups should have a higher tendency towards "what I want to do" than respondents in the prevention group. In addition, we asked respondents how excited and how conscientious they felt ($1 = \text{not at all}$; $7 = \text{strongly}$). We used the difference between the

two items as an additional manipulation check because we argue that it illustrates individuals' dominant focus. For a similar approach see Zhang and Mittal (2007). Our two items relate to the definitions of the regulatory orientations. When contrasting individuals' momentary feelings of excitement and consciousness, striving for an ideal (promotion) should lead to a higher tendency towards excitement relative to consciousness than aiming at fulfilling one's duties (prevention) and vice versa.

After message exposure, we asked respondents: "When reading the message, what thoughts or mental images came to mind? Please list them below." Subsequently, we measured compliance intention with two items ($r = 0.77$, $p < .001$) adapted from Dijkstra et al. (2011) on 9-point rating scales. We measured processing fluency with three items adapted from Zhao and Pechmann (2007), α was .92. We measured outcome imagination with two items ($r = 0.90$, $p < .001$) taken from Escalas (2007). We adapted the items to our context and to the four conditions. Thus, our items were condition-specific and repeated the outcome that the respective message had presented to the participant (for example, "When I read the message, I pictured myself slimmer" or "... I pictured myself not slimmer"). We used the condition-specific approach because it may help participants to report more validly whether they imagined the outcome that the message presented to them. The alternative approach would have been a standardized operationalization (e.g., "I pictured myself as described in the message"), which is abstract and leaves the subjects to decide to which of their mental images the question may refer to. As a result, the responses may become vaguer. However, our condition-specific measure has the disadvantage that it may have affected respondents' perceptions, which is a limitation that one reviewer raised concerns over. Therefore, we use the thought protocols (open responses) to explore what proportion of respondents reported mental images across the conditions and to assess the convergent validity of our outcome imagination measure. We present the additional analysis in Appendix 9.

5.2 | Analyses and results

We used SPSS and PROCESS v. 3.5 (Hayes, 2018) for our analyses. Table 5 shows the mean values of compliance intention across the messages. Again, compliance intention was higher when the messages presented gains or losses than when they presented non-gains or non-losses ($M_{\text{gain/loss}} = 7.51$ vs. $M_{\text{non-gain/non-loss}} = 7.27$; $t[682] = 1.793$; $p = .037$).

5.2.1 | Manipulation check

The mean values of the prevention and promotion groups on the scale of Roy and Phau (2014) are $M_{\text{prevention}} = 4.05$ and $M_{\text{promotion}} = 4.4$ ($t[682] = 2.28$, $p = .012$). As expected, respondents of the promotion group were more likely than those of the prevention group to feel like doing what they want to do and vice versa. Thus,

TABLE 5 Mean values (*SD*) of compliance intention across the messages (experiment 2)

Compliance intention			
Gain/loss:	7.51 (1.66)	Gain	7.40 (1.78)
• High regulatory fit		Loss	7.61 (1.55)
• Present outcome			
Non-gain/non-loss:	7.27 (1.83)	Non-gain	7.25 (1.85)
• Low regulatory fit		Non-loss	7.29 (1.81)
• Absent outcome			

the manipulation was successful. In addition, we used the difference of the two items (excited-conscientious) as a second manipulation check. As expected, the surplus of felt conscientiousness over excitement was significantly larger in the prevention group ($M_{\text{prevention}} = -1.55$) than in the promotion group ($M_{\text{promotion}} = -.95$). The difference is significant ($t[653.65] = 4.44$, $p < .001$). This finding also indicates that the manipulation was successful.

5.2.2 | The moderating effect of premessage regulatory focus

We performed the same two ANOVAs as in study 1. Again, we controlled for issue involvement. See Table 6 for the findings. ANOVA 3 demonstrates an outcome type by outcome valence interaction ($F[1, 675] = 3.885$, $p = .49$), which equals the main effect of outcome presence in ANOVA 4. ANOVA 3 does not show a three-way interaction of outcome type, outcome valence, and premessage regulatory focus ($F[1, 675] = 0.605$, $p = .437$). Correspondingly, ANOVA 4 does not show a two-way interaction between outcome presence and premessage regulatory focus ($F[1, 675] = 0.605$, $p = .437$). Thus, the findings of experiment 2 replicate the findings of experiment 1. The results suggest that gains and losses are more effective than non-gains and non-losses and that the advantage of gains and losses does not depend on premessage regulatory focus. Appendix 7 reports the mean values of compliance intention across the messages, dependent on premessage regulatory focus. Manipulated premessage regulatory focus (experiment 2) instead of chronic premessage regulatory focus (experiment 1) did not alter the findings. Again, the findings may provide more support for the feature-positive effect than for the regulatory fit effect.

5.2.3 | The mediating effects of processing fluency and outcome imagination

We examine whether the mediator that each of the two competing theories puts forth mediates the advantage of gains and losses over non-gains and non-losses. For the mediation analyses, we use the variable “gain/loss versus non-gain/non-loss” (1 = gain/loss; 0 = non-gain/non-loss) as the independent variable and examine what mediates its effect on compliance intention. Table 7 presents the

TABLE 6 The effects of outcome type \times outcome valence, outcome presence, and the moderating effect of premessage regulatory focus (experiment 2)

ANOVA 3	Compliance intention	
	<i>F</i>	<i>p</i>
Constant	263.479	.000
Outcome type	0.710	.400
Outcome valence	0.300	.584
Premessage regulatory focus (RF)	0.013	.911
Outcome type \times outcome valence	3.885	.049 ^a
Outcome type \times RF	0.267	.606
RF \times outcome valence	0.497	.481
Outcome type \times RF \times outcome valence	0.605	.437
Covariate: issue involvement	64.932	.000 ^b

ANOVA 4	Compliance intention	
	<i>F</i>	<i>p</i>
Constant	263.479	.000
Outcome type	0.710	.400
Premessage regulatory focus (RF)	0.013	.911
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Outcome type \times outcome presence	0.300	.584
RF \times outcome presence	0.605	.437
Outcome type \times RF \times outcome presence	0.479	.481
Covariate: issue involvement	64.932	.000 ^b

^a $p < .05$.

^b $p < .01$.

mean values of processing fluency and outcome imagination. Gains and losses were easier to process than non-gains and non-losses ($M_{\text{present}} = 6.63$ vs. $M_{\text{absent}} = 6.37$; $t[521.72] = -3.64$, $p < .001$). In addition, outcome imagination was higher for gains and losses than for non-gains and non-losses ($M_{\text{present}} = 5.57$ vs. $M_{\text{absent}} = 5.16$; $t[626.38] = 3.27$, $p < .001$).

We conducted bootstrap estimation (PROCESS model 4; Hayes, 2018) with 10,000 resamples with “gain/loss versus non-gain/non-loss” as the independent variable, compliance intention as the dependent variable, and processing fluency and outcome imagination as the mediators. Consistent with ANOVAs 3 and 4, we entered issue involvement as a covariate (the effects do not change whether we control for involvement or not). We considered the two mediators simultaneously in the mediation model. The correlation of the mediators was .197 ($p = .000$). Please note that when we considered the two mediators separately in two different models, the mediating effects did not differ. See Figure 3 for the findings.

Both indirect effects are positive and significant because the confidence intervals are positive and exclude zero (indirect effect via processing fluency: $B = 0.089$, 99% CI = 0.026, 0.184; indirect effect via outcome imagination: $B = 0.146$, 99% CI = 0.030, 0.291). The findings indicate that processing fluency and outcome imagination

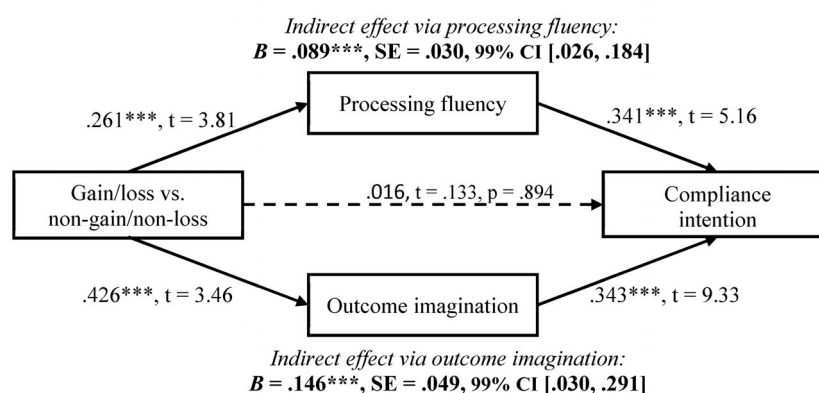
TABLE 7 Mean values (SD) of processing fluency and outcome imagination (experiment 2)

	Processing fluency			Outcome imagination		
Gain/loss:	6.63 (.69)	Gain	6.49 (.61)	5.57 (1.52)	Gain	5.40 (1.58)
• High regulatory fit		Loss	6.60 (.76)		Loss	5.73 (1.45)
• Present outcome						
Non-gain/non-loss:	6.37 (1.09)	Non-gain	6.29 (.95)	5.16 (1.79)	Non-gain	5.00 (1.82)
• Low regulatory fit		Non-loss	6.45 (1.22)		Non-loss	5.30 (1.74)
• Absent outcome						

FIGURE 3 The mediating effects of processing fluency and outcome imagination. Note: *** $p < .01$.

Involvement was included as a covariate (effect of involvement on outcome imagination: $B = 0.317$; $t = 5.90$; $p < .001$; on processing fluency: $B = 0.085$, $t = 2.86$, $p = .004$; and on compliance intention: $B = 0.315$, $t = 6.02$, $p < .001$). Compliance intention: $R^2 = 0.242$

The mediating effects of processing fluency and outcome imagination



mediate the advantage of gains and losses over non-gains and non-losses on compliance intention. Looking at the sizes of the two indirect effects (processing fluency: 0.089, outcome imagination: 0.146), the effect via outcome imagination seems slightly stronger than the effect via processing fluency. However, this difference does not prove significant when contrasting the two effects: the confidence interval includes zero (contrast of the indirect effects: -0.057 , SE = 0.057, 95% CI = -0.175 , 0.051). The direct effect of “gain/loss versus non-gain/non-loss” on compliance intention is nonsignificant ($B = 0.016$, $t = 0.133$, $p = .895$). Both mediators prove relevant in the mediation analyses. Thus, both theories may have been operating. For a detailed interpretation and discussion of the findings, see the Discussion.

6 | DISCUSSION

The goal of this article was to contribute to a better understanding of the question of what drives the advantage of gains and losses over non-gains and non-losses that many studies have reported (e.g., Cesario et al., 2013; Daryanto et al., 2010). We pointed out that two theories can explain the advantage, namely, regulatory fit and feature positivity. The first explanation has received significantly more attention in the framing literature than the latter, which seems unjustified. The article also explained that one can hardly distinguish the two effects empirically because regulatory fit within the message

and feature positivity coincide. Consequently, demonstrating an advantage of gains and losses over non-gains and non-losses, which many studies have, is not sufficient to support any of the effects because the advantage may be driven by the other mechanism. Previous studies have neither discussed the competing explanations nor tried to distinguish them. We explained that the two theories make different predictions with regard to the moderating effect of individuals' premessage regulatory orientation and with regard to their critical mediators. We use the different predictions to obtain more insights into the relevance of the competing theories in explaining framing effects. This article studied the effects of regulatory fit within the message and outcome presence on compliance intention and focused on the moderating effect of premessage regulatory orientation and the mediating effects of processing fluency and outcome imagination.

6.1 | Insights that the non-occurrence of the moderator premessage regulatory focus provides

We explained that when the regulatory fit effect is operating, the advantage of gains and losses should depend on individuals' premessage regulatory focus. We also explained that when empirical studies find only a main effect of feature positivity and no interaction with premessage regulatory focus, the findings may support the

feature-positive effect. Experiments 1 and 2 find no interaction and suggest that the advantage of gains and losses over non-gains and non-losses does not depend on premessage regulatory focus. In experiment 1, we used individuals' chronic regulatory focus. In experiment 2, we manipulated regulatory focus and replicated the findings of experiment 1. Thus, our findings may support the feature-positive effect but do not provide evidence for the regulatory fit effect. Whether the findings disconfirm the regulatory fit effect depends on the following question: May the effect of regulatory fit within the message operate independently of premessage regulatory focus? We discuss the question as follows. The rationale that regulatory fit theory uses to explain the advantage of gains and losses over non-gains and non-losses relies on two arguments. First, outcome type primes the receivers' regulatory focus (Daryanto et al., 2010). Second, if a message corresponds to the individual's regulatory focus, the message is easier to process and more effective (Cesario et al., 2008). Thus, if outcome valence fits with outcome type, the message is more effective. This same logic should apply to a regulatory orientation that receivers hold before they encounter the message. Individuals with a premessage promotion focus should find a gain easier to process, and individuals with a premessage prevention orientation should find a loss easier to process. However, we find one explanation according to which an effect of regulatory fit within the message may be at work independent of premessage regulatory focus. If premessage regulatory focus becomes overridden by a gain-related or loss-related outcome type, it cannot interact with such message elements (Higgins, 1999). In this case, regulatory fit within the message may drive the advantage of gains and losses with no dependency on premessage regulatory focus. For example, in a study by Lisjak et al. (2012, Study 2), promotion-primed participants were faster than prevention-primed participants in identifying promotion-relevant words independent of their chronic orientation (and vice versa). However, the literature on primed inferences suggests that individuals' chronic regulatory orientation is robust enough to impair information processing if incongruent with a primed orientation (Lisjak et al., 2012; Sherman et al., 2011), and our experiment 1 considered chronic regulatory orientation. Thus, the regulatory fit effect, if acting, should somewhat depend on premessage regulatory focus, though the dependency may not be strong. Regarding the question of what drives the advantage of gains and losses over non-gains and non-losses, our moderation analyses do not provide support for the effect of regulatory fit within the message. However, we cannot fully exclude the possibility that message elements may have overridden premessage regulatory focus and thus that the regulatory fit effect was acting despite the absent moderation.

6.2 | Insights that the mediation analysis provides

Regulatory fit theory suggests that processing fluency mediates the advantage of gains and losses over non-gains and non-losses, whereas the feature-positive effect suggests that outcome imagination mediates the advantage. Experiment 2 studied mediation, and both

mediators proved relevant. The significance of the two mediators demonstrates that the findings do not disconfirm the respective theory. However, because the independent variable simultaneously represents regulatory fit within the message and outcome presence, the mediators are able to provide substantial support for the respective theory only if the competing construct is unlikely to drive the mediator. Consequently, the questions of whether feature presence is a relevant driver of processing fluency and whether regulatory fit is a relevant driver of outcome imagination are relevant for the interpretation of the mediation results. We discuss the questions below.

6.3 | Processing fluency

Gains and losses were easier to process than non-gains and non-losses. Did regulatory fit within the message mainly drive this advantage or may feature presence have substantially affected processing fluency? Studies report that it is easier to detect the presence of features than their omission, and individuals are more likely to use information about occurrences than about nonoccurrences (Brendl et al., 1995). Thus, information about absent outcomes should be harder to process than information about present outcomes, and information simplicity increases processing fluency (Reber & Unkelbach, 2010). Thus, feature presence may have affected processing fluency. Consequently, the significance of the mediator processing fluency cannot unambiguously support the effect of regulatory fit within the message. This limitation also applies to previous studies that demonstrated the above mediation (Lee & Aaker, 2004).

6.4 | Outcome imagination

Outcome imagination was higher when individuals were confronted with gains or losses than when confronted with non-gains or non-losses. Did feature presence mainly drive this advantage or may regulatory fit have substantially affected outcome imagination? We argue that feature presence was the major driver and explain it as follows. When individuals process (persuasive) information, they relate it to their activated long-term memory contents that give meaning to the information (Kruglanski & Thompson, 1999). Long-term memory content is merged with incoming information to form a meaningful mental image (Bolls & Lang, 2003; Pearson et al., 2015). The more specific and concrete the incoming information, the easier the matching process to build a mental image. The mental image can then be used in decision making or problem solving (Dijkstra & Elbert, 2019). When confronted with a present outcome, only a limited matching process with the individual's long-term memory is needed to build a mental image. In contrast, an absent outcome is less specific and less concrete—absent features are more ambiguous, and forming a mental image requires a more costly memory matching process to find contents that are useful to understand the incoming information. For example, building a mental image of “not meeting a friend” may require a mental translation into potential specific and present

consequences such as “being at home alone.” Thus, feature presence is crucial for easy imagining. If regulatory fit affects outcome imagination, the process may be as follows: individuals' regulatory focus may make memories that correspond to one's focus more readily available (Higgins & Brendl, 1995), and imagination is easier when incoming information matches readily available memories. Thus, promotion-focused individuals may imagine gains most easily, while prevention-focused individuals may imagine losses most easily. However, regardless of one's regulatory focus, easy imagination is possible only when the incoming information is concrete and specific. Thus, regulatory fit with no feature presence would be unlikely to drive easy outcome imagination. Consequently, the mediating effect of outcome imagination provides support for the feature-positive effect. If an effect of regulatory fit added to the effect of feature presence on outcome imagination, outcome imagination may depend on premessage regulatory focus, which did not show in our experiment (see Appendix 8 for the mean values).

6.5 | Contributions of the article

The contributions of this article to the framing literature are as follows. First, we explain and demonstrate that the studies that “prove” the regulatory fit effect by demonstrating an advantage of gains and losses over non-gains and non-loss (e.g., Daryanto et al., 2010; Idson et al., 2000; Lee & Aaker, 2004; Li & Lee, 2021) may instead show a presence effect. Second, we demonstrate that outcome imagination is a relevant mediator of framing effects that the literature has not considered. Third, even though our analyses cannot unambiguously distinguish the two effects, they provide at least the same, probably stronger evidence for the feature-positive effect than for the regulatory fit effect in the context of message framing. In particular, the mediating effect of outcome imagination in experiment 2 provides substantial support for the feature-positive effect. Compared to regulatory fit, feature positivity has received little attention in the framing literature. The findings of this article suggest that this is unjustified. The framing literature should consider feature positivity and outcome imagination more because they contribute to the explanation of framing effects.

7 | LIMITATIONS AND FUTURE RESEARCH

This article has several limitations that future research may consider.

We cannot state whether the moderating effect of individuals' premessage regulatory focus did not show because the regulatory fit effect was not acting or because individuals' regulatory focus was overruled by message elements. Future research may try to strengthen the reliability of the moderation analyses. For example, future studies may measure chronic regulatory focus and additionally manipulate regulatory focus. In the two groups that receive a manipulation consistent with the chronic orientation, a more stable premessage regulatory focus may result that message elements may

be less likely to overrule. Alternatively, future studies may test the moderating effect focusing on individuals with high levels of a dominant regulatory orientation.

Future research should test boundary conditions that may help to further disentangle the competing effects. For example, studies may test how facilitating or suppressing imagination may alter the effects. Presumably, the feature-positive effect is only influential when, in principle, consumers can imagine the outcomes. Studies may, for instance, use contexts that consumers can hardly imagine, even if present outcomes are presented, which may be the case for highly abstract or unfamiliar outcomes. Similarly, negative emotions such as fear may determine the effect of feature presence since consumers may try to suppress highly threatening mental images.

In our studies, issue involvement was relatively high, whereas fit within the message and processing fluency should be most relevant when involvement is low (Motyka et al., 2014; Wang & Lee, 2006). However, the items that we used to measure issue involvement may have contributed to relatively high absolute involvement ratings because most individuals find health and physical attractiveness relevant. Future studies may use contexts with varying degrees of issue involvement. However, neither our reasoning nor our interpretation of the findings depend on involvement. To support the regulatory fit effect, one would expect (under low and under high involvement conditions) that individuals' premessage regulatory orientation interacted with outcome type and/or outcome valence (Agrawal & Maheswaran, 2005; Jain et al., 2007; Wang & Lee, 2006), which did not show in our studies. Regarding the feature-positive effect, the role of issue involvement is unclear. On the one hand, if a high involvement context “ringed relevant bells” and made mental images come to mind regardless of the wording of a message (that is, outcome presence or absence), the feature-positive effect may become weaker. On the other hand, feature presence may be more influential when involvement is comparably high because when it is low, consumers may be unlikely to build mental images regardless of outcome presence or absence (Conway, 2005). Future research may study the role of involvement in the context of feature presence.

Our research considered outcome imagination but did not consider the imagination of recommended actions (e.g., being physically active). Future research may measure both sources of imagination and compare their effects. The items that we used to measure outcome imagination repeated the outcome that the respective message had presented to the participant. Since the condition-specific items may have affected respondents' perceptions, we used open responses to assess the measure's convergent validity, and Appendix 9 suggests that the measure has convergent validity. However, future studies may study the effects with a standardized measure of outcome imagination. The scale that we used to measure individuals' chronic regulatory orientation was short and consisted of only six items. Moreover, to measure compliance intention, we used a 7-point scale in study 1 and a 9-point scale in study 2, which limits the comparability of the mean values across the two studies.

Finally, future research may study how experiencing regulatory fit, processing fluency, and imagination are related. According to the literature, experiencing regulatory fit means that information “feels right” and

is easy to process (Cesario et al., 2004, 2008). “Feeling right” may mean that the incoming information matches easily with readily available memory contents. Thus, experiencing regulatory fit, processing fluency, and ease of imagination may involve the same underlying phenomenon: the activation and merging of long-term memory contents with incoming information to build a mental image and give meaning to the information. Thus, experiencing regulatory fit may also require presence and may be an instance of easy imagination.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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APPENDIX 1: MESSAGES EXPERIMENT 1

Our messages contained only text. The first part was the same across all messages: “Be more physically active in your daily life. There are plenty of options for how to integrate physical activities into your daily routines, and you don’t even need a sports outfit to do so: ride your bike or walk instead of using the car, take the stairs instead of the elevator, and meet friends for a walk instead of sitting in a café ...”.

The second part manipulated the messages (see Table below). We used two gains, two losses, two non-gains and two non-losses. One used the expression “one size” (slimmer, more corpulent etc.) and the other 7% (slimmer, more corpulent, etc.), apart from this difference the messages were the same. Below we show the messages that use the wording “one size”.

Because the effects of “one size” versus 7% did not differ at all (see Appendix 2), we present the findings together and grouped the versions together as gains, non-gains, non-losses and losses.

Messages experiment 1

Gain	Non-gain
Studies show that, on average, individuals who integrate physical activity into their daily lives are one size slimmer than people who do not.	Studies show that, on average, individuals who do not integrate physical activity into their daily lives are one size less slim than people who do.
With some physical activity as part of your daily routine, you will be one size slimmer than without physical activity.	Without some physical activity as part of your daily routine, you will be one size less slim than with physical activity.
Non-loss	Loss
Studies show that, on average, individuals who integrate physical activity into their daily lives are one size less corpulent than people who do not.	Studies show that, on average, individuals who do not integrate physical activity into their daily lives are one size less slim than people who do.
With some physical activity as part of your daily routine, you will be one size less corpulent than without physical activity.	Without some physical activity as part of your daily routine, you will be one size more corpulent than with physical activity.

APPENDIX 2: “ONE SIZE” AND “X%” (MESSAGES EXPERIMENT 1)

Originally, we created eight messages (see Appendix 1). However, our analyses demonstrated that the mean values and the effects did not differ between the “one size” and the “7%” message versions at all. See the Tables below.

The difference (one size vs. x%) between the messages had no effect on compliance intention (see the mean values in the first table),

Mean values (SD)

	Messages: “One size”	Messages: “7%”	t	p
Compliance Intention	4.37 (1.58)	4.31 (1.48)	0.33	.74

ANOVA

Dependent variable: Compliance intention		
	F	p
Constant	1717	.000
Outcome type	3.398	.067
Outcome valence	0.25	.618
One size versus 7%	0.074	.786
Outcome type × Outcome valence	5.874	.016
Outcome type × One size versus 7%	0.029	.864
Outcome Valence × One size versus 7%	0.771	.381
Outcome type × Outcome valence × One size versus 7%	0.042	.838

and no interaction effect with message framing occurred (see the ANOVA-Table below).

Because the mean values and the effects did not differ at all between the “one size” and the “7%” message versions, we grouped them together into gains, non-gains, losses, and non-losses and report the findings together.

APPENDIX 3: MEASURES EXPERIMENT 1

Items	M (SD)
Screening Question	
How do you perceive your current weight/figure? −4 = I find myself too skinny; +4 I find myself too corpulent	1.29 (1.08)
Individuals' chronic regulatory orientation	
Promotion subscale ($\alpha = .67$)	4.74 (.99)
Realizing my personal goals and dreams is very important to me. 1 = Fully disagree; 7 = Fully agree	
Nothing ventured, nothing gained. 1 = Fully disagree; 7 = Fully agree	
I like trying my luck. 1 = Fully disagree; 7 = Fully agree	
Prevention subscale ($\alpha = .71$)	4.31 (1.16)
I prefer being cautious. 1 = Fully disagree; 7 = Fully agree	

Items	M (SD)
Protecting what I have is more important to me than striving for more. 1 = Fully disagree; 7 = Fully agree	
A bird in the hand is worth two in the bush. 1 = Fully disagree; 7 = Fully agree	
Issue Involvement ($r = 0.49$; $p = .000$)	6.01 (.80)
How important is looking good to you? 1 = Not at all important; 7 = Highly important	5.70 (.91)
How important is your health to you? 1 = Not at all important; 7 = Highly important	6.33 (.94)
Compliance intention ($r = 0.72$; $p = .000$)	4.34 (1.53)
I plan to integrate physical activities more into my daily life. 1 = Fully disagree; 7 = Fully agree	
I am likely to start being more physically active during my daily life this month. 1 = Fully disagree; 7 = Fully agree	

APPENDIX 4: MEAN VALUES OF COMPLIANCE INTENTION. DEPENDENT ON PREMESSAGE REGULATORY FOCUS (EXPERIMENT 1)

Mean values of compliance intention across the messages dependent on individuals' dominant regulatory focus.

Compliance intention		
Message	Chronic regulatory focus	
	Promotion	Prevention
Gain	4.59 (1.65)	4.98 (1.20)
Loss	4.45 (1.74)	4.21 (1.55)
Non-gain	4.04 (1.41)	4.40 (1.62)
Non-loss	3.84 (1.52)	4.07 (1.36)

APPENDIX 5: MESSAGES EXPERIMENT 2

Our messages contained only text. We used the following four messages.

Messages experiment 2

Gain	Non-gain
Studies show that individuals who engage in some physical activity as part of their daily routine are, on average, one clothing size slimmer than those who do not.	Studies show that individuals who do not engage in some physical activity as part of their daily routine are, on average, one clothing size less slim than those who do.
	Such activities include walking or taking the stairs if possible.

(Continues)

(Continued)

Gain	Non-gain
Such activities include walking or taking the stairs if possible.	Imagine now that if you do not incorporate some physical activity into your daily life, you will not be a size slimmer.
Imagine now that if you incorporate some physical activity into your daily life, you will be a size slimmer.	
Non-loss	Loss
Studies show that individuals who engage in some physical activity as part of their daily routine are, on average, one clothing size less large than those who do not.	Studies show that individuals who do not engage in some physical activity as part of their daily routine are, on average, one clothing size larger than those who do.
Such activities include walking or taking the stairs if possible.	Such activities include walking or taking the stairs if possible.
Imagine now that if you incorporate some physical activity into your daily life, you will not be a size larger.	Imagine now that if you do not incorporate some physical activity into your daily life, you will be a size larger.

APPENDIX 6: MEASURES EXPERIMENT 2

Items	M (SD)
Screening question	
How do you feel about your current weight/body size? I find myself... −4 = far too thin; 0 = ok; +4 = greatly overweight	1.36 (1.24)
Issue involvement ($\alpha = .90$)	5.37 (1.15)
How much does physical attractiveness matter to you? 1 = Does not matter to me; 7 = Matters to me a lot	
How important is your physical appearance to you? 1 = Not at all important; 7 = Highly important	
How desirable is physical attractiveness to you? 1 = Not at all desirable; 7 = Highly desirable	
Manipulation check	
Right now, I feel like doing ... 1 = What I ought to do; 7 = What I want to do	4.23 (2.01)
I feel excited. 1 = Not at all; 7 = Strongly	3.95 (1.75)
I feel conscientious. 1 = Not at all; 7 = Strongly	5.19 (1.39)
Compliance intention ($r = 0.77$; $p = .000$)	7.40 (1.74)
I plan to make some physical activity part of my daily routine. 1 = Certainly not; 9 = Certainly	
I am likely to start being physically more active in my daily life this month. 1 = Certainly not; 9 = Certainly	

(Continues)

Items	M (SD)
Processing fluency ($\alpha = .92$)	6.51 (.91)
The message was ...	
1 = Difficult to understand; 7 = Easy to understand.	
1 = Not clear at all, 7 = Very clear	
1 = Difficult to comprehend; 7 = Easy to comprehend	
Outcome imagination ($r = 0.90$; $p = .000$)	5.38 (1.66)
When I read the message, ...	
I pictured myself ... (slimmer, not slimmer, not larger, larger)	
1 = I had no picture on my mind; 7 = I had a clear picture on my mind	
I vividly imagined myself ... (slimmer, not slimmer, not larger, larger)	
1 = I had no image on my mind; 7 = I had a vivid image on my mind	

APPENDIX 7: MEAN VALUES OF COMPLIANCE INTENTION DEPENDENT ON PREMESSAGE REGULATORY FOCUS (EXPERIMENT 2)

Mean values of compliance intention across the messages dependent on individuals manipulated premessage regulatory focus.

Compliance intention		
Message	Manipulated premessage regulatory focus	
	Promotion	Prevention
Gain	7.33 (1.88)	7.48 (1.68)
Loss	7.53 (1.59)	7.70 (1.51)
Non-Gain	7.38 (1.80)	7.10 (1.90)
Non-Loss	7.26 (1.92)	7.32 (1.69)

APPENDIX 8: MEAN VALUES OF PROCESSING FLUENCY AND OUTCOME IMAGINATION DEPENDENT ON PREMESSAGE REGULATORY FOCUS (EXPERIMENT 2)

Processing fluency		
Message	Manipulated premessage regulatory focus	
	Promotion	Prevention
Gain	6.68	6.64
Loss	6.56	6.65
Non-gain	6.46	6.21
Non-loss	6.47	6.42
Outcome imagination		
Message	Manipulated premessage regulatory focus	
	Promotion	Prevention
Gain	5.27	5.54
Loss	5.74	5.72

Outcome imagination		
Message	Manipulated premessage regulatory focus	
	Promotion	Prevention
Non-gain	5.27	4.70
Non-loss	5.28	5.33

APPENDIX 9: THOUGHT PROTOCOLS EXPERIMENT 2 VALIDITY ASSESSMENT OF OUTCOME IMAGINATION MEASURE

We use the thought protocols to explore what proportion of respondents reported mental images across the conditions and to assess the convergent validity of our outcome imagination measure. After message exposure, experiment 2 contained the following question: "When reading the message, what thoughts or mental images came to mind? Please list them below." The procedure was as follows: Two coders blind to the conditions read the thought protocols and coded them as either containing a description of a mental image (=1) or not (=0). Examples of mental images include "I imagined my pants being too loose and having to go out to buy more clothes" and "Me being fat." Examples of no descriptions of mental images include "I didn't really think a lot or have any mental images at all", "I can lose weight if I engage in physical activities" and "good". Inter-coder reliability was 83%. The remaining cases were discussed and resolved.

The resulting variable reveals the proportion of respondents who reported a mental image. We use the frequencies/proportions to examine the convergent validity of our outcome imagination measure because the findings that the two different approaches produce (across the four conditions) should be consistent. If respondents expressed higher values of outcome imagination on the item scales, they should have been more likely to report a mental image. The table

Condition	Outcome imagination items	Open responses
	Mean values (SD), 7-point rating scales	Percentage of respondents who reported a mental image (group size)
Gain and loss	5.57 (1.52)	60.1% (366)
Non-gain and non-loss	5.16 (1.45)	48.7% (318)
Gain	5.40 (1.58)	59.8% (174)
Loss	5.73 (1.45)	60.4% (192)
Non-gain	5.00 (1.82)	47.4% (154)
Non-loss	5.30 (1.74)	50.0% (164)
$n = 684$		$n = 684$

below shows the findings that the two different measures revealed across the conditions.

The patterns of the findings that the two measures produced are consistent. For example, when confronted with a gain or a loss (compared to a non-gain or a non-loss), respondents reported stronger outcome imagination on the item scales (5.57 vs. 5.16; $t [626.38] = 3.27, p < .001$). In line with this, the proportion of respondents who reported a mental image was higher in the gain and loss

condition than in the other conditions (60.1% vs. 48.7%). (The observed counts compared to the expected counts were 104 vs. 95.4 for the gain, 116 vs. 105.3 for the loss, 73 vs. 84.4 for the non-gain, and 82 vs. 89.9 for the non-loss.) A Chi-square test of independence shows a significant difference between the conditions ($X^2 [3, 684] = 9.11, p = .028$). Hence, the comparison of the two measures suggests that the outcome imagine measure that we used has convergent validity.