



Toward the science of message design approach [emotional appeals version]: The combined effects of anticipated pride appeals and descriptive norm information embedded in messages on behavioral intentions

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Abstract

The current study replicated prior research by creating anticipated pride appeals and embedding the appeals into standard descriptive norms messages to explicate the mixed findings in prior research. In an online experiment, adults in the U.S. ($N=277$) were recruited via an online panel. Participants viewed two-similar messages including either descriptive norm information only or both anticipated pride appeals and descriptive norm information. Results indicated that exposure to emotional descriptive norm messages influenced intentions via eliciting the desired emotional response to the messages, which is consistent with findings in prior research.

Keywords Anticipated pride emotional appeals · Descriptive norms · Injunctive norms · Message design approach (MDA) · Socially desirable behaviors

*“Nothing is as practical as a good theory.”
(Lewin, 1943, 1945).*

Introduction

Normatively-focused messages have been widely studied in social science (see Shulman et al., 2017 for recent reviews) and applied to societal issues (Allcott, 2011; Goldstein et al., 2008; Lapinski et al., 2013, 2014; Schultz et al., 2007). In these prior works, normatively-focused messages have been operated to influence behaviors in socially desirable ways. However, some of them produced a destructive effect by depicting high descriptive norm of socially undesirable behaviors (Mackert et al., 2013, 2017) despite the earlier

recommendation not to simply use descriptive norm information of socially undesirable behaviors (Cialdini et al., 2006). Other studies found an unintended effect resulting from exposure to standard descriptive norm messages (SDNMs) among norm-followers (Mackert et al., 2013, 2017; Schultz et al., 2007); some of them embedded emotional appeals into SDNMs (Blanton et al., 2008), as a cue for injunctive norm (Allcott, 2011; Schultz et al., 2007) to avoid the unintended effect. Indeed, emotions play a critical role in persuasion as they are more relevant to behaviors advocated in messages (Dillard & Peck, 2000).

In the current study, anticipated pride, as a cue for injunctive norm, was selected as a target emotion to design emotional descriptive norm messages (EDNMs) in the context of pro-environmental behaviors (Schneider et al., 2017), which is one of socially desirable behaviors.¹ The focal issue is recycling because it is regarded as an ecologically-oriented (Thøgersen, 1996, 2009) pro-environmental behavior that

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¹ Framing recycling as a socially desirable behavior resulted from the author’s personal conversation with Isabella Cunningham (I. Cunningham, personal communication, 2019, May 22).

is often performed in public.² Pro-environmental behaviors, such as recycling, are also likely susceptible to normative influences (Griskevicius et al., 2012; Rimal & Lapinski, 2015; Rimal et al., 2011; Thøgersen, 2009; Van Vugt et al., 2014). Prior literature on social norms and anticipated pride was reviewed to design EDNMs and explicate the underlying mechanisms of the messages for behavioral intention to engage in the norm-congruent behavior and intention to talk about the messages.

The evolution of normatively-focused messages

Normatively-focused messages refer to messages in which normative information, such as descriptive norm information or injunctive norm information, is used as a main appeal. The normatively-focused messages have been evolved from SDNMs to messages including not only social norms information but also emotional appeals (Allcott, 2011; Blanton et al., 2008; Schultz et al., 2007), dynamic (Sparkman & Walton, 2017) or trending norms (Mortensen et al., 2017) which are re-iterated social norms by taking into account the shift in social norms given time frames.³ These messages have been used to shape, change and reinforce human perceptions, emotional states and behaviors. According to theories related to norms (Cialdini et al., 1991; Rimal & Real, 2003), social norms are often categorized into two distinct types, descriptive and injunctive. Descriptive norms refer to what many others do. Under the influence of descriptive norms, individuals are motivated to make efficient decisions through heuristics, which corresponds to a motivational goal in an intrapersonal level. Injunctive norms refer to what ought to do, which motivates them to engage in the norm-congruent behaviors through actual or imagined social sanction in an interpersonal level. Thus, an understanding of moral values would help folks apprehend injunctive norms (Cialdini et al., 1991). Both social norms strongly influence receivers' perceptions and behaviors when the norms are salient (Cialdini et al., 1991). That is, norm-congruent behaviors likely occur when social norms are in attentional focus (Cialdini, 2003; Cialdini & Goldstein, 2004; Rimal & Real, 2003). Unless receivers perceive the

normatively-focused messages as intended, the messages would have a limited effect on behavioral outcomes.

Many studies have found the effectiveness of SDNMs in changing normative perceptions and/or behaviors in socially desirable ways (Goldstein et al., 2008; Lapinski et al., 2007; White & Simpson, 2013). However, other studies reported unintended effects by showing decreased socially desirable behaviors when presenting descriptive norm information in persuasive messaging (Lapinski et al., 2013; Schultz et al., 2007). For example, in prior studies about energy conservation (Allcott, 2011; Schultz et al., 2007), participants who initially performed a socially desirable behavior by consuming energy less than the norm (i.e. the average) reported the increased energy use after viewing the descriptive norm messages (Schultz et al., 2007). To cope with the unintended effect, emoticons, such as happy/smiley faces (Allcott, 2011; Schultz et al., 2007) and a sad/frown face (Schultz et al., 2007), were embedded into the SDNMs as a cue for injunctive norm. Findings from these prior studies did not show an identical effect; while one found that the aligned descriptive norm information and emoticons embedded in the message enhanced normative influence (Schultz et al., 2007), another found no additive effect of the emoticons embedded into the message on advocating energy conservation (Allcott, 2011). To explain such mixed results in prior literature (Allcott, 2011; Schultz et al., 2007), further investigation is needed.

An explanation to help resolve the mixed findings is that, given the principle of norm salience, normative influence should occur when normatively-focused messages are attended to individuals' focus. That is, social norms information embedded into the messages should be perceived as intended to lead to the norm-congruent behaviors. Thus, the current study replicated prior literature (Allcott, 2011; Schultz et al., 2007) by designing EDNMs in which anticipated pride appeals, as a cue for injunctive norm, and descriptive norm information are embedded in messages. This was to fill the gap in prior literature by investigating the perceptual underlying mechanisms of exposure to EDNMs to behavioral intention to perform the normative behavior and intention to talk relative to SDNMs in this new digital era.

Meanwhile, in a practical standpoint, regarding pro-environmental issues including recycling, it is rarely attainable for individuals to immediately see or feel the desirable changes resulting from their engagement in the behaviors. Since receivers tend to disregard the delayed outcomes resulting from their engagement in pro-environmental behaviors (Griskevicius et al., 2012; Van Vugt et al., 2014), the current study used anticipated pride appeals as a cue to make the desirable outcomes of pro-environmental behaviors explicit via communication. Anticipated emotional appeals mainly produce proximate affective rewards by

² Results from an analysis of one-sample t-test indicated that the mean of perceived behavioral privacy of recycling significantly differed from the scale's mid-point, $M=5.27$, $SD=1.65$, $t(164)=9.94$, $p < .001$. Participants perceived recycling as a public, observable, and conspicuous behavior.

³ The dynamic or trending norms seem to be used in a prior study although it was not coined as either norm (Rimal et al., 2005).

delivering injunctive norm information in normatively-focused messages.

Understanding pride and anticipated pride to create anticipated pride appeals

In the current study, pride is a positive emotion elicited by acknowledging one's contributions to a goal attainment, such as meeting an important standard (Lazarus, 1991; Tracy et al., 2007; Williams & DeSteno, 2009). Pride is distinct from other positive emotions. For example, happiness is evoked when individuals make reasonable progress toward a goal and thus look forward to obtaining positive outcomes whereas pride is elicited through confirming one's ego-identity by taking credit for an achievement (Lazarus, 1991). Prior research found that feeling of pride helps folks equip with self-control, which motivates them to achieve a long-term goal relative to happiness (Fishbach et al., 2010). Regarding the focal issue, recycling, prior research also found that pride was the dominant emotional response after viewing both a high and low descriptive norm video message about recycling (Koh, 2013).

Anticipated pride is an emotion anticipated to be experienced in the future based on pre-factual thinking in the present such that doing something will confirm one's ego-identity. That is, the feeling of pride could be anticipated when individuals imagine that doing something fulfills the duty to themselves (Goffman, 1967; Lazarus, 1991) or their significant others (Lazarus, 1991). Anticipated emotions including anticipated pride function as the motivators of one's action (Baumeister et al., 2007; Baumgartner et al., 2008).⁴ For example, a prior study examined the effect of anticipated pride on motivating pro-environmental behaviors, relative to anticipated guilt (Schneider et al., 2017). Overall, they found that the induced feeling of anticipated pride had a positive effect on intention to engage in pro-environmental behaviors relative to feelings of anticipated guilt, but no significant effect on monetary donation. In other words, anticipated pride functioned as an intrinsic motivation such that I do this because doing this resonates with who I am. It was further urged to design anticipated pride appeals and investigate their effect on promoting pro-environmental behaviors (Schneider et al., 2017). In the following section, the theoretical basis of the creative execution of anticipated pride appeals was discussed to embed them into SDNMs based on message design approach (MDA; Koh, 2019). The MDA refers to the human-oriented act of communication

to select the best theoretical framework(s) to design messages in orders to a) handle societal issues considering the attributes of the focal issue and b) change folks toward the best via the messages. This theory- and data-based approach guides message senders to design effective messages to yield desirable effects.

Emotional descriptive norm messages (EDNMs)

Emotional appeals refer to communication that is intended to evoke targeted emotional responses (Brader, 2006; Massi Lindsey, 2005). Less attention has been paid to what forms anticipated emotional appeals take. Although anticipated emotional appeals have been created and tested in prior research (Martinez, 2014; Massi Lindsey, 2005), they used limited strategies to design anticipated emotional appeals by only using verbal cues. Yet, visual cues are effective tools to design anticipated emotional appeals since visual information has an emotive impact (Joffe, 2008), which is an antecedent of (in)action (Baumeister et al., 2007; Baumgartner et al., 2008). For example, visual information in messages, such as news articles, influenced persuasive processes via emotional responses to the messages (Powell et al., 2015). That is, their findings imply that emotional appeals using various sensory cues can evoke emotions, which influences receivers' responses to the messages.

To design anticipated pride appeals, the current study used verbal and visual cues. The verbal cue consisted of a statement that provokes anticipated pride via pre-factual thinking that doing recycling is something that will enable receivers to confirm their feeling of sense. That is, receivers could have an opportunity to engage in pre-factual thinking to acknowledge their own contributions to a goal attainment in the future. To communicate the positive connotation of the anticipated pride, visual cues were also used. For the visual cues, the current study used still pictures depicting prototypical pride expressions, "small smile, with the head tilted slightly back, fully visible expanded posture, and either arms raised or hands on hips (Tracy & Robins, 2004, p. 196)." The depicted prototypical facial expression and/or body gesture could not only complement the meaning of the verbal cues but also augment the elicitation of the targeted emotional reactions. In the current study, one visual cue includes the smiley faces (Schultz et al., 2007) of children while giving the thumbs-up signs or holding recycling bins to elicit anticipated pride. Instead of adults, a group of children was employed to convey the meaning that even children will do and show their thumbs up when you do recycle. In another visual cue, the prototypical body gestures of pride (Tracy & Robins, 2004, 2007a, 2007b) were illustrated; to control the elicitation of other types of pride, such

⁴ The function of anticipated emotion is similar to the function of self-evaluative outcome expectations in Bandura's social cognitive theory (Bandura, 2001, 2009).

as emotional dignity (Badcott, 2003), the facial expression of an adult who showed expanded posture and raised arms above the head (Tracy & Robins, 2004, 2007a, 2007b) was not explicitly shown while the verbal cue guided receivers to have the feeling of anticipated pride. That is, anticipated pride was induced through verbal and nonverbal expressions in the normatively-focused messages.

Although anticipated pride appeals embedded in SDNMs were created to elicit the feeling of anticipated pride, the messages could also elicit one or more different emotions in addition to the intended emotion (Dillard & Peck, 2000, 2001; Dillard et al., 1996) considering individuals' motivation and ability to appraise. Thus, the current study tested whether anticipated pride appeals embedded in SDNMs (i.e. EDNMs) elicited a greater level of anticipated pride compared to other emotions including happiness, contentment, surprise, guilt (Koh, 2013) and regret. The inclusion of the following emotions was based on findings in a prior study in which receivers reported overall a high feeling of pride after viewing a standard descriptive norm message (SDNM) regardless of the level of the norm they were exposed to and their recycling identity (Koh, 2013). That is, pride was identified as an emotion relevant to the focal issue. The targeted emotional appeals designed in the current study would elicit the targeted emotion over the other emotions. Thus, the following research question was asked:

RQ1: Will anticipated pride appeals embedded in standard descriptive norm messages (i.e. EDNMs) induce a greater level of anticipated pride than other emotions?

Then, the current study examined whether viewing EDNMs produces an additive effect of the descriptive norm and anticipated pride such that exposure to EDNMs produces a higher level of intention to recycle and intention to talk relative to exposure to SDNMs. In the U.S., recycling has been regarded as a socially desirable behavior over the past 30 or more years (Environmental Protection Agency [EPA], n.d.). Naturally, the majority of folks in the U.S. became to believe that recycling is something desirable to do (Desilver, 2016). Such beliefs could be reinforced in an environment where the behavior is prevalent and endorsed by others. Accordingly, exposure to EDNMs would lead to behavioral intention to recycle. Thus, it was hypothesized that:

H1: Exposure to EDNMs will be positively associated with intention to recycle relative to exposure to SDNMs.

Additionally, it is important to examine the role of interpersonal communication in explicating the effectiveness of normatively-focused messages including EDNMs. Conversation about issues in messages plays an important role in diffusing the messages and changing beliefs and behaviors (Festinger, 1957; Hwang, 2012; Southwell & Torres, 2006; Southwell & Yzer, 2007). Talking about their thoughts and beliefs resulting from exposure to messages shows

the strongest commitment (external commitment) because it often occurs when receivers accept the argument in the messages (Miller & Burgoon, 1973 as cited in Massi Lindsey, 2005). Thus, an intention for interpersonal discussion is examined as an outcome representing the return on investment (ROI) of exposure to normatively-focused messages. It was posited that:

H2: Exposure to EDNMs will be positively associated with intention to talk relative to exposure to SDNMs.

Underlying mechanisms of emotional social norms messages

Communication strategies that activate social norms can be used to motivate socially desirable conducts (Cialdini, 2003). In prior research, SDNMs have been mainly used to explore how descriptive norm information in a message influences behavioral outcomes to encourage socially desirable behaviors (Goldstein et al., 2008; Koh, 2013, 2019; Lapinski et al., 2007, 2013; Reno et al., 1993; White & Simpson, 2013); receivers engaged in the norm-congruent behaviors as they perceived that many folks are engaging in the behaviors via attentional focus on the salient descriptive norm cue. Accordingly, the receivers of the EDNMs would perceive descriptive norm and feel anticipated pride via their attentional focus on the salient descriptive norm information and anticipated pride appeals whereas the receivers of the SDNMs would perceive the descriptive norm via their attentional focus on the salient descriptive norm information but no or less anticipated pride.

As a cue for injunctive norm, anticipated pride appeals convey the anticipation of a positive affective reward via affecting receivers' cognitions at the moment when they are exposed to the appeals. Ultimately, anticipated pride appeals communicate the endorsement of an action via pre-factual thinking processes. Although prior studies investigated the combined effect of emoticons, as a cue for injunctive norm, and descriptive norm information embedded in messages on behavioral responses (Allcott, 2011; Schultz et al., 2007), but not on perceptual and emotional responses which likely determine the processing of EDNMs.

In the first stage, when receivers are exposed to normatively-focused messages, receivers should attend to normative information embedded in the messages to be effective, since social norms are influential when they are salient (Cialdini et al., 1990, 1991). In the current study, attentional focus refers to the extent to which receivers attend to a message. It was operationalized to what extent they achieve the face value of the message. Thus, it was hypothesized that:

H3: Exposure to EDNMs will be positively associated with (a) attentional focus on the descriptive norm and (b)

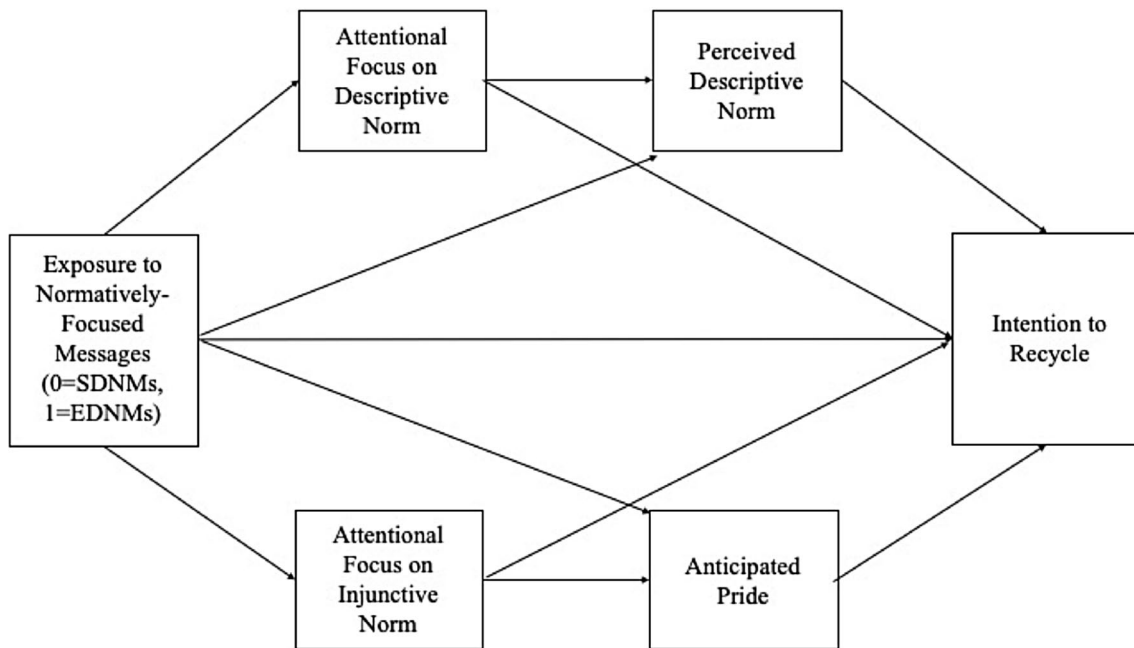


Fig. 1 The hypothesized model I

attentional focus on the injunctive norm relative to exposure to SDNMs.

In the second stage, it was examined to what extent the salient cues in the messages guide receivers to interpret the messages or make meanings given the achieved face value. Thus, it was hypothesized that:

H4: (a) Attentional focus on the descriptive norm and (b) attentional focus on the injunctive norm will be positively associated with (a) perceived descriptive norm and (b) anticipated pride.

H5: (a) Perceived descriptive norm and (b) anticipated pride will be positively associated with intention to recycle.

H6: (a) Perceived descriptive norm and (b) anticipated pride will be positively associated with intention to talk.

Less attention has been given to the examination of the underlying mechanisms of normatively-focused messages (e.g., cognitive, emotional, and/or perceptual) (Koh, 2013; Lapinski et al., 2013; Melnyk et al., 2011) despite the recommendation in prior literature (Cialdini et al., 1990; Rimal, 2008). Based on the hypotheses aforementioned, the current study investigated the underlying perceptual and emotional responses of EDNMs processing considering message attributes and viewers' psychological states (Mackenzie, 2001; O'Keefe, 2003) (see Figs. 1, 2). Thus, it was posited that:

H7: The effects of EDNMs on intention to recycle will be mediated via attentional focus on the descriptive norm and attentional focus on the injunctive norm followed by perceived descriptive norm and reported anticipated pride relative to SDNMs.

H8: The effects of EDNMs on intention to talk will be mediated via attentional focus on the descriptive norm and attentional focus on the injunctive norm followed by perceived descriptive norm and reported anticipated pride relative to SDNMs.

Methods

Design. The current study consisted of a main experiment using an independent groups design with random assignment (EDNMs $n = 85$; SDNMs $n = 80$; control $n = 112$). Participants in the treatment conditions viewed two-similar messages (either two EDNMs or two SDNMs) and completed an online questionnaire that includes outcome variables, such as attentional focus on descriptive norm, attentional focus on injunctive norm, perceived descriptive norm, anticipated pride and other emotions, intention to recycle, intention to talk, and demographics. Those in the control condition did not view any messages.

The current study used two-similar message sequence⁵ to capture the effect of a moderate level of message repetition (Stephens & Rains, 2011), which has been regarded as a strategy to forestall a boredom effect resulting from repeated exposure to the exactly same messages (Petty et al.,

⁵ Isabella Cunningham, as a dissertation supervisor, provided the author with the idea for the main experiment, regarding the control condition and repeated exposure, after discussions with the author.

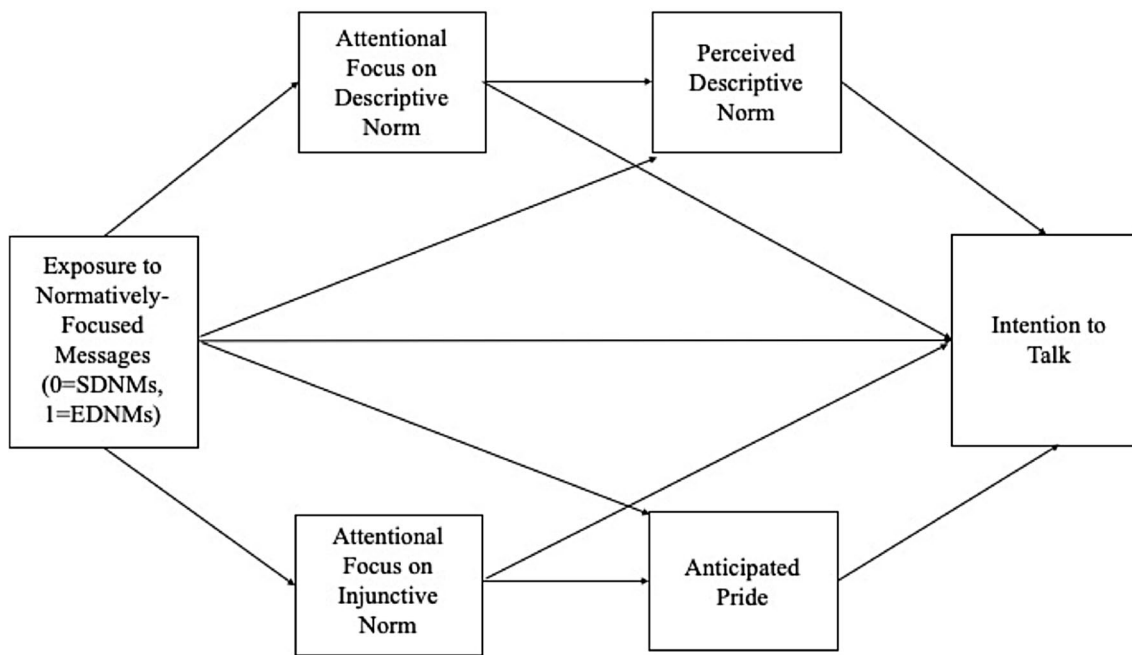


Fig. 2 The hypothesized model II

2009). By using the two-similar message sequence, the observed effect is not because of a single message’s distinctive characteristics, but is more likely because of the common characteristics in two similar messages: the salient descriptive norm information and anticipated pride appeal (Reeves et al., 2016). In each experiment condition, the order of similar two messages was counterbalanced. Results from independent sample t-tests showed that there was a significant effect for the order on attentional focus on injunctive norm information in the SDNMs condition; yet, it was not different from the scale’s mid-point indicating a good quality of the messages (see the online appendix in the supplementary material). In the following analysis for checking the treatment induction, the collapsed data and each of the non-collapsed data for SDNMs were used, respectively. However, there was no significant order effect in other variables.

Participants. The number of 280 participants was recruited using Qualtrics Panels considering the amount of funding. Three participants who showed low engagement, such as a straight-lining behavior, were removed from further analyses ($N = 277$). Quotas for sex were utilized to ensure that the current sample reflects the census data in the U.S. ($M_{age} = 41.70$, $SD_{age} = 16.22$; 52.3% female, 78.3% White American).⁶ Ninety-five participants (32.1%) reported the

completion of 4-year college or higher education. Median income was \$40,000-\$49,999. The protocol of the current study was approved by the institutional review board (IRB) at the University of Texas at Austin [2017–06-0113].

Stimulus materials. Based on the results from a series of pilot tests,⁷ messages were created as the stimuli. Two types of normatively-focused messages were used: EDNMs and SDNMs. Whereas SDNMs included descriptive norm information only, EDNMs included anticipated pride appeals and descriptive norm information. That is, EDNMs were identical to SDNMs with an exception: the inclusion of anticipated pride appeals. The anticipated pride appeals were designed using both verbal and visual cues. Considering folks’ biased psychological tendencies regarding pro-environmental behaviors (Griskevicius et al., 2012; Van Vugt et al., 2014), the verbal cue was designed to induce a discernible positive emotional reward from an important normative source, such that “*Your family will be proud of you if you recycle.*” Explicit emotional expressions from others are generally used as a source of information to infer what is an endorsed behavior in an environment (Heerdink et al., 2019). That is, the function of the verbal cue is to augment anticipated pride as a reward in an interpersonal level by using significant others as a reference point. Selecting significant family members as a reference point is in part relevant to Robert Cialdini [2021]’s principle of unity. As receivers perceive the

⁶ Prior literature argued that women tend to be more concerned about environmental issues than men (Davidson & Freudenburg, 1996). In addition, the author found the significant subgroup variations in participants’ behavioral intention to recycle between female and male receivers in a prior study (Koh, 2013).

⁷ Results would be discussed upon reasonable request.

reference point as more part of them, they are more likely to anticipate the feeling of pride after exposure to the EDNMs.

Along with the verbal cue, images depicting typical pride expressions were used as visual cues (Tracy & Robins, 2007a). Each EDNM included an image eliciting anticipated pride. Conversely, each SDNM included a picture of recycling bin(s). All components including the pictures were matched for size across all stimuli messages. The descriptive norm information was operationalized as a factual statement about what many others do in the current study. To design descriptive norm information, the current study used actual recycling rates in the U.S. (Statista, 2017), such that “*In 2017, more than 80% of people in the U.S. recycled the materials they used.*” to ensure message believability (Smith et al., 2006).⁸ The designed descriptive norm information was embedded in the headline of EDNMs and SDNMs. To hold the argument quality strong, information from a qualified source (i.e., Environmental Protection Agency [EPA]) was used to describe the benefits of recycling in EDNMs and SDNMs. The variations in message components were outlined in the Table A in the appendix. The final messages were in poster format which can be delivered through various channels, such as traditional media as well as non-traditional media operated via websites and/or mobile applications.

Procedure. After participants provided consent, they were asked to report their age, sex, and current residency. Then, they were randomly assigned to one of two treatment conditions or the control condition. Participants in the treatment conditions were informed that they would view two messages and not be able to proceed to the next page until 15 seconds elapse. A distractor question (i.e. Please drag the bar to answer—*what percentage of folks in the U.S. do you think approve of gene-editing to cure cancer? [0–100%]*) was used between the two similar messages to reduce potential boredom resulting from reading the similar messages and mimic the media environment where advertising clutter exists. After viewing the similar two messages, participants answered an online questionnaire, which included the measures for the dependent variables and other demographic information. Those in the control condition answered an online questionnaire without exposure to any messages. Participants who completed the online survey received \$4 in recognition of their completion.

Measurement. Confirmatory factor analysis (CFA) was performed for each scale that involved at least three items. Items that evidenced a unidimensional scale were summed to form an indicator of a latent variable. All measures used

a 7-point Likert-type response format (1 = *strongly disagree/not at all*, 7 = *strongly agree/very much*). A correlation matrix including descriptive statistics for each scale is available in the Table B in the appendix. In the Table C in the appendix, the composite reliability (CR), the average variance extracted (AVE), maximum shared variance (MSV), and average shared variance (ASV) of all latent variables were reported.

Intention to recycle. Participants’ intention to recycle was assessed with three items (Park & Smith, 2007). A sample item included “*I intend to recycle materials that I use.*”

Intention to talk. Participants’ intention to talk about recycling with family members was measured with four items (Park & Smith, 2007). A sample item included “*I intend to talk with my family about recycling in the near future.*”

Anticipated pride. The degree to which participants would experience anticipate pride because of engaging in recycling was measured using multiple items (Onwezen et al., 2013; Tracy & Robins, 2007b). A sample item included “*(After viewing the messages,) I will be proud if I recycle materials I used.*”

Other emotions. Happiness (four items; Happy/Elated/Cheerful/Joyful), contentment (two items; Contented/Satisfied), surprise (three items; Surprised/Amazed/Astonished), guilt (an item; Guilty) and regret (an item; Regretful) were measured using scales adopted from prior research (Dillard & Peck, 2000). Sample items included “*After viewing the messages, I felt/was [emotions].*”

Perceived descriptive norm. The extent to which participants perceive that recycling is a prevalent behavior in the U.S. was assessed with four items (Lapinski et al., 2014). An example item included “*Most people in the U.S. engage in recycling materials they used.*”

Attentional focus on injunctive norm information. The extent to which participants attended to injunctive norm information in the messages was assessed with four items (Lapinski et al., 2007). An example included “*The messages show people in the U.S. approve of recycling.*”

Attentional focus on descriptive norm information. The extent to which participants attended to descriptive norm information in the messages was assessed with four items (Lapinski et al., 2013). An example included, “*The messages state that many people in the U.S. recycle materials they used.*”

Also, the believability of the messages (Beltramini, 1988) and additional demographic information were asked.

⁸ Isabella Cunningham, as a dissertation supervisor, provided the author with the source of descriptive norm information after discussions with the author to make it believable and trustworthy.

Results

Preliminary analysis. Before testing the hypotheses and answering the research question, all data were cleaned. The tests of Mahalanobis distance, Cook's distance, and Leverage values indicated 15 potential outliers, which were retained in the further analyses since there was no substantial change in the overall results with and without the potential outliers.

Treatment induction check. To check the treatment induction, ANOVAs were conducted.

When two SDNMs conditions were collapsed, participants reported no significant difference in their attentional focus on the descriptive norm information as intended ($M = 5.72$, $SD = 1.19$ vs. $M = 5.35$, $SD = 1.36$; $F(1, 162.078) = 3.43$, $p = .07$, $\eta^2 = 0.02$) and the message believability ($M = 5.89$, $SD = 1.33$ vs. $M = 5.57$, $SD = 1.31$; $F(1, 163) = 2.53$, $p = .11$, $\eta^2 = 0.02$) between the EDNMs condition and the SDNMs conditions. However, there was a significant difference in attentional focus on the injunctive norm information, $F(1, 163) = 4.68$, $p = .03$, $\eta^2 = 0.03$; participants in the SDNMs ($M = 5.46$, $SD = 1.06$) condition reported a higher level of attentional focus on the injunctive norm information than those in the EDNMs ($M = 5.09$, $SD = 1.14$) condition, which was an unintended effect. Thus, two separate analyses were conducted using each of the non-collapsed data for SDNMs. In one condition in which SDNM1 was followed by SDNM2, significant differences at $p < .05$ appeared in attentional focus on the descriptive norm information ($M = 5.86$, $SD = 1.11$ vs. $M = 5.35$, $SD = 1.36$; $F(186.12) = 4.83$, $p = .03$, $\eta^2 = 0.03$) and attentional focus on the injunctive norm information ($M = 5.74$, $SD = 0.83$ vs. $M = 5.09$, $SD = 1.14$; $F(1121) = 10.01$, $p = .002$, $\eta^2 = 0.08$). Yet, no significant difference appeared in the message believability ($M = 5.93$, $SD = 1.38$ vs. $M = 5.57$, $SD = 1.31$; $F(1121) = 1.99$, $p = .16$, $\eta^2 = 0.02$). In another condition in which SDNM2 was followed by SDNM1, no significant difference was observed in attentional focus on the descriptive norm information ($M = 5.59$, $SD = 1.25$ vs. $M = 5.35$, $SD = 1.36$; $F(1125) = 0.92$, $p = .34$, $\eta^2 = 0.007$), attentional focus on the injunctive norm information ($M = 5.21$, $SD = 1.18$ vs. $M = 5.09$, $SD = 1.14$; $F(1125) = 0.29$, $p = .59$, $\eta^2 = 0.002$), and the message believability ($M = 5.86$, $SD = 1.29$ vs. $M = 5.57$, $SD = 1.31$; $F(1125) = 1.39$, $p = .24$, $\eta^2 = 0.01$). Based on the results from the treatment induction check, in the further analyses, the current study used only one condition for SDNMs in which no significant difference was found.

Main analysis. Paired-sample t-tests (RQ1), one-sample t-tests (RQ1) and PROCESS Macro in SPSS, Model 82 (H1-H8) (Hayes, 2022) were used. RQ1 asked whether anticipated pride would be a dominant emotional response

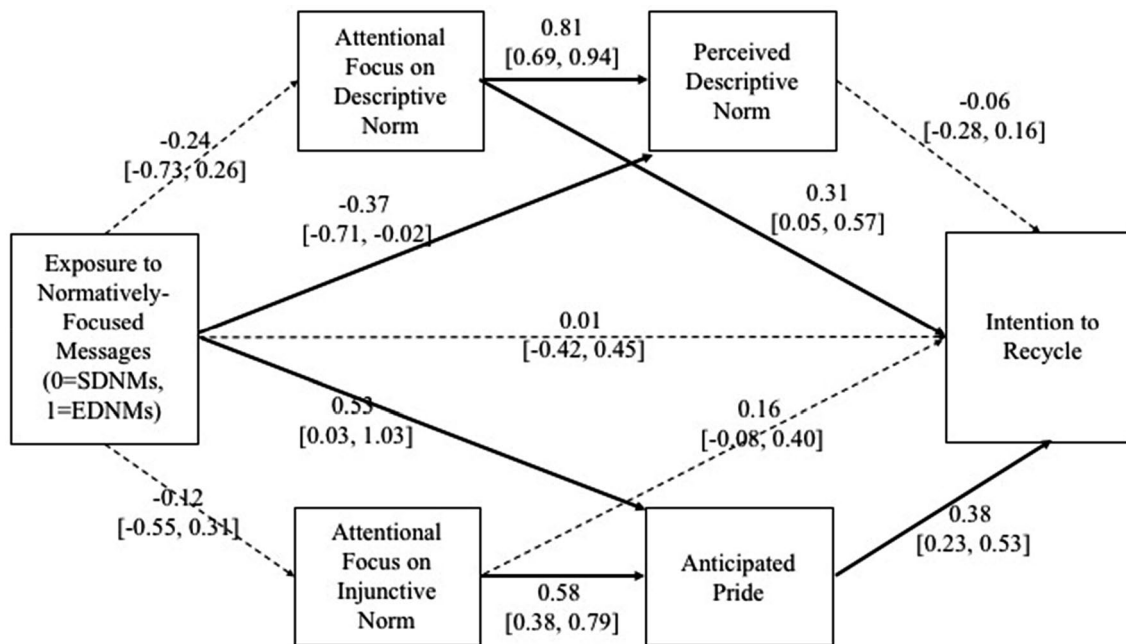


Fig. 3 Results from paired sample t-tests for RQ1. *** $p < .001$.

for participants who viewed EDNMs relative to other emotions. Results from paired-sample t-tests indicated that participants who viewed EDNMs reported a higher level of anticipated pride ($M = 5.53$, $SD = 1.38$) than happiness ($M = 4.91$, $SD = 1.34$, $t(84) = 4.44$, $p < .001$), contentment ($M = 4.86$, $SD = 1.20$, $t(84) = 4.93$, $p < .001$), surprise ($M = 4.67$, $SD = 1.41$, $t(84) = 4.98$, $p < .001$), guilt ($M = 2.95$, $SD = 2.01$, $t(84) = 9.49$, $p < .001$), and regret ($M = 3.01$, $SD = 2.07$, $t(84) = 9.32$, $p < .001$). Also, results from one-sample t-tests indicated that guilt, $t(84) = -4.80$, $p < .001$ and regret, $t(84) = -4.41$, $p < .001$, were significantly different from the mid-point on the scale. In addition, anticipated pride was significantly different from the mid-point on the scale, $t(84) = 10.27$, $p < .001$. Thus, it was concluded that anticipated pride appeals embedded in the SDNMs, that is, the EDNMs, produced the intended effect (see Fig. 3).

To test hypotheses 1–8, two models [Model 82] were specified, intention to recycle and intention to talk as outcome variables, respectively. H1 hypothesized that exposure to EDNMs would be positively associated with intention to recycle. The path from exposure to EDNMs to intention to recycle was insignificant, $B = 0.13$, $p = .63$. Thus, it was concluded that the data were inconsistent with H1. H2 hypothesized that exposure to EDNMs would be positively associated with intention to talk. The path from exposure to EDNMs to intention to talk was insignificant, $B = -0.10$, $p = .69$. Thus, it was concluded that the data were inconsistent with H2.

H3 predicted that exposure to EDNMs would be positively associated with the attentional focus on the descriptive norm information and the attentional focus on the injunctive norm information. The path from exposure to EDNMs to the attentional focus on the descriptive norm information was insignificant, $B = -0.24$, $p = .34$. The path from exposure



Direct effect: 0.01 [-0.42, 0.45], $p=.95$; Total effect: 0.13 [-0.40, 0.66], $p=.63$.

Fig. 4 Results for the hypothesized model I using PROCESS Macro [Model 82].

to EDNMs to the attentional focus on the injunctive norm information was insignificant, $B = -0.12$, $p = .59$. Thus, it was concluded that the data were inconsistent with H3a and H3b.

H4 predicted that the attentional focus on the descriptive norm information and the attentional focus on the injunctive norm information would be positively associated with perceived descriptive norm and anticipated pride, respectively. The path from attentional focus on the descriptive norm information to perceived descriptive norm was significant, $B = 0.81$, $p < .001$. In addition, the path from attentional focus on the injunctive norm information to anticipated pride was significant, $B = 0.58$, $p < .001$. Thus, it was concluded that the data were consistent with H4a and H4b.

H5 predicted that perceived descriptive norm and anticipated pride would be positively associated with intention to recycle. The path from perceived descriptive norm to intention to recycle was insignificant, $B = -0.06$, $p = .58$. Conversely, the path from anticipated pride to intention to recycle was significant, $B = 0.38$, $p = .001$. Thus, it was concluded that the data were inconsistent with H5a while consistent with H5b.

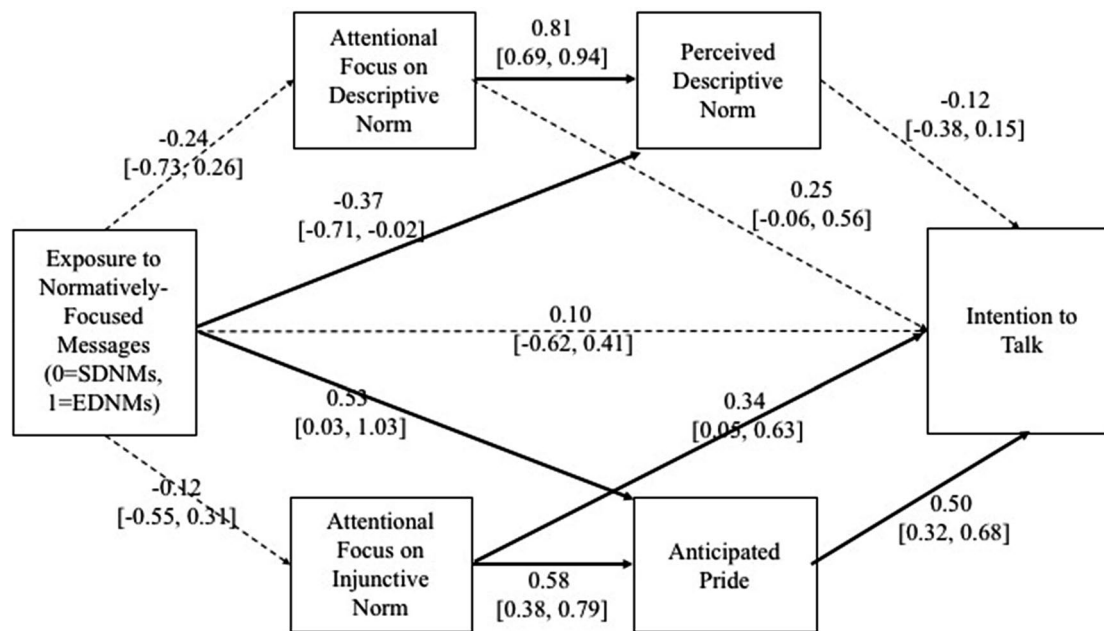
H6 predicted that perceived descriptive norm and anticipated pride would be positively associated with intention to talk. The path from perceived descriptive norm to intention to talk was insignificant, $B = -0.12$, $p = .38$. Conversely, the path from anticipated pride to intention to talk was

significant, $B = 0.50$, $p < .001$. Thus, it was concluded that the data were inconsistent with H6a while consistent with H6b.

In H7 and H8, the indirect effect of exposure to EDNMs on intention to recycle and intention to talk was tested. The effect of exposure to EDNMs on intention to recycle, $B = 0.20$, 95% CIs [0.002, 0.46] and intention to talk, $B = 0.15$, 95% CIs [0.002, 0.32] was mediated via anticipated pride, respectively. Other indirect effects were insignificant. Thus, it was concluded that the data were consistent with H7 and H8 in an intended way (see Figs. 4, 5).⁹

Post-hoc analysis. In addition, each treatment condition was compared with the control condition as a baseline, respectively. Results indicated that communicating descriptive norm using EDNMs and SDNMs was effective to increase descriptive norm perception. Exposure to EDNMs

⁹ Nine items consisting of adjectives were derived from prior literature on anticipated pride and pride (Onwezen et al., 2013; Tracy & Robins, 2007b). An additional analysis was conducted with two items after removing other items that may sound awkward when applying to the focal behavior in the current study, recycling, (i.e., “anticipated to be/feel accomplished, confident, fulfilled, productive, successful, and worthwhile”) and may overlap with another emotion (i.e. satisfied). Overall results were identical for the indirect effect of the messages exposure on intention to recycle ($B = 0.18$, 95% CIs [0.001, 0.44]) as well as for intention to talk ($B = 0.25$, 95% CIs [0.004, 0.55]) via anticipated pride.



Direct effect: -0.10 [-0.62, 0.41], $p=.69$; Total effect: 0.09 [-0.55, 0.73], $p=.78$.

Fig. 5 Results for the hypothesized model II using PROCESS Macro [Model 82].

likely helped receivers hold the anticipated positive affective reward relative to no act of communication with no attenuating effect (see the appendix).

Discussion

“The results would be a much more parsimonious way to think about the very complex—indeed infinitely complex—world of message features and their effectiveness. (Cappella, 2006, pp. 3–4)” – that is, I am going to the universe of messages.

“By refining preexisting innovations, synthesizing them into new procedures and adding novel elements, something new is created. (Bandura, 2001, p. 12)” – that is, the EDNM via the MDA.

The purpose of the current study is to create anticipated pride appeals and investigate the underlying mechanisms of the combined effect of anticipated pride appeals and descriptive norm information embedded in messages on behavioral intentions to explain the mixed results in prior literature (Allcott, 2011; Schultz et al., 2007). The anticipated pride appeals were designed as intended, which filled the gap in prior literature (Martinez, 2011; Schneider et al., 2017). The combined effect of anticipated pride appeals and descriptive norm information on behavioral intention to recycle and

behavioral intention to talk did occur via anticipated pride. That is, elicited anticipated pride significantly impacts the behavioral intentions. Overall, increased anticipated pride resulting from exposure to EDNMs led to greater intention to recycle and greater intention to talk supporting the role of anticipated pride as a desired positive reward.

The creation of anticipated pride appeals

Creating emotional appeals that produce the intended effect has been “itself a major issue in message design (Cappella, 2006, p. 10).” This study has expanded previous research on emotional appeals by creating anticipated pride appeals using both verbal and visual cues as intended; then, it tested its effect on emotional responses. The current study used a family cue to elicit anticipated pride. Relative to other reference groups, family members would be regarded as more part of us (e.g. Robert Cialdini [2021]’s principle of unity). Thus, the kinship cues may enable receivers to anticipate strong or concrete feeling of pride after exposure to the messages. Indeed, findings indicated that the anticipated pride appeals embedded in SDNMs, that is, EDNMs, induced a higher level of anticipated pride than other emotions including happiness, contentment, surprise, guilt and regret. Given prior findings that the arousal patterns of positive discrete emotions have been less clear than those of negative discrete

emotions, the current findings indicated that the treatment induction has a good quality.

Prior research has found that anticipated emotional appeals are persuasive to encourage receivers to willingly participate in socially desirable behaviors, such as helping unknown others (Massi Lindsey, 2005). For example, anticipated guilt appeals induced a higher level of anticipated guilt, which led to greater behavioral outcomes, such as donating bone marrow. Given the characterization of emotion as feedback (Baumeister et al., 2007), anticipated pride appeals could provide relevant feedback on (non-)performance in the stage of pre-factual thinking, which motivates individuals to take (in)action for the good of unknown others.

Findings from prior research have also demonstrated that anticipated pride can be effective in changing behaviors that are associated with delayed benefits (Patrick et al., 2009; Schneider et al., 2017; Winterich & Haws, 2011). Health-related behaviors and pro-environmental behaviors often require individuals to control their impulse against their preference to immediate outcomes (i.e., temporal discounting) to achieve distal outcomes, such as the enhanced status of personal and public health and sustainable environments (Griskevicius et al., 2012; Van Vugt et al., 2014). In that sense, the execution-focused effects of emotional appeals could be modeled with precision (see the Table A in the appendix; Aaker et al., 1986) considering the function of anticipated emotion as a feedback for subsequent behavioral decision-making (Baumeister et al., 2007).

Underlying mechanisms of normatively-focused messages

The current study designed EDNMs and explicated the underlying mechanisms of the EDNMs on intention to recycle and intention to talk relative to SDNMs. There was no significant difference in receivers' attentional focus on the normative information between those in the EDNMs and those in the SDNMs. In other words, the non-significant findings imply that both EDNMs and SDNMs grabbed receivers' attention as much as in an intended way via vivid message components (Taylor & Thompson, 1982).

Yet, exposure to EDNMs produced a lower level of perceived descriptive norm, but a higher level of anticipated pride relative to exposure to SDNMs which was consistent with the study prediction. The results imply that the combined effects may not be simply additive (Cappella, 2006), which was consistent with findings in prior research (Allcott, 2011). As alternative explanations, the embedded anticipated pride appeals in SDNMs may have overriding effects such that anticipated pride weakens the effects of descriptive norm information because of the reduced self-other

similarity or anticipated pride influences the effects of descriptive norm information through biased judgement. In the current study, it is unknown which effect the embedded anticipated pride appeals had in the normatively-focused message processing. The current study opens up new opportunities to explicate the underlying mechanisms of the normatively-focused messages processing by which descriptive norm information is made more or less focused.

In addition, the direct path from exposure to EDNMs to the intentions was insignificant. That is, an indirect-only mediation effect occurred as a result of exposure to EDNMs (Zhao et al., 2010). The elevated emotional responses may result from repeated exposure to the similar EDNMs. Via repeated exposure to the similar messages, receivers could reinforce their initial appraisal of the first EDNM message while viewing another similar EDNM. The heightened anticipated pride served a role as an impetus for behavioral intention to recycle and behavioral intention to talk. Yet, findings from the post-hoc analysis indicated that exposure to the EDNMs did not have an additive effect of anticipated pride on the intentions relative to the control condition but a trend of an overriding effect. An explanation for this finding is a ceiling effect such that participants in the control condition reported a high level of anticipated pride when just thinking about recycling as much as those in the EDNMs condition. One notable finding in the post-hoc analysis is that exposure to the normatively-focused messages, either SDNMs or EDNMs, had a positive effect on intentions via an increased level of perceived descriptive norm relative to no message in the control group. To control the overriding effect and augment the role of anticipated pride, other sensory cues could be used to design the appeals and messages to make socially desirable changes.

Theoretical implications

The current study has theoretical implications to discuss. First, the current study operationalized injunctive norms as anticipated emotional sanctions that function as a feedback for the norm-congruent behavior. In particular, the illustration of designing anticipated pride appeals would be a foundational resource to design anticipated emotional appeals and broadly emotional appeals in a systematic way to compare and contrast their effects in scientific research. Furthermore, the successful treatment induction of anticipated pride after exposure to the anticipated pride appeals embedded in the SDNMs helped resolve "a major issue in message design (Cappella, 2006, p. 10)."

Second, the current study attempted to resolve mixed findings by replicating prior research (Allcott, 2011; Schultz et al., 2007). In an online experiment using digital messages, the current study measured receivers' perceptions of and

emotional responses to the messages and tested their roles in the processing of the messages. Elucidating the underlying mechanisms of the EDNMs provided an explanation for the mixed findings: an overriding effect of anticipated pride appeals embedded in SDNMs on behavioral intention to recycle and behavioral intention to talk (DeAndrea & Holbert, 2017), which is consistent with findings in Allcott (2011). These findings imply that two distinct message components embedded in a message may not always have an additive effect. Accordingly, the consideration of MDA (Koh, 2019) would be important to design effective messages for the theoretical and practical basis.

In addition, based on the MDA, the current study attempted to synthesize two streams of prior literature to design effective messages: social norms based on focus theory of normative conduct (FTNC; Cialdini et al., 1990, 1991) and emotions based on discrete approach (Lazarus, 1991; Nabi, 2010). Little attention has been given to the synthesis of theoretical frameworks to explain mixed findings in prior literature (Allcott, 2011; Schultz et al., 2007) and to cope with societal issues. The work of the theory synthesis (DeAndrea & Holbert, 2017) enabled the author to conceptualize anticipated pride as a cue for injunctive norm and operationalize anticipated pride as a desired positive reward in the interpersonal level. The MDA would have both theoretical and practical implications in advancing the science of message design (Koh, 2019).

Lastly, those in the field of social science have looked forward to an advanced experimental design to study mediating effects while incorporating repeated exposures. The current study used the experimentally designed stimuli to induce the mediator, anticipated pride, using the two-similar message sequence design. This method is well regarded as an advanced and recommended experimental procedure to study the mediating effect rather than solely measuring the mediating effect without the experimental induction. Also, RQ1 addressed the successful experimental induction of the mediator to exclude alternative explanations given the characteristic of emotional processing and responses. In future research, the non-additive effect of descriptive norm information and anticipated pride appeals could be further investigated to improve literature on the MDA, in specific, and literature on receivers' information/message processing, in general.

Practical implications

The findings from this study have practical implications with respect to both intervention programs and message design strategies in the context of socially desirable behaviors. It was recommended not to neglect individuals' biased psychological tendencies when designing messages and executing

campaigns to persuade them to act in socially desirable ways (Griskevicius et al., 2012; Van Vugt et al., 2014). For example, considering the biases, such as tendencies to neglect impalpable concerns and value the present relative to future, message designers could use anticipated emotional appeals to bring the future outcomes to the present through vivid images and kinship cues. Multiple sensory information could be used to design EDNMs, thereby allowing media planners to use various media and modalities to deliver campaign messages. In addition, other strategies may need to be accompanied, such as facilitation by providing resources or institutionalizing new systems that help receivers recycle materials in an efficient way (McAlister et al., 2008).

In addition to the consideration of the intrinsic psychological biases, external influences can boost socially desirable behaviors. For example, entertainment-education (EE) content should be designed to acknowledge the innate biases and cultivate cultures to appreciate contemplation about mutual interests, distant gratification, absolute status, and moral convictions at an earlier age since the evolved biases would become less and less adaptive these days. In such circumstances, individuals may willingly believe the existence of anticipated emotion and anticipated consequences before experiencing actual emotion and real consequences in particular, in the context of environmental issues, such as climate change, that often lead to personal and impersonal concerns.

Limitations and suggestions

While the current study has revealed important insights into anticipated pride appeals and normatively-focused messages, the limitations of the current study must be acknowledged. First, prior research has found that verbal and visual information in messages influenced message recall, issue perception, attitude toward an issue, and intentions by exerting a picture superiority effect (Gibson & Zillman, 2000) or without an interactive effect (Powell et al., 2015). In a similar vein, in the current study, it is unclear whether the verbal and visual cues used to create the anticipated pride appeals produced the emotional responses in an independent manner or interactive manner. Even if they had an interactive effect, it is unclear whether one cue had a competing or non-competing effects relative to the other. In future research, not only the independent effect of text and imagery but also the joint effects of them could be examined to make the cause and effect clear.

Also, it is intriguing to note that pride appeals have traditionally been treated as ego-focused (self-referencing) (Aaker & Williams, 1998) but, in the current study, the anticipated pride appeals were treated as other-focused

(other-referencing) (Lazarus, 1991) using kinship cues considering individuals' biased psychological tendencies in the focal issue (Griskevicius et al., 2012; Van Vugt et al., 2014). Future research could examine the effect of the reference point of anticipated pride (Ferrer et al., 2015). Furthermore, although individuals can anticipate or forecast which emotions they would experience in the future based on pre-factual thinking of an event (Baumeister et al., 2007; Baumgartner et al., 2008), given their capacity to accurately forecast their affective states in the future, in particular durability bias, the efficacy of EDNMs would be better tested when using a longitudinal design (Gilbert et al., 1998).

Another suggestion for future research is to consider dual-methods to investigate the nuanced effect of normatively-focused message processing on attentional focus, normative perceptions, and behavioral outcomes. Social norms information could be embedded into the messages via various strategies to make the norm salient. For example, receivers' attentional focus on distinctive normatively-focused messages might be more precisely detected when using an eye-tracking assessment along with the self-reported assessment. Another example is to use brain imaging techniques along with the self-reported assessment to examine whether certain areas in the brain, such as prefrontal cortex, accumbens, and the ventral tegmental area, are distinctively activated during the processing of the EDNMs and are neurologically connected to other areas in the brain to explicate the processing of normatively-focused messages.

Although the current study involved a geographical region, the U.S., participants in other regions could be recruited to examine the effect of EDNMs to promote socially desirable behaviors in future research. Given the mixed findings for the roles of geographical regions or cultural dimensions in prior literature (Bergquist et al., 2019; Rhodes et al., 2020), further efforts could resolve these mixed findings by employing various frameworks for cultures, such as high/low context culture (Miller, 2005), cultural dimensions (Hofstede, 1984; Hofstede & Bond, 1984; Oyserman, Coon et al., 2002; Oyserman, Kimmelmeier et al., 2002; Oyserman, Kimmelmeier et al., 2002; Triandis, 2001), self-construal (Markus & Kitayama, 1991) and culture tightness/looseness (Gelfand et al., 2011; Harrington & Gelfand, 2014), in an individual as well as collective level (Cialdini et al., 1999). For example, social norms may have a strong effect in some cultural regions in which the uncertainty avoidance tendency is high (Cialdini, 2009; Hofstede, 1984; Hofstede & Bond, 1984).

Furthermore, methodologically, although the current study counterbalanced the order of the similar two messages and tested the potential order effect, the design of the current study could not completely separate the effects of the first message from the second message in the sequence. In future research, the effect of repeated exposure to two-similar

EDNMs could be compared with that of more pro-longed exposure to multiple-similar EDNMs. Also, the current study did not specify a type of recycling materials that may make receivers feel even a higher level of anticipated pride. It is recommended to take into account the effect of recycling materials when conducting research about recycling in the future. In addition, for the stimuli, the current study used the static normatively-focused messages. In future research, various message formats could be employed to extend the current findings, such as video EDNMs. When designing video EDNMs, it is recommended for senders to take into account the structure of the verbal and body signals to deliver intended direct and indirect meanings (Mehu & van der Maaten, 2014; Poggi et al., 2013) while controlling unintended meanings. Lastly, it is recommended to extend the effect of EDNMs on actual behaviors in future research.

Conclusion

“중요한 점은 그와 같은 본성이 내 마음속에 제대로 자리 잡고 있는가 하는 것과, 적어도 학교에서, 사회 속에서 체득할 기회가 있는가 하는 것 (Kang, 2007).”—That is, my nature is more than perfect.

Ultimately, what makes research findings of interest is that they help us understand everyday life. That understanding, however, comes from theory or analysis of mechanism; it is not a matter of 'generalizing' the findings themselves.

(Mook, 1983).

Biased psychological tendencies have caused and worsened modern social problems. It is recommended to consider the innate psychological biases (Griskevicius et al., 2012; Van Vugt et al., 2014) when handling environment-related issues. In line with the evolutionary psychological perspectives, this current study incorporated the recommended theoretical principles into the communication messages to promote a socially desirable behavior. Early-age entertainment-education (EE) programs would be necessary to educate defense systems against the evolved psychological biases. Cultivating such norms would be one of homework for future generations.

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Data availability Data in the current paper would be available upon reasonable request.

Declarations

Conflict of interest The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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