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Can Humor Decrease Reactance to Behavioral Interventions?
The Role of Humorous Message Elements in Social Marketing
Campaigns

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Abstract (Deutsch)

Das Ziel von Social Marketing Kampagnen ist es, gesellschaftlich erwünschte Verhaltensänderungen zu vermitteln. Dabei stoßen solche Kampagnen wiederholt auf Widerstand. In der Psychologischen Reaktanztheorie (PRT) wird dies damit begründet, dass Handlungsappelle die wahrgenommene Freiheit einschränken. Daraus resultiert eine motivationale Abwehrhaltung, die darauf abzielt, die eigene Autonomie wiederherzustellen. Reaktanz ist demnach ein häufiger Grund, warum Kampagnen scheitern. Von dieser Problematik ausgehend untersucht die Studie, ob die Verwendung humorvoller Elemente Reaktanz verringern kann. In einem Experiment wurden Studienteilnehmende (N = 104) zufällig einer humorvollen oder ernsthaften Kampagne zum Thema Fahrradhelmtragen ausgesetzt. Erwartet wurde, dass die Stärke der auftretenden Reaktanz sowie die wahrgenommene Freiheitsbedrohung je nach Kampagnentyp (humorvoll/ernsthaft) variieren und dass die Stärke des Effekts von der individuellen Involviertheit mit dem Thema abhängt. Die Ergebnisse konnten diese Annahmen nicht statistisch bestätigen, was darauf hindeutet, dass Humor unter den gegebenen Bedingungen die psychologische Reaktanz nicht verringert. Vorherige Ergebnisse, dass es einen signifikanten Zusammenhang zwischen der eingeschränkten Freiheitswahrnehmung und Reaktanz gibt, konnten bestätigt werden.

Abstract (English)

Social marketing campaigns aim to promote socially desirable behavior change. However, such campaigns often encounter resistance. According to Psychological Reactance Theory (PRT), this resistance arises because behavioral appeals are perceived as restricting individuals' freedom of choice. This leads to a motivational defensive response, called reactance, which aims to restore one's autonomy. Reactance is therefore a common reason why campaigns fail. Acknowledging this issue, the present study investigates whether the use of humorous elements can reduce reactance. In a quantitative experiment, participants (N = 104) were randomly exposed to either a humorous or a serious campaign promoting bicycle helmet use. It was hypothesized that different levels of reactance and perceived threat to freedom could be detected depending on the campaign type (humorous/serious), and that the strength of the direct effect would further depend on the interaction between humor and individuals' issue involvement. The results did not statistically confirm these assumptions.

This suggests that humor did not affect psychological reactance under the given conditions. Prior findings that threat to freedom significantly determines reactance could be confirmed.

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List of Abbreviations

PRT	Psychological Reactance Theory
ELM	Elaboration Likelihood Model

1. Introduction

Social marketing refers to the use of marketing techniques aimed at influencing a target audience to voluntarily accept, adapt, or discontinue certain behaviors for the benefit of the individual, specific groups, or society as a whole (Andreasen, 2003; Brennan et al., 2020). Governmental and non-profit organizations primarily employ such campaigns to raise public awareness of socially relevant issues (Brennan & Binney, 2009). Frequently, fear appeals, high threat levels, and assertive rhetoric are popular tools to create a sense of urgency and emphasize the importance of compliant behavior (Jäger & Eisend, 2013; Quick & Considine, 2008). Especially within health communication, typical examples include anti-smoking campaigns highlighting the risks of lung cancer or safer-sex appeals designed to prevent sexually transmitted diseases (Brennan et al., 2020). Other examples in different contexts can be found in the promotion of seatbelt use or waste separation (Ward et al., 2021; Kavvouris et al., 2020).

Although such behavioral interventions are usually considered beneficial and even supported by recipients in principle, social marketing campaigns often fail to persuade, instead evoking resistance (Baek, Yoon, & Kim, 2015; Kim et al., 2024). A striking example can be found in the “*Mask Up or Pack Up*” campaign launched by a Pennsylvanian university during the COVID-19 pandemic (Dillard et al., 2021). The utilized slogan conveyed a strict regulation by highlighting the negative consequences of noncompliance, which was the exclusion from class, with the intent of creating fear to ensure compliance. However, a different outcome than expected (i.e., compliance) was observed. Several students refused to wear masks as an act of defiance, despite the risk of disciplinary consequences (Dillard et al., 2021).

Such behavioral backlash can be explained by individuals’ perception of being patronized and thus restricted in their freedom. This feeling is particularly triggered when controlling or pushy slogans are used for behavioral advice (Dillard & Shen, 2005). Often, this manifests in a “now more than ever” attitude that reinforces resistance and results in the opposite of the intended behavioral outcome (Ratcliff, 2021). In Psychological Reactance Theory (PRT), this phenomenon is known as psychological reactance, a negative motivational state that aims to restore one’s autonomy (Brehm, 1966; Dillard & Shen, 2005). Theory and practice have shown that, also in the social marketing context, psychological reactance presents a

significant challenge for organizations, as it can lead not only to inaction but also to counterproductive behaviors (Kavvouris et al., 2020; Ratcliff, 2021).

Over the past half-century, a specific research direction has evolved to understand and mitigate psychological reactance (Brehm, 1966; Dillard & Shen, 2005; Silvia, 2006; Ma & Miller, 2022; Freudenreich & Penz, 2025). While most studies have focused on rhetorical message characteristics such as language, tone, and assertiveness, little is known about the effectiveness of alternative approaches to date (Quick & Considine, 2008; Kronrod, Grinstein & Wathieu, 2012; Ma & Miller, 2022). Thereby, previous findings indicate that a certain degree of forcefulness in message design is necessary to convey urgency and the indispensability of behavioral change. However, by designing persuasive messages, a perfect balance must be found: It must appear compelling without triggering reactance (Kronrod, Grinstein, & Wathieu, 2012; Reynolds-Tylus, 2019). Since practitioners often fail to achieve this balance, it frequently results in failed campaigns that evoke reactance (Reynolds-Tylus, 2019).

Acknowledging this dilemma, the present study extends prior research by proposing and empirically testing a novel approach. Drawing on insights from humor and reactance research, it examines whether integrating humorous elements into persuasive messages can reduce psychological reactance. Humor is considered an effective “catalyst of social change”, serving as a more engaging and less threatening alternative to fear-based appeals (Skurka & Cunningham, 2023, p.1). Previous studies have shown that humor can foster positive emotions, enhance attention, and improve attitudes, although its effects depend strongly on contextual factors and message relevance (Eisend, 2009; Weinberger & Gulas, 1992). To date, the specific role of humor in mitigating psychological reactance has received scant empirical attention, despite theoretical indications of its potential influence.

To address this gap, the present study tests three hypotheses in an experimental setting that thematizes bicycle helmet usage. The results did not confirm the hypothesized effects of humor on reactance. Humor had no significant impact on perceived threat to freedom or reactance, and no differences were found across levels of issue involvement. These findings suggest that humor, at least in this context, does not represent an effective tool for reducing psychological reactance to social marketing campaigns. Despite the non-significant findings regarding the role of humor, the positive relationship between perceived threat to freedom

and reactance was confirmed, supporting the core assumptions of PRT. Furthermore, the results could not replicate the previous finding of an interaction between humor and issue involvement, suggesting that a significant interaction may only occur for very high perceived humor levels.

2. Theoretical Background

The theory of psychological reactance (PRT) offers a theoretical framework for explaining why message assertiveness elicits resistance and behavioral backlash (Brehm, 1966; Brehm & Brehm, 1981). Originating in the field of psychology, PRT has been applied in communication and marketing research, developing strategies that reduce reactance and enhance message persuasiveness (Ratcliff, 2021). PRT contains four essential elements: freedom, perceived threat to freedom, reactance, and the restoration of freedom (Brehm, 1966). Its fundamental assumption is the need for self-determination, which describes the freedom to decide how individuals can feel, think, and act (Brehm, 1966; Deci & Ryan, 2017). Whether someone feels restricted in their freedom is determined by their general tendency for reactance, known as reactance proneness or trait reactance, as well as individual factors such as freedom-seeking or personal values (Freudenreich & Penz, 2025).

Next to freedom and the threat to freedom, reactance is the third component of the reactance process, describing the motivational state triggered when a freedom threat is perceived (Brehm, 1966; Brehm & Brehm, 1981; Dillard & Shen, 2005). The strength of reactance correlates positively with the magnitude of perceived threat to freedom, meaning that when the threat to freedom increases, reactance also gets stronger (Brehm & Brehm, 1981). Although initially established as an unmeasurable hypothetical construct, inferred only from its behavioral outcomes, the growing interest in capturing the underlying psychological mechanisms of reactance led Dillard and Shen (2005) to develop an empirically validated measurement approach. By comparing different approaches, they demonstrated that reactance is best captured by combining emotional reactions and negative cognitions, forming a joint construct with dimensions of anger (an affective component) and counterarguing (a cognitive component). This measurement approach has remained prevalent to this day, utilizing various items (e.g., Quick & Considine, 2008; Freudenreich & Penz, 2025). In this study, the approach of Dillard and Shen (2005) will also be applied to measure the impact of humor on psychological reactance.

The last component in the reactance process is the restoration of freedom (Brehm, 1966). While reactance encompasses the motivation to reestablish perceived freedom, the restoration of freedom represents the actual behavioral consequence (Steindl et al., 2015). Research identified different examples of freedom restoration. It can span, for example, message denial, source derogation, or negative attitude change (Brehm & Brehm, 1981; Miller, 2015). In the worst-case scenario, backlash behaviors may occur by engaging in counter-intended activities (for example, not wearing a mask) or by showing resistance to the promoted behavior (for example, refusing flu vaccination) (Reynolds-Tylus, 2019; Ratcliff, 2021). These negative reactions are often referred to as the “boomerang effect” and are considered problematic for the effectiveness of social marketing campaigns (Dillard & Shen, 2005; Rains, 2013; Freudenreich & Penz, 2015).

3. Literature Review

3.1 Reactance to Persuasive Messages in the Social Marketing Context

Previous studies have systematically varied message features, such as language, tone, and fear levels, to determine when exactly persuasive messages trigger reactance (Quick & Considine, 2008; Ma & Miller, 2022; Ruiter et al., 2014; Dillard & Shen, 2005; Freudenreich & Penz, 2025). After years of research, the ineffectiveness of freedom-threatening messages has been well-documented. Across various health-related contexts (e.g., drug use, binge drinking, tobacco consumption), research consistently shows that reactance particularly increases when messages use very coercive or assertive language (Reynolds-Tylus, 2019). Regardless of whether such message elements were labeled “forceful,” “domineering,” or “controlling,” they were perceived as autonomy-threatening by the audience and thus provoked reactance (Quick & Stephenson, 2007; Miller, 2015; Ma & Miller, 2022). In contrast, more tactful and suggestive phrasing reduced perceived threats to freedom (Kronrod, Grinstein & Wathieu, 2012; Clayton et al., 2020). For example, “You must not speed” evokes stronger reactance than “Try not to speed” (Ward et al., 2021). Similarly, highly fear-inducing messages, such as shocking cigarette warnings, increased reactance, which made the persuasive intent more salient to the participants (Dillard & Shen, 2005; Ruiter et al., 2014). However, a conflict exists between less threatening forms, such as suggestive language and persuasion, which makes the communication of behavioral interventions very difficult (Reynolds-Tylus, 2019). While less threatening framing can reduce reactance, it often comes at the cost of persuasive impact, conveying that compliant

behavior is not necessarily expected (Reynolds-Tylus, 2019; Kronrod, Grinstein & Wathieu, 2012; Clayton et al., 2020). Additionally, whether and how fast a person feels threatened by a persuasive attempt is heavily dependent on individual factors such as the tendency for freedom-seeking or reactance proneness (Reynolds-Tylus, 2019; Steindl et al., 2015). While some individuals require a stronger, pushier message tone to understand the relevance of behavior change, this might already be freedom-threatening for others (Ma & Miller, 2022). This makes it difficult for social marketers to design universally effective campaigns that do not trigger reactance but increase compliance (Reynolds-Tylus, 2019). Therefore, one main challenge in social marketing is to find a balance between persuasive message characteristics that convey the importance of behavioral change, while also ensuring that behavior can be changed successfully without provoking a behavioral backlash (Reynolds-Tylus, 2019). Based on this problem, the current study tests a novel approach to reducing reactance to persuasive messages by combining humorous elements with assertive language and fear.

3.2 Humor in Persuasive Communication

But why is humor such a promising tool to reduce reactance to social marketing campaigns? Compared to serious campaigns, humor can convey the same threatening content through a more “playful lens” (Yoon & Tinkham, 2013, p. 31). This increases the likelihood that recipients perceive the message more positively (Eisend, 2009). In the context of persuasive communication, humor is defined as a stylistic tool strategically employed as a communication strategy to elicit entertainment and enhance persuasive power (Sternthal & Craig, 1973; Martin & Ford, 2018). Typical forms of humorous cues include irony, satire, slapstick, or wordplay (Sternthal & Craig, 1973). According to humor theories, the cognitive processing of humorous messages typically involves a reorganization of message elements as individuals want to understand why humor was used in an unexpected context (Speck, 1991; Weinberger & Gulas, 1992). The output of this so-called incongruity resolution process is that it elicits amusement in the audience, often visible through smiles or laughter (Weinberger & Gulas, 1973). Further, amusement produces a pleasant emotional state that serves as a reward for successfully understanding the humorous cue (Weinberger & Gulas, 1992). Especially in social marketing campaigns, this has been revealed to be particularly effective due to the incongruence between a serious topic and the humorous stimulus, thereby enhancing the positive impact of the message (Eisend, 2009, 2022). This positive effect of

humor is deliberately used to foster a more favorable perception of social marketing campaigns and to support the effectiveness of behavioral interventions (Brennan et al., 2020).

In humor research, a direction has emerged intending to examine when and how humor is most effectively utilized to convey critical information and enhance persuasive power (Eisend, 2009). Several advantages that increase persuasion have crystallized. For example, it could be demonstrated that humor attracts attention through its unexpectedness in serious contexts (Borden & Suggs, 2019). Due to this surprise effect, intensified cognitive processes are activated that have the aim to understand the discrepancy between a humorous cue and serious topics, which also enhances message engagement (Eisend, 2009; Borden & Suggs, 2019; Kim et al., 2024). As a side effect, intense message processing further enhances the likelihood of message recall, which is crucial for the long-term effectiveness of social marketing campaigns and is often sought when designing humorous messages (Skalski et al., 2009). Since amusement further decreases cognitive defense mechanisms, it distracts from negatively evaluating a message, thereby improving the attitude towards the message (Eisend, 2022; Strick et al., 2009). However, humor also decreases the motivation to produce counterarguments, as it would harm the positive emotions previously triggered by the humorous cue (Voss, 2009). Nevertheless, humor has not only an effect on cognitive but also affective components (Eisend, 2009). Acknowledging this advantage, marketers often seek the benefit of humor by creating positive attitudes towards both the campaign and the sender of the message (Weinberger & Gulas, 1992; Nabi, 2016). Hence, research has demonstrated that as soon as the audience feels amused by a campaign, the likelihood increases of associating the message content or the organization with a pleasant feeling (Eisend, 2009; Nabi, 2016). This can be explained by the transfer of positive emotions from the humorous cue to the message or the sender, and it is highly effective in persuasion (Eisend, 2022).

Those benefits make humor a popular and hence frequently applied strategy in social marketing. Now that we understand why humor is a popular cue in campaigns, the upcoming sections focus on developing hypotheses and explaining, based on prior findings from literature, why its use also seems sensible in the context of reactance.

3.3 The Effect of Humor on Reactance

Research on the relationship between humor and psychological reactance remains very limited to date. An extensive literature review revealed only a few studies that addressed this

relationship in the past. Shen and Coles (2015) were among the first to demonstrate that humor can indirectly reduce reactance in the context of fear-inducing campaigns. Their findings suggest that humor introduces more positive information by mitigating the effect of fear on reactance toward persuasive messages. However, in this study, humor played a subordinate role, with fear being the decisive factor that influenced reactance. Nonetheless, this indicated a relationship between humor and reactance, although not a direct one. Extending this idea, Skurka et al. (2025) found that humorous campaigns were more effective in lowering reactance than informational or fearful messages, but only when participants were free to choose which campaign type to view. In their study, not humor but freedom of choice determined reactance. However, these results imply that humor may amplify perceptions of autonomy and thus buffer against freedom-threatening communication. Furthermore, Kim et al. (2024) found that reactance mediated the effect of humor on the effectiveness of vaccination campaigns (COVID-19 and flu), but only in the COVID-19 condition, specifically when the humorous cue preceded the threatening message component and trust in vaccinations was low. In the flu condition, opposite effects occurred, suggesting that reactance decreased only when the order was threat, then humor, and when trust in vaccination was high. Since the topic of COVID-19 is highly emotionally loaded, the authors recommend retesting their hypotheses in different contexts. Hence, their findings are limited to understanding the role of humor in reactance, as trust in science determined reactance levels.

These prior findings regarding the role of humor on reactance provide empirical evidence for a link between those variables, thereby underscoring the relevance of the present research. However, the observed effects appeared to depend on contextual and situational factors, such as trust, order effects, or perceived freedom of choice. In contrast to those studies, the present research aims to provide broader empirical evidence by isolating humor as the primary message characteristic and by examining its direct and indirect effects on reactance within a social marketing context.

Moreover, theoretical work from other humor research contexts suggests that psychological reactance can be mitigated through the strategic use of humor. Because reactance is triggered by perceived threat to freedom and expressed in emotional and cognitive responses, both of which humor has been shown to influence, it is plausible that humor could indeed reduce reactance based on findings in the context of compliance research (Yoon & Tinkham, 2013;

Skurka et al., 2025; Moyer-Gusé, Mahood & Brookes, 2011). Whether these theoretical expectations are supported empirically will be tested later in the study using an experimental approach.

But how might humor actually reduce perceived threat to freedom and consequently reactance? Recalling the reactance process, where threat to freedom is the underlying reason persuasive messages elicit reactance, the theoretical mechanisms can be conceptualized in two ways. The first approach assumes that humor exerts a direct effect on the emotional and cognitive components of reactance, independent of perceived threat to freedom. In this view, individuals may still perceive a message as autonomy-threatening. Yet, humor functions as a buffer by attenuating cognitive defenses and negative emotions through specific mechanisms. Suggesting a second approach, the study will test whether humor affects perceived threat to freedom, which may mediate the relationship between humor and reactance.

3.3.1 The Role of Humor on Cognitive Defense Mechanisms

According to reactance research, recipients respond to persuasive messages by engaging in cognitive defense mechanisms aimed at maintaining or restoring their perceived freedom (Brehm & Brehm, 1981; Dillard & Shen, 2005). These processes involve critically evaluating and challenging message arguments (Dillard & Shen, 2005; Kavvouris et al., 2020). Consequently, counterarguments are formed, which reflect recipients' resistance to persuasive arguments (Dillard & Shen, 2005). Previous research demonstrated that humor can lower the desire to counterargue by distracting recipients through its unexpected nature in serious contexts (Strick et al., 2009). Surprised by the humorous cue, recipients consequently shift their attention from processing message arguments to focusing on understanding why humor is present (Strick et al., 2009; Becker & Anderson, 2019). This effect is powerful when the contextual fit between humor and the topic is low, as recipients must invest greater cognitive resources to resolve incongruity (Nabi, Moyer-Gusé & Byrne, 2007; Becker & Anderson, 2019). Since message processing is more cognitively demanding in this case, fewer resources remain available for psychological or motivational resistance (Strick et al., 2009; Eisend, 2011). Furthermore, research indicates that the motivation to engage in counterarguing decreases as soon as recipients feel entertained by the message (Becker & Anderson, 2019). This can be explained by the principle of mood congruence, which posits that individuals process information in a manner consistent with their current affective state (Voss, 2009). In this case, humor induces a positive mood, whereas

counterarguing is linked to a negative one. According to this principle, both processes are unlikely to co-occur. Consequently, recipients are more likely to evaluate arguments more favorably and may, in the best-case scenario, even generate additional supportive thoughts that reinforce the message (Voss, 2009). These findings suggest that humor might affect the cognitive component of the reactance process.

However, some boundaries must be considered in this context, as research is not entirely consistent on whether the use of humor and the distraction mechanisms associated with it are ultimately beneficial or detrimental in the persuasion process. Some studies have found that information discounting can occur, meaning that humorous elements might overshadow the serious message part, resulting in a worse transmission of the intended message (Nabi, Moyer-Gusé & Byrne, 2007). Furthermore, distraction may result in a lower perceived seriousness of the topic and can be responsible for important information not being encoded correctly (Bonnici, Briguglio, & Spiteri, 2023). As a result, the perceived relevance of the issue and the persuasive power of the message may decline, decreasing the likelihood of compliant behavior (Voss, 2009). This underlines once again how challenging it is to maintain persuasive power by reducing reactance when using humor in serious contexts. However, in the context of the current study, only the role of humor on the reactance process is investigated in isolation, without considering further steps in the persuasion process as behavioral outcomes. Nonetheless, this should be considered in practice when behavioral outcomes ultimately count and it is important to keep in mind when discussing later results (Eisend, 2009; Samson et al., 2014).

3.3.2 The Role of Humor on Affective Defense Mechanisms

Cognition and emotions are strongly intertwined in message evaluation, as emotions emerge representing the affective response to cognitive message processing (Abel, 2002). According to Dillard and Shen (2005), the emotion of anger forms the affective component and must therefore be examined alongside counterarguing when investigating the potential impact of humor in reducing reactance. Anger is defined as a negative emotional response to a stimulus, typically involving frustration or aggression (Kim & Niederdeppe, 2014; Lazarus, 1991). Although it generally arises only in the short term, it is characterized by high intensity and plays a decisive role in rejecting or attacking persuasive content, as it diminishes individuals' motivation to comply (Lazarus, 1991; Quick & Considine, 2008; Rosenberg & Siegel, 2023; Graton, Ric & Gonzales, 2015). Within the context of psychological reactance, anger is

elicited when individuals perceive that their freedom is threatened or unfairly restricted through a persuasive attempt (Dillard & Shen, 2005). Even though the effect of humor on anger has not yet been a focus of empirical research, insights from studies examining humor's influence on other emotions may be applied here. Humor's emotional effects have been extensively explored in prior research, particularly regarding its role in shaping emotions such as fear (e.g., Mukherjee & Dubé, 2012; Jäger & Eisend, 2013), guilt (e.g., Pochun, Lee & Royne, 2017; Graton, Ric & Gonzales, 2015), shame (Brennan & Binney, 2009), or disgust (Deckman & Solnick, 2020). Such negative emotions are problematic in the social marketing context as they undermine persuasion and thus often increase reactance (Shen & Coles, 2015; Bilfinger, Brummernhenrich & Jucks, 2024). Hence, reducing such emotions is a key objective for researchers and practitioners.

Previous research has consistently demonstrated that humor can regulate emotional responses in various contexts (e.g., Abel, 2002; Brennan et al., 2020; Samson et al., 2014; Deckman & Skolnick, 2020). Since humor evokes amusement and is experienced as pleasant by recipients, it facilitates the reappraisal of negative or threatening situations (Parker & Brennan, 2020; Eisend, 2017). Samson and Gross (2012) demonstrated that humor reduces negative emotions and fosters positive ones, both in the short and long term, as it increases emotional arousal and elicits positive affective states that can decrease or even override negative emotions. Supporting these findings, other studies revealed that humor buffers negative emotions and promotes the reinterpretation of negatively perceived situations by creating emotional distance between the individual and a negative stimulus (Kugler & Kuhbandner, 2015; Deckman & Skolnick, 2020; Mukherjee & Dubé, 2012). Similarly, Mukherjee and Dubé (2022) argue that humor provides a “safe context that reduces the need for defensive responses” in emotionally arousing situations.

Also, in favor of the assumption that humor influences emotions speaks the finding that in persuasive contexts, humor helps to relieve internal tensions that arise from the conflict between self-determination and the pressure to comply (Shen & Coles, 2015; Borden & Suggs, 2019). It offers emotional relief by replacing negative emotions with positive ones, elicited through amusement (Kobel & Groeppel-Klein, 2021; Parker & Brennan, 2020). Moreover, the suggestion that humor may reduce anger aligns with findings indicating that humor enables individuals to better cope with stressful or unpleasant situations (Abel, 2002; Strick et al., 2009). By representing a psychological coping mechanism, humor facilitates

emotional regulation, allowing individuals to process stress and emotional conflict more effectively, thereby reducing stress (Abel, 2002; Brennan, Parker, & Pochun, 2020).

Collectively reflecting findings from humor research that humor positively influences cognitive and emotional defense mechanisms, the current study hypothesizes that the strength of reactance decreases in humorous social marketing campaigns compared to serious campaigns.

H1: Compared to serious social marketing campaigns, humorous social marketing campaigns reduce reactance.

3.4 The Mediating Role of Threat to Freedom

While the first hypothesis tests the direct effect of humor on reactance, the second hypothesis includes perceived threat to freedom as a mediator. Although prior research has not examined the role of humor in perceived threats to freedom, some papers have investigated related issues that suggest a relationship. The current study assumes parallels between resolving interpersonal conflicts and freedom threats. While threat to freedom describes the perceived restriction of choice and a decrease in autonomy, conflicts arise due to differences in one's own goals, needs, or behaviors (Dillard & Shen, 2005; Campbell & Moroz, 2014; Nir & Halperin, 2019). Although these terms describe two different situations, they result in very similar reactions, such as resistance behaviors, negative emotions, and defense mechanisms (Dillard & Shen, 2005; Nir & Halperin, 2019). Conflict research has revealed that humor can be a successful way to de-escalate situations, as it frames them less offensively (Campbell & Moroz, 2014; Booth-Butterfield & Wanzer, 2018). By transferring that knowledge to the perception of threat to freedom, it can be argued that the use of humor can reduce potential inner tensions or conflicts that arise from the feeling that a message offends someone's autonomy (Borden & Suggs, 2019; Skurka & Lee Cunningham, 2023). In the current context, perceived freedom threats reflect the inner tension that arises from the trade-off between freedom-seeking and the perception that this is restricted (Dillard & Shen, 2005; Deckman & Skolnick, 2020). This understanding is further supported by the finding that humor can also serve as a successful coping mechanism in unpleasant situations, helping to reappraise negative events (Samson et al., 2014). This enables people to distance themselves from stressful issues (Deckman & Skolnick, 2020).

The second mechanism that might explain why humor can potentially decrease threat to freedom is that humor affects how the message is framed in terms of message design (Eisend, 2009). For example, assertive tones and controlling, forceful language have been found to be ineffective in convincing individuals, as they can increase perceived freedom threat (Quick & Considine, 2007; Zemack-Rugar, Moore, & Fitzsimons, 2017; Ma & Miller, 2022). However, research has shown that a certain degree of assertiveness is necessary to communicate the importance and urgency of behavioral change (Baek, Yoon, & Kim, 2015; Kronrod, Grinstein, & Wathieu, 2012; Kronrod, Grinstein, & Shuval, 2022). In this context, for example, Kronrod, Grinstein, and Shuval (2022) demonstrated that an assertive message, combined with positive language, can decrease the threat to freedom. A finding that supports this idea is one by Lee and Ferguson (2002), who examined the effectiveness of different types of humor in decreasing rebellious reactions to persuasive messages among adolescents. They observed that participants were more open towards an anti-tobacco message due to a lower feeling of being criticized and externally controlled (Lee & Ferguson, 2002). This can be extended by the insight that humorous messages enhance the perceived warmth in messages, which in turn elevates their persuasiveness by increasing approachability and positive affect (Elpers, Mukherjee, & Hoyer, 2004; Weinberger & Gulas, 2019). Furthermore, it was found that humor can soften the perceived assertiveness of a call-to-action by presenting it more gently and softly (Sternthal & Craig, 1973; Eisend, 2009).

Based on these prior results, it is suggested that humor, on the one hand, can mitigate conflict potential in persuasive messages and further decreases threat to freedom through influencing how a message is presented and consequently perceived, decreasing message assertiveness (e.g., Campbell & Moroz, 2014; Nir & Halperin, 2019; Kronrod, Grinstein & Wathieu, 2012). Hence, it is expected that humor makes the recipient more open to the actual message and can prevent high levels of threat to freedom, as the persuasive attempt will be perceived as less confrontational or harsh. Thus, the current study hypothesizes that threat to freedom can serve as a mediator between the effect of humor on reactance.

H2: Perceived threat to freedom mediates the relationship between the humorous social marketing campaigns and the reactance construct.

3.5 Interaction between Humor and Issue Involvement

Past research has demonstrated that the success of persuasive messages heavily depends on individual characteristics (e.g., Eisend, 2009, 2022; Freudenreich & Penz; Yoon & Tinkham, 2013). Issue Involvement is one of those factors identified as particularly strong in determining persuasion effectiveness (Leippe, Elkin, & Rogers, 1987; Zhang & Zinkhan, 2006; Eisend, 2022; Dobbstein, Oberluggauer, & Mason, 2025). Issue involvement refers to the degree to which a topic is personally relevant and reflects how strongly an individual feels affected by an issue (Zaichkowsky, 1986; Dobbstein, Oberluggauer, & Mason, 2025). From a more general perspective, Marshall et al. (2008) demonstrated that issue involvement predicts compliance, revealing that individuals with high issue involvement are more likely to react positively to persuasive messages. Transferring knowledge from compliance to reactance research suggests that reactance would be lower for individuals with low issue involvement and vice versa. While this is the case for serious messages, it was revealed not to apply to humorous messages (Yoon & Tinkhan, 2013; Eisend, 2022).

These findings can be theoretically explained by the Elaboration Likelihood Model (ELM) proposed by Petty and Cacioppo (1986), which offers a theoretical foundation for understanding how individuals process persuasive messages and why the effect of humor on compliance depends on the level of issue involvement. According to the model, individuals process persuasive information using two distinct routes. The central route, which involves intense processing of message arguments, and the peripheral route, where processing intensity is lower and where peripheral cues determine message processing depth (Petty & Cacioppo, 1986; Zhang & Zinkhan, 2006; Tao et al., 2021). Which route is taken heavily depends on the motivation and ability to elaborate, with issue involvement serving as a critical determinant (Petty & Cacioppo, 1986).

Empirical research provides clear evidence for the moderating function of issue involvement in how humor affects persuasion and resistance to behavioral interventions. Under low-involvement conditions, recipients often perceive message elaboration, particularly of threatening or persuasive content, to be cognitively demanding and emotionally unpleasant (Zhang & Zinkhan, 2006). In such situations, humor serves as a positive peripheral cue that reframes threatening information, reducing perceived negativity and increasing message approachability through its playful character (Yoon & Tinkham, 2013; Zhang & Zinkhan, 2006). Several studies confirmed that individuals with low involvement evaluate humorous

messages more favorably than non-humorous ones and experience reduced defensiveness (Yoon & Tinkham, 2013). This effect is strengthened by the effect of humor being able to distract from the threatening nature of the message, increasing emotional distance, and thereby buffers resistance, leading to more compliance (Strick et al., 2010; Spielmann, 2014; Eisend, 2022)

In contrast, under high issue involvement, the effectiveness of humor tends to decline or may even reverse (Zhang & Zinkhan, 2006; Yoon & Tinkham, 2013; Eisend, 2022). Highly involved recipients are motivated to scrutinize message arguments and assess their credibility. In these cases, humor can interfere with cognitive processing, reducing the perceived seriousness of the message and the communicator's credibility as a consequence (Yoon & Tinkham, 2013). When humor appears incongruent with the topic, particularly in contexts where competence and seriousness are expected, it can generate a distraction effect, resulting in decreased persuasive impact and heightened skepticism (Eisend, 2022; Dobbstein, Oberluggauer, & Wathieu, 2025).

Transferring this knowledge to the current reactance context, while humor may serve as a message cue to reduce reactance among low-involvement audiences, it may undermine persuasion among highly involved individuals who interpret it as trivializing or inappropriate. Owing to this, it is expected that in a serious context, reactance will decrease more strongly for highly involved individuals. At the same time, in the humorous condition, the interaction will be vice versa, by buffering reactance for individuals with low issue involvement.

H3: For high issue involvement, the buffering effect of humor on the reactance construct is weaker than for low issue involvement.

4. Model

After developing three hypotheses, the following model is proposed:

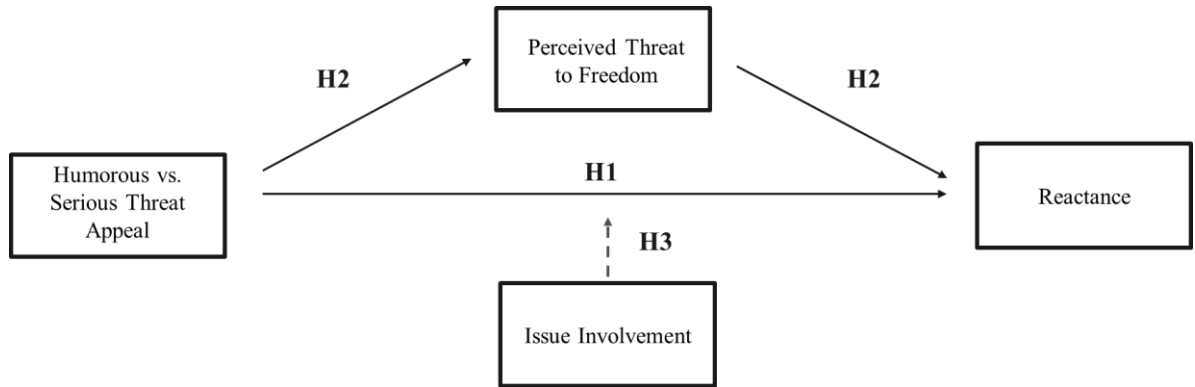


Figure 1: Hypothesized model

As depicted in *Figure 1*, the model assumes that humorous social marketing appeals decrease psychological reactance by directly influencing both of its components, anger and counterarguing. Humor is expected to enhance positive and reduce negative emotions while simultaneously affecting cognitive message processing, thereby decreasing the motivation to generate counterarguments through distraction mechanisms and mood congruence. Furthermore, it is hypothesized that the perceived threat to freedom mediates this relationship, as humorous persuasive attempts are assumed to be experienced as less freedom-threatening than serious ones due to humor's ability to relieve internal conflicts and tension. Finally, the model proposes that the effectiveness of humor in reducing reactance depends on individuals' issue involvement, since humor in persuasive contexts is perceived and processed differently depending on the level of involvement.

5. Method

To test the hypotheses, an experiment was conducted using an online questionnaire. After eliminating respondents who did not complete it or failed the attention check, a convenience sample of 104 participants ($N = 104$, $M_{Age} = 26.84$, $SD_{Age} = 8.10$, 65.4% females) remained for analysis. The sample consisted of voluntary participants recruited from the researcher's immediate social environment and from an online survey platform. The questionnaire was formulated in English. After a brief introduction, participants were introduced to a fictitious campaign by the European Union's Directorate-General for Communication (DG COMM), a real-world EU institution that encourages the use of bicycle helmets (see Appendix 1).

Ensuring that the campaign itself did not influence the moderator of *Issue Involvement*, participants were directly asked to rate their individual involvement with the topic of bicycle helmets before being exposed to the campaign. To capture individual differences in issue involvement, three items, adopted from a scale by Yoon and Tinkham (2013), were asked. Participants evaluated the following statements on a 7-point Likert scale (1 = “not at all”, 7 = “very much”): “*The issue is very critical to me.*” (M = 4.67, SD = 1.87), “*The issue is personally relevant to me.*” (M = 4.74, SD = 1.95), and “*I feel highly involved with the issue.*” (M = 4.28, SD = 1.87). Because Cronbach’s alpha indicated internal consistency of the scale, a composite measure for issue involvement could be calculated ($\alpha = 0.87$, M = 4.56, SD = 1.69).

Next, participants were randomly assigned to one of the two campaigns, for which humor perception was pretested beforehand, allowing for comparisons of participants' reactions across various campaigns. The participants of the pretest were not asked to participate in the later study to prevent potential biases. In the humorous condition (N = 54), the stimulus consisted of a picture of a man adjusting his bicycle helmet with the slogan “*Strap it like it’s hot!*” - a reference to a 2004 hip-hop song by Snoop Dogg (Figure 2). In the control condition (N = 50), the same image was depicted, but the slogan was changed to “*Protect your head!*” (Figure 3). The campaign further provided a fear-inducing subline: “*About 70 percent of cyclists involved in deadly accidents were not wearing a helmet - don’t be reckless, wear it.*”, which was the same across both conditions.



Figure 2: Humorous condition (manipulation)



Figure 3: Serious condition (control)

Directly after, it was tested whether the reactance levels of participants differed between the humorous and the serious condition. The dependent variable *Reactance* was measured by combining the dimensions of *Anger* and *Counterarguing*, in line with the established state reactance scale by Dillard and Shen (2005). *Anger* was assessed by using four items measured on a 7-point Likert scale (1 = “*strongly disagree*”, 7 = “*strongly agree*”). Participants were asked to rate the following statements: “*After seeing this campaign, I feel...*”: “*irritated*” (M = 2.42, SD = 1.65), “*angry*” (M = 1.89, SD = 1.45), “*annoyed*” (M = 2.30, SD = 1.57), and “*aggravated*” (M = 2.88, SD = 1.78). Since the items demonstrated acceptable internal consistency, a composite anger score was calculated by averaging responses across all four items ($\alpha = 0.79$, M = 2.38, SD = 1.26).

To capture reactance’s second dimension, participants were further asked to evaluate their tendency of *Counterarguing* using a 7-point Likert scale (1 = “*not at all*”, 7 = “*very much*”). The measure included three items following the self-reporting approach by Silvia (2006): “*Were you criticizing the campaign while you were looking at it?*” (M = 2.68, SD = 1.90), “*While looking at the campaign, were you thinking of points that went against the campaign’s argument?*” (M = 2.20, SD = 1.51), and “*While looking at the campaign, were you feeling sceptical about its arguments?*” (M = 2.16, SD = 1.46). The items revealed internal consistency ($\alpha = 0.75$). Also here, a composite counterarguing score was computed by averaging the three items (M = 2.35, SD = 1.32). After descriptively examining both construct variables separately from each other, a joint mean comprising all three items of anger and all

four items of counterarguing was formed for *Reactance*, following the approach by Dillard and Shen (2005) ($M = 2.36$, $SD = 1.03$).

After assessing the reactance construct, participants were asked to report their attitude towards the mediator of *Perceived threat to freedom* using a 7-point Likert scale (1 = “strongly disagree”, 7 = “strongly agree”). The construct was measured in line with the original scale by Dillard and Shen (2005) using four items: “*The message threatened my freedom of choice.*” ($M = 1.90$, $SD = 1.56$), “*The message tried to make a decision for me.*” ($M = 2.45$, $SD = 1.78$), “*The message tried to manipulate me.*” ($M = 2.37$, $SD = 1.84$), “*The message tried to pressure me.*” ($M = 2.66$, $SD = 1.73$). Also here, Cronbach’s alpha revealed internal consistency ($\alpha = 0.84$). A composite measure was formed ($M = 2.35$, $SD = 1.42$).

At the end of the questionnaire, a manipulation check was conducted to ensure that the humorous campaign in the manipulation condition was indeed perceived as more amusing than the serious campaign in the control condition. To compare the perceived humor of both campaigns, participants were asked to rate the respective campaign they had seen before using different adjectives. This approach followed a scale by Yoon and Tinkham (2013), which was created to capture perceived humor with four items asking: “*Please indicate how you perceived the campaign you just saw on the following dimensions:*”. Therefore, a 7-point semantic differential with the opposite adjectives on both ends was utilized: “*Funny*” – “*Not funny*” ($M = 3.85$, $SD = 2.26$), “*Amusing*” – “*Not amusing*” ($M = 3.20$, $SD = 1.90$), “*Entertaining*” – “*Not entertaining*” ($M = 3.86$, $SD = 1.91$), “*Humorous*” – “*Not humorous*” ($M = 3.33$, $SD = 2.09$). Further, Cronbach’s alpha was acceptable ($\alpha = 0.87$).

6. Results

Conducting an independent sample t-test ($t(102) = -3.13$, $p = .001$, $95\%-CI[-1.67, -0.37]$), the results revealed that participants perceived stronger humor in the manipulation condition ($M = 4.05$, $SD = 1.51$) compared to the serious campaign ($M = 3.03$, $SD = 1.81$) with a mean difference of -1.02 . The effect size, calculated using Cohen’s d , was 0.61 , indicating a medium effect. Overall, the manipulation check was successful.

A mediation and moderation analysis were conducted to test the hypotheses by using Hayes PROCESS Model 5 in SPSS. No significant direct effect of *Humor* on *Reactance* could be detected ($B = 0.07$, $SE = 0.52$, $p = .89$, $95\%-CI[-0.97, 1.12]$). Further, the effect of *Humor* on *Threat to freedom* narrowly failed the significance test on the 5-percent alpha-level ($B = -$

0.52, $SE = 0.10$, $p = .06$, 95%- $CI[-1.06, 0.03]$). Analyzing the second part of the mediation pathway, *Threat to freedom* significantly predicted *Reactance* ($B = 0.35$, $SE = 0.06$, $p < .001$; 95%- $CI [0.22, 0.47]$), although the effect was only slight. Bootstrapped estimates of the indirect effect of *Humor* on *Reactance* through *Threat to Freedom* (5,000 samples, 95%- CI) indicated that the confidence interval included zero ($B = -0.18$, Boot $SE = 0.10$, 95%- $CI [-0.40, 0.01]$). This demonstrates that the indirect effect was not statistically significant, suggesting no evidence for mediation. The interaction between *Humor* and *Issue Involvement* was also not statistically significant ($B = 0.03$, $SE = 0.11$, $p = .75$, 95%- $CI[-0.18, 0.25]$). Including the interaction term did not improve the model fit ($R^2 = .001$, $F[1, 99] = 0.10$, $p = .75$), compared to the overall model ($R^2 = 0.25$, $F[4, 99] = 8.26$, $p < .001$). Figure 4 depicts the effect sizes of all model paths.

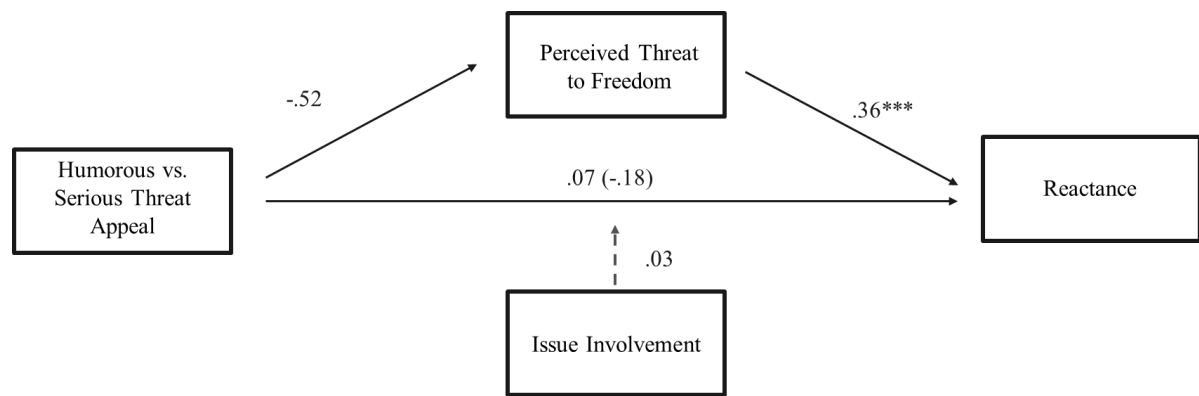


Figure 4: Effect sizes

7. Discussion

Psychological reactance is a significant barrier to persuasion and often counterproductive in social marketing contexts (Brehm & Brehm, 1981; Freudenreich & Penz, 2025). In literature, there is a long-standing debate about the effectiveness of assertiveness in augmenting persuasion without being harmful. Very forceful, pushy, and controlling behavioral advice has repeatedly been found to backfire, triggering emotional and cognitive defensive mechanisms caused by perceived freedom threat (Ma & Miller, 2022; Kronrod, Grinstein, & Wathieu, 2012). One might expect that the most obvious solution is to reduce freedom-threatening message characteristics. In contrast, studies have demonstrated that messages phrased more gently and suggestively can also be ineffective in persuading, as they often reduce the perceived importance and urgency of behavioral change (Kronrod, Grinstein & Shuval, 2022; Ward et al., 2021). This trade-off reflects the challenge of designing persuasive

appeals that are, on the one hand, impactful but, on the other hand, do not threaten audiences' sense of freedom.

Acknowledging this dilemma, the present study proposed that humor can serve as a potential strategy to mitigate psychological reactance. Building on theoretical indications from extant humor and reactance research, the study tested whether humorous message framing could reduce reactance towards social marketing campaigns, both directly and indirectly. These assumptions were drawn from prior findings that humor has a positive impact on emotions and defensive cognitions and further can release tensions and reduce conflict potential (Strick et al., 2009; Voss, 2009; Samson & Gross, 2012; Brennan et al., 2020; Deckman & Skolnick, 2020; Weinberger & Gulas, 2019). Moreover, in this investigation, the moderating role of issue involvement was considered, as research has suggested that the effectiveness of humor in persuasion depends on the personal importance of the issue (Zhang & Zinkhan, 2006; Yoon & Tinkham, 2013; Döbelstein & Luggauer, 2025). By creating two campaigns in the context of a safety behavior that only differed in the presence or absence of humor, it was expected to secure a significant and successful indication that humor can decrease reactance.

Contrary to expectations, the experimental findings could not confirm any of the three suggested hypotheses. According to the study's results, neither a direct nor an indirect effect between humor, reactance, and threat to freedom could be detected, suggesting that utilizing humor is not efficient in decreasing emotional and cognitive defense mechanisms towards persuasive campaigns. However, this inference is limited to the current context, suggesting that a significant effect could potentially be detected for distinct social marketing topics. Nonetheless, the experiment could reveal one significant finding that supports prior research: While the first part of the mediation path between humor and perceived threat to freedom revealed no significant effect, the second path between the mediator and reactance was positive and significant, indicating that individuals with higher perceived threat to freedom also experience higher reactance. This finding contributes to the consensus that perceived threat to freedom is a predictive determinant of reactance (e.g., Dillard & Shen, 2005; Rains, 2013; Rosenberg & Siegel, 2023; Freudenreich & Penz, 2025).

Further discussing the study's results, the current findings stand in contrast to prior research that has found that humor plays a role in reactance research, although its role was in each case not central. However, it is important to highlight that the effects found in these studies

were observed in very limited contexts and under specific conditions. Kim et al. (2024) detected that humor can decrease reactance regarding vaccination campaigns, dependent on order effects of the humorous and the threatening elements, however, only when trust in vaccinations in general was high. This finding speaks in favor that reactance levels are more dependent on the general attitude towards a topic, being moderated by humor. Shen and Coles (2015) found that humor can mitigate reactance in the context of fear advertising by arguing that it represents positively valenced information able to decrease fear, with humor serving as a mediator. The current study's results further contradict those of Skurka et al. (2025), who found that humor is more effective in decreasing reactance compared to informative or threatening campaigns, but only when individuals can freely choose between the different types of campaign in advance. Also in this context, humor played a moderating role, with freedom to choose being the decisive factor in reducing reactance. These findings, however, are still very limiting in explaining the role of humor on reactance, as they examined humor primarily as an auxiliary variable rather than the main manipulation.

The experimental results and methodology of the conducted study require more detailed discussion, offering potential explanations for the non-significant findings and limitations. The manipulation check was successful, which was a necessary precondition for further analysis. This underlines that participants within the manipulation condition indeed perceived the campaign as humorous. However, it further indicated that the strength of perceived humor was only moderate, which potentially could have harmed the impact of humor on threat to freedom as well as on reactance. Facing similar issues, prior studies argued that low to moderate humor intensity often fails to generate persuasive outcomes, as only strong humor results in high incongruity resolution by exaggerating the effects of serious cues (Eisend, 2009; Nabi, 2016; Kim et al., 2024). By further considering that humor can have negative effects on the perceived seriousness and credibility of messages, as shown by Nabi, Moyer-Gusé, and Byrne (2007), the current study aimed to create a campaign for which the general use and strength of humor would be contextually appropriate, without ridiculing the campaign's message. Thereby, there exists no general agreement in literature about which level is appropriate and how far campaigns can go without backfiring, making it hard to find the best strength level of humor for the experimental campaign (Eisend, 2009; Brennan et al, 2020). This might have resulted in only moderate humor perception, potentially limiting its effect on reactance. Another possible explanation comes from literature's findings that the

effectiveness of humor depends not only on its mere presence but also on factors such as humor type, topics, and fit with the message or audience characteristics (Saucier & Walter, 2021). This underlines once again that humor is not a universal tool in resulting in reliable positive outcomes (Abel, 2002; Weinberger & Gulas, 2019; Yoon & Tinkham, 2013; Saucier & Walter, 2021). In the case of the current study, it is possible that different humor types or stronger humorous elements would have resulted in different outcomes than those detected.

Another potential explanation for the non-significant effects can be attributed to the low level of reactance in both experimental conditions. Since the baseline threat to freedom and reactance in the control condition were quite low, only a slight variance remained for humor to have a reducing influence. This is a problem also reflected in prior research (Quick & Stephenson, 2007; Rains, 2013; Bilfinger, Brummernhenrich & Jucks, 2024). Comparing those and the current study with ones that had succeeded in eliciting stronger freedom threat and reactance, it is striking that other studies used several threatening elements to induce freedom threat and reactance (e.g., Dillard & Shen, 2005; Rosenberg & Siegel, 2023). In the current study, the freedom-threatening part was only represented by a short subline in a billboard poster. In contrast, these other studies utilized more than one threatening cue or longer freedom-threat inducing text passages. This potentially might have harmed the effect of humor as participants did not perceive threat to freedom and reactance in the serious campaign. Supporting this, other authors emphasized that perceived threat to freedom is very topic-dependent, influenced by the personal attitude and relevance of the topic (Kayser et al., 2016; Ratcliff, 2021; Rosenberg & Siegel, 2023). In the current case, the safety-behavior context compared to health-related topics might not have been personally threatening or fear-inducing enough to create reactance. When reviewing literature, it is striking that health topics usually dominate humor and reactance research, probably for a justifiable reason, although no clear evidence exists here so far, representing possibilities for further investigations. As already noted by Freudenreich and Penz (2025), social marketing studies tend to overrepresent health contexts while neglecting other social issues. In line with their critique, this implies that behavioral advice intervenes more strongly in health contexts compared to pro-environmental or safety campaigns, as often very personal topics such as alcohol abuse, smoking, or safer sex are communicated (Dillard & Shen, 2005; Quick & Stephenson, 2007; Shen & Coles, 2015).

Another limitation is that validity issues regarding the utilized measurement approach for the construct variable of *Counterarguing* may be prevalent, which may also have contributed to the study's null results. The study assessed the cognitive component of reactance, adopting the easily feasible self-reporting scale by Silvia (2006). Different from that approach, Dillard & Shen (2005), as well as several subsequent studies, have employed an open-ended response format that forced participants to more extensive message processing and more active formation of counterarguments (Quick & Stephenson, 2008; Freudenreich & Penz, 2025; Bilfinger, Brummernhenrich & Jucks, 2024). Adopting their approach would not only have helped to better comprehend the formation of reactance but also might have induced higher reactance levels due to the stronger cognitive examination of the topic. Because cognition and emotions are assumed to be strongly intertwined, this suggests that the open-question approach may have evoked stronger levels of anger, too (Dillard & Shen, 2005). Hence, this, together with an inevitably deeper message processing, could have prevented low levels of reactance in the serious condition and increased the potential buffering effect of humorous cues on reactance in the manipulation condition.

Further, the non-significant moderation indicates that the relationship between humor and reactance did not change significantly depending on the level of issue involvement. This result suggests that issue involvement does not influence how people respond to humorous versus serious messages in terms of reactance. That contradicts theoretical assumptions, based on the Elaboration Likelihood Model (ELM), which posits that highly involved individuals should process messages more critically, leading to a different evaluation of peripheral cues, such as humor (Petty & Cacioppo, 1986). Furthermore, this stands in contrast to the findings by Yoon and Tinkham (2013), who showed that high issue involvement goes hand in hand with higher reactance. Adopting the same scale to measure humor as in the current study, their average humor rating was higher, which potentially might have caused stronger maladaptive responses for highly involved individuals. Supported by Eisend's (2022) finding that the role of involvement is further determined by the strength of humor's distraction effect, a moderate level of humor perception might not have caused sufficient differences to interact significantly with issue involvement.

8. Implications

The study's results have several implications for both theory and practice. First, it supports previous research by suggesting that the use of humor in social marketing does not automatically yield positive outcomes, but rather depends on several additional factors (Eisend, 2009; Weinberger & Gulas, 2019). For practitioners, this implies that numerous contextual and audience-dependent factors must be considered when organizations decide to use humor in their campaigns. Second, the study revealed that high levels of reactance in persuasive contexts do not necessarily occur simply because of a sharper tone or the presentation of severe fear-inducing consequences are mentioned. This was reflected in the low reactance level in the control condition and contrasts with prior findings that suggested that controlling and assertive language automatically correlates with threat to freedom and reactance (Rains, 2013). For practitioners, this implies that when a similar level of assertive language and fear-inducing elements is employed in a safety behavior context, the perception of a high threat to freedom is unlikely to occur. Third, the non-significant moderation offers additional insights: According to the conducted study, the level of issue involvement did not influence how humor affects reactance, questioning prior findings that humor induces negative outcomes when issue involvement is high (Zhang & Zinkhan, 2006; Yoon & Tinkham, 2013; Eisend, 2022). This is an important finding as it implies that for moderately humorous campaigns addressing a broad public audience and for which levels of involvement vary substantially, humor seems to be appropriate without revealing negative responses for high levels of issue involvement (Eisend, 2009).

9. Future Research

Building on the current study and addressing its limitations, several avenues warrant further exploration to deepen the understanding of humor's role in persuasion, in general, and, more specifically, in reactance research. Acknowledging strong theoretical indications of a possible relationship between humor and reactance, it is worth investigating whether different levels of humor might allow us to detect a significant effect on reactance, considering the discussed methodological adaptations for further experiments, or if humor is indeed not an appropriate tool in this context. Further, by testing humor's effects for different humor techniques e.g., tension-relief, incongruity, and superiority humor (Saucier and Walter; 2021) or different types of humor such as black humor, irony or sarcasm (Weinberger & Gulas, 2019), this might provide valuable insights into the boundary conditions of humor's potential to mitigate

reactance and presents a possibility for further research. Third, subsequent studies should explore which contexts and topics elicit higher perceived freedom threats, comparing, for example, sensitive health behaviors, safety behaviors, or pro-environmental behaviors in persuasive campaigns, as already suggested by a recent study by Freudenreich and Penz (2025), who criticized the existing gap in this area. This would not only help to understand in which contexts resistance appears but could further answer the question of whether threat levels vary for different contexts, ultimately understanding better why and when reactance occurs. Moreover, future work building on the presented research question could follow a more exploratory approach, using interviews or open-ended questions, to better capture and understand both cognitive and affective dimensions of reactance in more detail. Current research has shown that reactance can also be captured through other dimensions than anger and counterarguing, for example, through ignoring a message or fighting against its arguments (Ratcliff, 2021; Clayton et al., 2020). Such more nuanced measurements, together with an open-question approach, should enhance the understanding of why reactance appears and how it can be mitigated. By addressing the methodological and contextual issues faced in the conducted study, other researchers may find evidence for the theoretical indications that reactance can be mitigated through humorous message design.

AI Declaration

During the preparation of this work, the author utilized ChatGPT to enhance readability and language. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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Appendices

Appendix 1: Questionnaire

[Introduction]

Dear participant,

Welcome to the study for my master's thesis at the University of Vienna. Please take the next 3-5 minutes to complete the following study.

The survey is anonymous, and your responses will not be shared with third parties.

Thank you in advance for your support and your time!

Note: If you are using your mobile phone to complete the survey, please switch to landscape mode for better readability.

If you have any questions, please contact [REDACTED]

[Szenario]

The European Union's Directorate-General for Communication (DG COMM) has recently launched an EU-wide initiative to increase public awareness about traffic safety. Among other topics, they plan to introduce billboard posters to emphasize the importance of wearing bicycle helmets. Despite ongoing efforts, a significant number of bicycle accidents continue to occur on roads in all member states each year. Some of them result in severe or deadly head injuries. The Commission recognizes the urgent need to address this issue and aims to highlight how wearing a helmet can prevent such injuries, saving hundreds of lives each year.

To ensure the effectiveness of the initiative and its public reception, they seek feedback from the society on the proposed campaign. If the campaign is well-received, it will be translated into the respective national languages for a broader implementation.

[Moderator: *Issue Involvement*]

Please rate your level of agreement with the following statements about wearing bicycle helmets (1 = Not at all/ 7 = Very much).

The issue is critical to me.

The issue is personally relevant to me.

I feel highly involved with the issue.

[Dependent variable: construct variable *Anger*]

To what extent do you agree with the following statement? (1 = Strongly disagree/ 7 = Strongly disagree)

“After seeing this campaign, I feel...

...annoyed”

... aggravated”

... irritated”

... annoyed”

[Dependent variable: construct variable *Counterarguing*]

Please answer the following questions. (1 = Not at all/ 7 = Very much)

Were you criticizing the campaign while you were looking at it?

While looking at the campaign, were you thinking of points that went against the campaign’s argument?

While looking at the campaign, were you feeling skeptical about its arguments?

[Mediator: *Threat to freedom*]

Please rate your level of agreement with the following statements about the issue discussed in the campaign. (1 = Strongly disagree/ 7 = Strongly agree)

“The campaign...

... threatened my freedom of choice.”

... tried to make a decision for me.”

... tried to manipulate me.”

... tried to pressure me.”

[Manipulation Check: *Humor perception*]

Please indicate how you perceived the campaign you just saw on the following dimensions:
(7-point semantic differential)

Funny/Not funny

Amusing/Not amusing

Entertaining/Not Entertaining

Not humorous/Humorous

[Demographics: *Gender*]

Please select your gender.

Female

Male

Other

[Demographics: *Age*]

Please enter your age in numbers (e.g., 25).

[Debrief]

Thank you for participating in the study. The purpose of this study was to determine whether the use of humor in campaigns can influence the reactance behavior against call-to actions. Therefore, a cover story was created, inventing that DG COMM is launching an EU-wide campaign. Depending on whether you were in the manipulation group or the control group, you saw either a humorous or a serious campaign. If you have any concerns about your participation or wish to withdraw your data, please contact [REDACTED]

[REDACTED].

You can close the survey now.

Appendix 2: Statistical Output

[Process Model 5]

***** PROCESS Procedure for SPSS Version 5.0 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model: 5
Y: Reactnce
X: Humor
M: Threat
W: IssueInv

Sample
Size: 104

OUTCOME VARIABLE:
Threat

Model Summary	R	R-sq	MSE	F	df1	df2	p
	,1827	,0334	1,9750	3,5241	1,0000	102,0000	,0633

Model	coeff	se	t	p	LLCI	ULCI
constant	2,6150	,1987	13,1574	,0000	2,2208	3,0092
Humor	-,5178	,2758	-1,8772	,0633	-1,0649	,0293

OUTCOME VARIABLE:
Reactnce

Model Summary	R	R-sq	MSE	F	df1	df2	p
	,5001	,2501	,8284	8,2558	4,0000	99,0000	,0000

Model	coeff	se	t	p	LLCI	ULCI
constant	1,0731	,4251	2,5242	,0132	,2295	1,9167
Humor	,0720	,5230	,1376	,8908	-,9658	1,1098
Threat	,3465	,0641	5,4028	,0000	,2193	,4738
IssueInv	,0779	,0826	,9426	,3482	-,0860	,2418
Int_1	,0343	,1079	,3179	,7513	-,1798	,2483

Product terms key:
Int_1 : Humor x IssueInv

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	,0008	,1010	1,0000	99,0000	,7513

***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****

Conditional direct effects of X on Y

IssueInv	Effect	se	t	p	LLCI	ULCI
3,0000	,1748	,2469	,7082	,4805	-,3150	,6647
4,6667	,2320	,1826	1,2704	,2069	-,1304	,5943

	6,3333	,2891	,2653	1,0898	,2784	-,2373	,8156
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Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
Threat	-,1794	,1012	-,3977	,0104

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

----- END MATRIX -----