

**The Effects of Age Cues on Preferences for Organic Food: The Moderating Role of
Message Claim**

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Abstract

Organic food, a form of green consumption, is a growing industry, with consumers purchasing for both altruistic and egoistical motives. However, there is limited research into how marketers can develop advertising strategies to promote organic food. The present research examines how age cues influence consumer preferences for organic food. Across two experimental studies, this research demonstrates that consumers exposed to a younger cue show higher preferences for organic fruits when evaluating an altruistic claim. More importantly, this research draws upon psychological reactance theory to test the opposite effect, such that consumers exposed to a younger cue show lower preferences for organic fruits when evaluating an egoistic claim. Further, the emotions of compassion and anger are established as the mediators of the interactive effect between age cue and message claim on consumer preferences for organic food. These findings thus offer theoretical and managerial implications for the use of age cues and motivational claims, specifically in promoting organic food.

Introduction

The organic food industry, representing one form of ‘green’ production, is a rapidly growing due to increased environmental and social concern (Co-Op, 2019). Organic food is defined as “goods produced and processed through methods involving no harmful synthetic input or additive, irradiation, or genetically modified organisms” (Meza & Park, 2016, p. 587). Organic food supports the UNs Sustainable Development Goal of sustainable production and consumption (The United Nations, 2018) through its production focus on the environment, local ecosystems, and animal and human health (Seyfang, 2006). For example, increasing levels of the use of antibiotics has many scientists worried about its impact on human and animal health through antibiotic resistance (Bush et al., 2011). In addition, pesticide contamination poses significant risks to the environment and numerous organisms (i.e., microorganisms, insects, plants, fish, birds) (Aktar, Sengupta, & Chowdhury, 2009). However, to promote sustainable, such as organic, consumption, there must be consumer demand.

There is a wealth of literature on the motivations, barriers, and individual characteristics of organic purchasers. For example, research has shown that organic food consumption is motivated by altruism such as preserving the environment and supporting local communities (Bauer, Heinrich, & Schäfer, 2013; Mainieri et al., 1997; Minton & Rose, 1997), as well as egotistical motivations such as perceived nutritional benefits (Hill & Lynchehaun, 2002; Hoefkens et al., 2009) and the absence of pesticides, fertilizers and hormones which are perceived as harmful to human health (Hughner et al., 2007; Magnusson et al., 2003). However, previous organic food research offers limited practical implications for marketers in developing effective advertising strategies (Kareklas, Carlson, & Muehling, 2014; Septianto, Kemper, & Paramita, 2019). In order to fill this gap, our research draws on a recent work examining the influences of age cues (Park et

al., 2020) and provides a new promotional strategy for organic food. The successful promotion of organic food is especially important as the industry battles with price premiums as well as skepticism of what ‘organic’ means and its certifications (Yiridoe, Bonti-Ankomah, & Martin, 2005). It is thus important to examine how marketers can promote organic food to consumers.

In this vein, recent research suggests that consumers exposed to a younger cue would feel subjectively older, making them more responsible to others’ welfare (Park et al., 2020). As a result, they would be motivated to engage in behaviors for the greater good (Park et al., 2020). Because organic food is strongly associated with an environmental issue (Bauer et al., 2013; Mainieri et al., 1997; Minton & Rose, 1997), thus highlighting the role of organic food as a part of the greater good (i.e., environmental degradation), we propose that such age cues can also influence consumer preferences for organic food. In this regard, we further investigate the moderating role of egoistic versus altruistic claims (Kareklas et al., 2014; Septianto et al., 2019).

On the one hand, altruistic claims highlight the negative environmental consequences of purchasing non-organic food. We thus expect that exposing consumers to a younger cue can increase their preferences for organic food. Feeling older than one’s age can cause individuals feel to more responsible to the welfare of the environment (Park et al., 2020), thus eliciting the emotion of compassion. On the other hand, egoistic claims highlight how non-organic food can lead to personal issues (e.g., health) (Kareklas et al., 2014; Septianto et al., 2019). Drawing upon psychological reactance theory (Brehm, 1966; Brehm & Brehm, 1981), we predict that consumers exposed to a younger cue show lower preferences for organic food when exposed to an egoistic message due to increased levels of anger. As such, this research contributes to the literature on organic food by highlighting how marketers can develop effective communication strategies to promote organic food.

Theoretical Background

Organic Food

Ethical, green, and sustainable production and consumption has gained much traction in academia, business and marketing practice. In fact, one of the UNs Sustainable Development Goals is sustainable consumption and production (The United Nations, 2018), highlighting the importance of academic research and business and consumer interest in this domain. Given growing concern about climate change and social inequities, green consumers are influenced by environmental, social justice, human health, and animal welfare issues, and purchase products labelled for example as fair trade and organic (Low & Davenport, 2005). Indeed, the demand for such green products is growing, with the organic food and beverage industry worth \$66 billion which is expected to increase to \$105.7 billion by 2024 (McWilliams, 2019). Studies measuring purchase behaviors of green or responsible consumers usually evaluate organic food, using it as a proxy for green consumption (Hosta & Zabkar, 2020). Owing to this academic and managerial interest, our research focuses on organic food.

Many organic food items are now present in supermarkets and are entering consumers consumption decisions (Hosta & Zabkar, 2020). The motives for organic food consumption are well studied, highlighting egotistical motivation such as health concerns related to the absence of pesticides, fertilizers and hormones (Hughner et al., 2007; Magnusson et al., 2003) and increased nutritional benefits (Hill & Lynchehaun, 2002; Hoefkens et al., 2009). Altruistic motivations for organic food also exist such as environmental benefits (reduced greenhouse gas emissions and water usage) (Bauer et al., 2013; Mainieri et al., 1997; Minton & Rose, 1997), higher ethical standards in animal welfare (Soler, Gil, & Sanchez, 2002; Squires, Juric, & Bettina Cornwell, 2001), and supporting local communities (Bauer et al., 2013; Mainieri et al., 1997; Minton & Rose,

1997). Yet, some consumers are still skeptical about organic food claims, especially as organic is a credence quality (Nuttavuthisit & Thøgersen, 2017).

Moreover, while sustainable consumption has increased over the years, the ‘green’ consumer still seems elusive (White, Hardisty, & Habib, 2019). An attitude behavior gap exists for many consumers, many of which espouse sustainability importance but characteristics such as price, convenience and perceived higher product qualities may led consumers to purchase conventional, non-sustainable products. Therefore, businesses and marketers are increasingly seeking to provide information and communication messages that may circumvent negative associations. Drawing upon a recent work examining the effects age cues (Park et al., 2020), we argue that exposing consumers to different age cues can provide a novel avenue to promote organic food.

Age Cues’ Effect on Subjective Age

A recent research stream has demonstrated how exposing consumers to different age cues can influence their judgments and decisions in the context of prosocial behaviors (Park et al., 2020). Specifically, building on a contrast effect (Markman & McMullen, 2003; Wheeler, DeMarree, & Petty, 2007), the presence of a younger cue (e.g., when interacting with some teenagers) is proposed to elicit an individual to feel subjectively older (Park et al., 2020). In contrast, because adults in general consistently feel younger than their chronological age (Barnhart & Peñaloza, 2013), the presence of an older cue should be less likely to elicit an individual to subjectively feel younger. In other words, exposing individuals to different age cues can influence their subjective age – consumers’ feelings of their current age (Park et al., 2020) – such that consumers exposed to a younger cue should feel subjectively older.

Park et al. (2020) further propose that consumers exposed to a younger cue, and thus feeling subjectively older, should feel more responsible for contributing to the greater good and more likely to engage in prosocial behaviors to distant others. This is due to strong lay beliefs arising from the society, as popular press and government often highlight the need for adults to help younger and future generations by contributing back to society (Park et al., 2020). Moreover, this predicted effect of subjective age should be independent to chronological age. This is not only because the correlation between chronological and subjective is relatively low (Kastenbaum et al., 1972; Park et al., 2020), but also because increasing chronological age is typically associated with a focus on close others such as family (Kim, Kang, & Kim, 2005), which is in contrast to feeling responsible to the greater good (Park et al., 2020).

Because organic food is strongly associated with environmental and ethical issues (Bauer et al., 2013; Mainieri et al., 1997; Minton & Rose, 1997) and subjectively older individuals feel more responsible for contributing to the greater good (Park et al., 2020), we predict that exposing consumers to different age cues can influence consumer preferences of organic food. More importantly, we further argue that such effects can be positive versus negative, depending on the claims associated with the organic food. Thus, in the following section, we build on the moderating role of egoistic and altruistic claims.

The Moderating Role of Egoistic and Altruistic Claims

While organic food is clearly associated with environmental issues (e.g., less greenhouse gas emissions and water usage) (Bauer et al., 2013; Mainieri et al., 1997; Minton & Rose, 1997), it is also associated with personal issues (e.g., nutritional values) (Hoefkens et al., 2009; Hughner et al., 2007; Magnusson et al., 2003). In fact, organic food advertisements, particularly in

marketing research, frequently use altruistic and egotistical motivational messaging (Chang, 2014; Kareklas et al., 2014; Septianto et al., 2019).

The use of altruistic and egotistical framing as been examined in many studies and industries (i.e., charity donations, pro-social behavior such as organ donation). While in the organics industry, research has suggested an altruistic (i.e., societal considerations) claim may be more effective (Kareklas et al., 2014), other research has also shown altruistic-egotistical appeal effectiveness may differ on product category (public vs private), with altruistic appeals more effective for public goods (Green & Peloza, 2014). However, research also shows that consumers with higher environmental concern may not react the same to advertising than non-green consumers (Schuhwerk & Lefkoff-Hagius, 1995). In this case, green consumers do not differ in their response to different (altruistic-egotistical) appeals but non-green consumers respond more favorable to a egoistical appeal (Grimmer & Woolley, 2014).

Altruistic claims highlight the positive environmental benefits of purchasing organic food and the negative environmental consequences of purchasing non-organic food (Kareklas et al., 2014; Septianto et al., 2019). Consequently, we propose that when exposed to an altruistic claim, consumers exposed to a younger cue and feeling subjectively older would show higher preferences for organic food. This is because in doing so, they can contribute to the society at large (Park et al., 2020). However, we argue the contrasting effect when consumers are exposed to an egoistic claim that highlights how non-organic food can lead to negative personal issues (e.g., health) (Kareklas et al., 2014; Septianto et al., 2019).

We draw our arguments from psychological reactance theory (Brehm, 1966; Brehm & Brehm, 1981). Psychological reactance occurs when individuals perceive that their freedom and control over a situation has been threatened (Brehm, 1966; Brehm & Brehm, 1981). As a result,

individuals then seek to regain their sense of freedom and control, leading them to behaviors in the contrasting direction (also called a “boomerang effect”) (Brehm & Brehm, 1981). For example, restricting consumers from drinking alcohol leads to increased alcohol consumption (Bensley & Wu, 1991). Fitzsimons (2000) also demonstrated that consumers react to stock-outs in a store by switching to another store as a form of reactance.

In the context of our research, given that consumers experiencing an enhanced sense of responsibility also feel an heightened sense of control (Baum & Gatchel, 1981; Fischer, 1982), we can expect that consumers exposed to a younger cue would perceive higher sense of control, thus making them more susceptible to reactance when this sense of control is threatened. That is, when consumers are exposed to an egoistic claim about how not purchasing organic food can lead to negative consequences for the self (e.g., personal health), such a claim can be perceived as a threat to consumers’ freedom to choose. Consequently, we propose that consumers exposed to a younger cue would show lower preferences for organic food when they are exposed to an egoistic claim.

In sum, when exposed to an altruistic claim, we expect that consumers exposed to a younger cue would show higher preferences for organic food. However, we argue that due to psychological reactance, consumers who are exposed to an egoistic claim should show lower preferences for organic food. Formally stated, we propose a significant interactive effect between age cue and message claim, such that:

H1. Consumers exposed to a younger (vs. older) cue will show (a) higher preferences for organic food when exposed to an altruistic claim, but (b) lower preferences for organic food when exposed to an egoistic claim.

The Mediating Role of Compassion and Anger

We further argue that the emotions of compassion and anger would mediate the interactive effect between age cue and message claim. Compassion results from witnessing others suffering and seeing them in need (Goetz, Keltner, & Simon-Thomas, 2010; Horberg, Oveis, & Keltner, 2011), which results in helping behavior, caring for those in need (Horberg et al., 2011; Septianto & Tjiptono, 2019) and engagement in prosocial behavior (Goetz et al., 2010). We suggest there is link between compassion and organic food because research shows that compassion for the environment (Tam, 2013) and other people in general (Pfattheicher, Sassenrath, & Schindler, 2016) is associated with pro-environmental intentions. Research also highlights organic food as virtuous and embodying ‘goodness’ (Spielmann, 2020) and consumers buy organics because they have a desire to help the health of the environment and animals (Bauer et al., 2013; Soler et al., 2002). As a result, when consumers are motivated to purchase organic food for the greater good, this would be driven by the emotion of compassion.

In contrast and as discussed, we argue that consumers exposed to a younger cue would experience psychological reactance when exposed to an egoistic claim. Prior research on psychological reactance has established that reactance is synonymous with the emotion of anger (Dillard & Shen, 2005; Quick & Stephenson, 2007; Rains & Turner, 2007). Anger is a negative emotion arising from perceptions of injustice and hostility (Funches, 2011; Horberg et al., 2011). When consumers feel subjectively older, they experience a heightened sense of responsibility and an enhanced sense of control (Baum & Gatchel, 1981; Fischer, 1982). With this sense of control, consumers may be more susceptible to reactance when their perceived control is threatened. Therefore, an egoistic claim about how not purchasing organic food can lead to negative consequences for the self (e.g., personal health), consumers will perceive this as a threat to their

freedom to choose. Consequently, we predict that the emotion of anger would explain the negative influence of age cue and egoistic claim on preferences for organic food. Formally stated:

H2a. Compassion will mediate the positive effect of age cue and altruistic claim on preferences for organic food.

H2b. Anger will mediate the negative effect of age cue and egoistic claim on preferences for organic food.

The Present Research

We provide the evidence of our predictions in two experimental studies. Study 1 tests Hypotheses 1a and 1b, whereas Study 2 offers further evidence to Hypotheses 2a and 2b. Figure 1 describes the conceptual model of the research.

Insert Figure 1 about here.

In both studies, we recruit participants from Amazon Mechanical Turk (MTurk). Note that MTurk has been widely used by previous studies in consumer research (Buhrmester, Kwang, & Gosling, 2011; Peer, Vosgerau, & Acquisti, 2014). Buhrmester et al. (2011) has stated that MTurk samples are more diverse and attentive, as compared to typical student samples. We also only recruit participants with 95% approval ratings to ensure data quality (Peer et al., 2014). In particular, the use of MTurk panel is appropriate for the current research because this panel has been used in prior research examining subjective age (Park et al., 2020) and organic food (Septianto et al., 2019). Also, following Park et al. (2020), we recruit participants aged between 18 and 60 years old in our studies because young cues seem to work only to those aged under 65 years old (Amatulli et al., 2018; Park et al., 2020).

Moreover, we note that the present research uses negative framing when considering both egoistic (e.g., health deterioration) and altruistic (e.g., collapse of the environment) claims (see the

Appendix). This is because a recent systematic literature review examining pro-environmental decisions suggests that negative (vs. positive) framing is more effective in improving green intentions and behavior (Homar & Cvelbar, 2021). In addition, we focus on organic fruits in the studies because organic fruits and vegetables are the top selling organic category (Warzynski, 2018) and these contexts have also been used in prior research examining organic food advertising (Septianto et al., 2019).

Study 1

Study 1 sought to provide evidence to our predictions such that exposing consumers to a younger (vs. an older) cue can increase versus decrease preferences for organic food, depending on whether they were exposed to negative consequences of non-organic food to the environment versus the self, respectively.

Method

Participants and Design. Study 1 employed a 3 (age cue: old, young, baseline) \times 2 (message claim: egoistic, altruistic) between-subjects design. As recommended by Simmons, Nelson, and Simonsohn (2011), we sought to collect approximately 50 participants per experimental condition. Thus, three-hundred participants located in the U.S. (44% female, $M_{\text{age}} = 35.06$, $SD = 10.07$) were recruited from MTurk.

Procedure. Participants were asked to evaluate a consumer purchase scenario about a consumer going to a supermarket to purchase certain fruits. Adapting from prior research (Amatulli et al., 2019; Park et al., 2020), we developed six short scenarios by manipulating different age cues and negative consequences of non-organic food (see the Appendix for the full scenarios). Specifically, the consumer in the scenario interacted with a supermarket assistant promoting organic fruits.

We stated that the supermarket assistant was an elderly (an older cue – to elicit a young subjective age), a teenager (a younger cue – to elicit an old subjective age), and no age information (as the baseline) (Park et al., 2020). In addition, the scenario stated that this supermarket assistant told the consumer that purchasing non-organic fruits actively contributed to the collapse of the environment (an altruistic claim) or deterioration of personal health (an egoistic claim) (Septianto et al., 2019).

For the dependent variable, participants then indicated whether they would choose to purchase organic fruits (coded as 1) or non-organic fruits (coded as 0) (Amatulli et al., 2019). As the subjective age manipulation check, participants rated the extent to which they felt young or old at that moment (1 = extremely young, 7 = extremely old) (Park et al., 2020). Participants also indicated whether purchasing organic fruits was concerned with (1) personal impact (e.g., health) and (2) societal impact (e.g., environment), measured on a 7-point scale (1 = strongly disagree, 7 = strongly agree) (Kareklas et al., 2014; Septianto et al., 2019).

Results and Discussion

Manipulation Checks. A one-way ANOVA on the subjective age manipulation check shows significant effect ($F(2, 297) = 7.39, p = .001$). Planned contrasts revealed that participants in the younger cue condition ($M = 4.52, SD = 1.41$) reported higher levels of subjective age than those in older cue ($M = 3.97, SD = 1.34$; Fisher's LSD: $p = .003$) and baseline conditions ($M = 3.86, SD = 1.26$; Fisher's LSD: $p < .001$), the latter of which did not differ from each other (Fisher's LSD: $p = .575$).

Independent sample t-tests also showed that participants reading the egoistic claim ($M = 4.99, SD = 1.67$) considered purchasing organic food was concerned with personal impact than participants reading the altruistic claim ($M = 4.55, SD = 1.87, t(298) = 2.16, p = .031$). In contrast,

participants reading the altruistic claim ($M = 5.06$, $SD = 1.65$) considered purchasing organic food was concerned with societal impact than those reading the egoistic claim ($M = 4.44$, $SD = 1.74$, $t(298) = 3.19$, $p = .002$).

Product Choice. We conducted a moderated logistic regression analysis using Hayes' PROCESS Model 1 (Hayes, 2017). Specifically, we examined the effects of age cue (a younger cue [coded as -1] vs. an older cue [coded as 1] and baseline [coded as 0]), moderated by message claim (altruistic [coded as -1] vs. egoistic [coded as 1]), on product choice (organic food [coded as 1] vs. non-organic food [coded as 0]). As predicted, there was significant interaction effects between subjective age and message claim (see Table 1 for details).

Insert Table 1 about here.

As can be seen in Figure 2, when exposed to an altruistic claim, participants exposed to a younger cue were more likely to choose to purchase organic fruits, as compared to those exposed to an older cue ($B = -.91$, $z = -2.17$, $p = .030$) and those in the baseline condition ($B = -.97$, $z = -2.36$, $p = .018$). In contrast, when exposed to an egoistic claim, participants exposed to a younger cue were less likely to choose to purchase organic fruits, as compared to those exposed to an older cue ($B = .87$, $z = 2.10$, $p = .036$) and those in the baseline condition ($B = .90$, $z = 2.19$, $p = .029$)¹. These findings provided evidence to Hypotheses 1a and 1b.

Insert Figure 2 about here.

Study 2

Study 2 extended the findings of Study 1 in two meaningful ways. First, we modified the manipulation of subjective age and used a different dependent variable to provide stronger

¹ As additional analyses, we conducted similar models and included participants' chronological age as a covariate. As expected and consistent with prior research (Park et al., 2020), the effects of chronological age were non-significant in Study 1 ($p = .183$) and Study 2 ($p = .125$). Additionally, in Study 2, the effect of chronological age in the moderated mediation model (when including anger and compassion) was also non-significant ($p = .136$).

empirical evidence to our predictions. Second and more importantly, we tested the mediating role of compassion and anger to establish the underlying mechanisms driving our predictions.

Method

Participants and Design. Two-hundred and nine participants located in the U.S. (44% female, $M_{\text{age}} = 34.82$, $SD = 9.24$) were recruited from MTurk. Study 2 employed a 2 (subjective age: old, young) \times 2 (message claim: altruistic, egoistic) between-subjects design. Note that we excluded the baseline condition to simplify the experimental design because Study 1 has established that the young subjective age condition was not different from the baseline condition.

Procedure. Similar to Study 1, participants were asked to evaluate a consumer purchase scenario about a consumer going to a supermarket to purchase certain fruits. We used similar scenarios to those of Study 1 and developed four short scenarios by manipulating different age cues and negative consequences of non-organic food (see the Appendix for the full scenarios). However, instead of altering the age of the supermarket assistant, the scenario stated that the supermarket assistant informed the consumer that the previous day, many consumers purchased organic fruits were elderly (an older cue – to elicit a young subjective age) or teenagers (a younger cue – to elicit an old subjective age) (Park et al., 2020).

For the dependent variable, participants indicated the likelihood of purchasing the organic fruits on a 7-point scale (1 = not likely at all, 7 = very likely). Participants also indicated the extent to which they experienced compassion and anger, measured using six items (“compassionate”, “softhearted”, and “sympathetic” were averaged as a measure of compassion [$\alpha = .94$], whereas “angry”, “irritated”, and “annoyed” were averaged as a measure of anger [$\alpha = .93$]) (Lee, Winterich, & Ross, 2014; Lerner & Keltner, 2001). Lastly, as in Study 1, participants completed

manipulation checks for subjective age (Park et al., 2020) and negative consequences of organic fruits (Septianto et al., 2019).

Results and Discussion

Manipulation Checks. An independent sample t-test revealed that participants in the younger cue condition ($M = 4.64$, $SD = 1.48$) reported higher levels of subjective age than those in older cue condition ($M = 4.14$, $SD = 1.37$, $t(207) = 2.55$, $p = .012$). Independent sample t-tests also showed that participants reading the egoistic claim ($M = 5.05$, $SD = 1.50$) considered purchasing organic food was concerned with personal impact than those reading the altruistic claim ($M = 4.45$, $SD = 1.80$, $t(207) = 2.62$, $p = .009$). In contrast, participants reading the altruistic claim ($M = 5.18$, $SD = 1.41$) considered purchasing organic food was concerned with societal impact than participants reading the egoistic claim ($M = 4.49$, $SD = 1.57$, $t(207) = 3.35$, $p = .001$).

Purchase Likelihood. A two-way ANOVA was conducted with subjective age, message claim, and their interaction as independent variables, and purchase likelihood as the dependent variable. Results revealed a non-significant main effect of subjective age ($F(1, 205) = .03$, $p = .876$) and a significant main effect of message claim ($F(1, 205) = 15.96$, $p < .001$). However and as predicted, these were qualified by a significant interaction effect ($F(1, 205) = 21.82$, $p < .001$).

Insert Figure 3 about here.

As can be seen in Figure 3, when exposed to an altruistic claim, participants feeling subjectively older ($M = 5.46$, $SD = 1.39$) reported a higher likelihood of purchasing organic fruits, as compared to those feeling subjectively younger ($M = 4.42$, $SD = 1.70$; Fisher's LSD: $p = .002$). In contrast, when exposed to an egoistic claim, participants feeling subjectively older ($M = 3.46$, $SD = 1.93$) reported a lower likelihood of purchasing organic fruits, as compared to those feeling

subjectively younger ($M = 4.57$, $SD = 1.61$; Fisher's LSD: $p = .001$). These findings provided evidence for Hypotheses 1a and 1b.

Mediated Moderation Analysis. We have argued that compassion and anger would mediate the interactive effects of subjective age and message claim (H2a and H2b). Examining compassion, a two-way ANOVA revealed a significant interaction effect ($F(1, 205) = 6.37$, $p = .012$), such that when exposed to an altruistic claim, participants feeling subjectively older ($M = 4.89$, $SD = .23$) reported higher levels of compassion, as compared to those feeling subjectively younger ($M = 4.07$, $SD = .21$; Fisher's LSD: $p = .008$). Such difference was non-significant when participants were exposed to an egoistic claim ($p = .364$).

In contrast, examining anger, a two-way ANOVA revealed a significant interaction effect ($F(1, 205) = 6.84$, $p = .010$), such that when exposed to an egoistic claim, participants feeling subjectively older ($M = 4.61$, $SD = .24$) reported higher levels of anger, as compared to those feeling subjectively younger ($M = 3.52$, $SD = .23$; Fisher's LSD: $p = .001$). Such difference was non-significant when participants were exposed to an altruistic claim ($p = .672$).

Consistent with our conceptual model (see Figure 1), we conducted a mediated moderation analysis using Hayes' PROCESS Model 8 with 5,000 bootstrap resamples (Hayes, 2017). Specifically, we examined the indirect effects of subjective age, moderated by message claim, on purchase likelihood via compassion and anger. As expected, the indirect effect of subjective age on purchase likelihood via anger was significant in the egoistic claim condition ($B = .077$, $SE = .047$, 95% CI: .005 to .189) but non-significant in the altruistic claim condition ($B = -.010$, $SE = .026$, 95% CI: -.070 to .039). In contrast, the indirect effect of subjective age on purchase likelihood via compassion was significant in the altruistic claim condition ($B = -.270$, $SE = .114$, 95% CI: -

.510 to -.064) but non-significant in the egoistic claim condition ($B = .093$, $SE = .100$, 95% CI: -.102 to .288; see Table 2 for details). These findings provided evidence for Hypotheses 2a and 2b.

Insert Table 2 about here.

General Discussion

The present research extends recent research of Park et al. (2020) by examining the influences of subjective age on preferences for organic food. Results show that consumers feeling subjectively older show higher preferences for organic fruits when exposed to an altruistic claim (Studies 1 and 2). However and more interestingly, we also demonstrate the opposite effect such that consumers feeling subjectively older show lower preferences for organic fruits when exposed to an egoistic claim (Studies 1 and 2). Further, the interactive effect between subjective age and message claim is driven by the emotions of compassion (for the altruistic claim) and anger (for the egoistic claim) (Study 2).

Theoretical Contributions

Our findings make three theoretical contributions in relation to the work of Park et al. (2020). First, our research provides a conceptual replication of a recent research examining subjective age and prosocial behavior for the society at large (Park et al., 2020) in the context of organic food. This is because organic food is strongly associated with environmental issue (Bauer et al., 2013; Mainieri et al., 1997; Minton & Rose, 1997), thus highlighting its important role for the greater good. More importantly, replication research is valuable because it has been considered as “one of the building blocks of the structure of knowledge” (Goldenberg and Muller 2014, as cited by Haberstroh et al., 2017, p. 162). Replication research is also meaningful because it provides robust evidence for the application of a specific finding. In the present research, we contribute by showing that consumers feeling objectively older are willing not only to engage in

prosocial behavior for an environmental issue (Park et al., 2020) but also to purchase products that are environmentally-friendly (e.g., organic food).

Second, our research contributes to the literature on subjective age by showing a condition under which subjective age can lead to a backlash effect. This is important because Park et al. (2020) have demonstrated the consistency of their predictions across eight experimental studies, thus implicitly indicating that increasing subjective age always leads to positive effects. However, we find that while consumers feeling subjectively older show higher preferences for organic food when exposed to an altruistic claim (Park et al., 2020), the opposite effect can occur such that consumers feeling subjectively older show lower preferences for organic food when exposed to an egoistic claim. This is also significant because scholars have pointed out that a replication research is particularly useful when it provides theoretical extensions from the original study (Berthon et al., 2002; Haberstroh et al., 2017).

Third, we also examine the underlying process driving our predictions – the emotions of compassion and anger. Indeed, research in consumer behavior and business ethics have established the significant effects of emotions in consumer decision making (Antonetti & Maklan, 2014; Singh et al., 2018). We demonstrate that the positive effect of subjective age and altruistic claim is driven by compassion, whereas the negative effect of subjective age and egoistic claim is driven by anger, which is consistent with psychological reactance theory (Quick & Stephenson, 2007; Rains & Turner, 2007). Therefore, we add to the literature about compassion, especially in the business context. This is especially important as compassion has yet to be fully examined and utilized by marketing and consumer research (Meyer, Huber, & Huber, 2019) but has been shown to impact pro-environmental behavior (Berenguer, 2010; Pfattheicher et al., 2016; Tam, 2013).

Practical Implications

There is limited research on effective marketing and advertising strategies for organic food (Kareklas et al., 2014; Septianto et al., 2019). Since promoting organic products is complicated due to price premiums and consumer skepticism (Yiridoe et al., 2005), marketers need to find ways to successfully advertise organic products. Our research highlights the effective use of subjective age to promote organic food and provides practical implications.

First, as demonstrated by our research and Park et al. (2020), subjective age is malleable. Practically, marketers can implement similar ‘nudging’ techniques (i.e., highlighting the young age of other customers) in advertising to elicit older subjective age. Second, the research also demonstrates the effectiveness of the combined use of altruistic motivational messaging with subjective age. Thus, marketers can nudge consumers into feeling older and as shown by our research, feel compassion that results in organic product purchases. This should be an effective advertising technique to increase organic food purchases. However, marketers who utilize egotistical messaging in their advertisements should avoid the use of subjective age as anger is elicited.

Third, overall, marketers must be cognizant of interaction effects in their messaging. Specifically, our findings demonstrate that the use of subjective age is only effective when combined with an altruistic claim and backfires if used with an egotistical claim. This distinction is of key import as organic purchase motivations are driven by both altruistic and egotistical motivations and such claims are frequently used in organic food advertisements (in marketing research and practice) (Kareklas et al., 2014; Septianto et al., 2019). Indeed, some of the time altruistic and egotistical claims are combined on packaging and promotions (Yiridoe et al., 2005). Moreover, altruistic and egotistical messaging is used effectively for many prosocial behaviors

such as charitable giving (Chang, 2014), and green products, such as sustainable clothing (Song & Kim, 2019). As marketers seek to combine these frequently used altruistic and egotistical claims with other more novel framing and messaging strategies, they must examine the interaction effects.

Fourth, the research provides an avenue to further promote green consumption through positive emotions. Current knowledge about climate change and environmental degradation is relatively high, yet many do not act on their knowledge and engage in environmentally friendly behavior. The research offers an affective perspective on how to strengthen pro-environmental behaviors (Pfattheicher et al., 2016). Indeed, while marketing campaigns are known to employ emotional appeals (e.g., guilt, fear and disgust), particularly when aiming to change individual behavior (e.g., smoking, drunk driving) (Brennan & Binney, 2010; Hastings, Stead, & Webb, 2004), this manipulation of negative emotions raise questions about the ethics (Hastings et al., 2004) and effectiveness of such appeals (Brennan & Binney, 2010). Subsequently, examining the distinct effects of positive emotions on consumer behavior is gaining more traction (Cavanaugh, Bettman, & Luce, 2015); thus, it is an important element to consider when creating green promotional messages.

Limitations and Future Research

While the present research adds to our understanding of how different age cues can influence consumer behavior, we acknowledge the limitations of contextual methodologies and findings of this research. First, we used scenario to elicit different age cues and message claim. We also only measured hypothetical product choice and purchase likelihood as the dependent variables. Hence, it would be important to employ other methodological contexts that are more relevant in real-world situation. For example, a field experiment examining interaction with a young or an older person (Park et al., 2020) and involving real purchase behaviors would be

beneficial. Second, our research only examined the context of organic fruits. While hypothetically our findings should be consistent across different food (e.g., organic meat), there is also increasing trend for organic non-food products (e.g., personal care products, fashion). Other research has also suggested that perceived harmfulness of different product categories (e.g., batteries are perceived to be more environmentally harmful than food products in general) might influence the effectiveness of green advertising (Kong & Zhang, 2014), it would thus be of interest to extend the examinations of the predicted effects across multiple product categories.

Third, we also focused on negative (vs. positive) framing when developing altruistic and egoistic claims. While negative (vs. positive) framing is considered to be more effective in improving green intentions and behavior (Homar & Cvelbar, 2021), some research have found that positive framing can be more beneficial in some situations (Segev, Fernandes, & Wang, 2015). Thus, future research can examine how such framing can further moderate the effect of age cues. For instance, while the positive effect of a younger cue on altruistic claims might be consistent regardless of the framing, the negative effect of a younger cue on egoistic claims might be attenuated in the positive framing condition because psychological reactance might not emerge in that condition.

Fourth, there may be other individual-level factors that can moderate the effects of different age cues. For instance, because subjective age is related to the perceptions of how chronological age can be malleable, consumers' mindset that reflects the extent to which consumers perceive human characteristics (Murphy & Dweck, 2016) as malleable can be a potential moderator. Lastly, the use and elicitation of compassion in the context of the environment, and the lack of previous research on this (Pfattheicher et al., 2016), highlights the opportunities for future research, especially in its use in green advertising and social marketing.

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Table 1. Moderated Logistic Regression Analysis (Study 1)

	Coeff	SE	z	p
Constant	0.015	0.211	0.071	0.943
Baseline (X1)	-0.037	0.290	-0.128	0.898
Feeling Young (X2)	-0.019	0.294	-0.066	0.948
Message Claim (W)	-0.678	0.211	-3.221	0.001
X1 x W	0.932	0.290	3.220	0.001
X2 x W	0.887	0.294	3.018	0.003

Table 2. Mediated Moderation Analysis (Study 2)

Antecedent	Consequent											
	Anger (M1)				Compassion (M2)				Purchase Likelihood (Y)			
	Coeff	SE	t	p	Coeff	SE	t	p	Coeff	SE	t	p
Constant	3.993	0.117	33.996	< 0.001	4.188	0.110	38.079	< 0.001	2.308	0.325	7.107	< 0.001
Subjective Age (X)	-0.237	0.117	-2.017	0.045	-0.136	0.110	-1.234	0.218	0.073	0.091	0.803	0.423
Message Claim (W)	0.069	0.117	0.592	0.555	-0.292	0.110	-2.659	0.008	-0.260	0.092	-2.840	0.005
X x W	-0.307	0.117	-2.615	0.010	0.278	0.110	2.524	0.012	0.314	0.093	3.378	0.001
Anger (M1)	---	---	---	---	---	---	---	---	-0.142	0.054	-2.645	0.009
Compassion (M2)	---	---	---	---	---	---	---	---	0.653	0.057	11.417	< 0.001
Model Summary	R ² = 0.051, F(3, 205) = 3.700 p = 0.013				R ² = 0.066, F(3, 205) = 4.803 p = 0.003				R ² = 0.489, F(5, 203) = 38.808 p < 0.001			

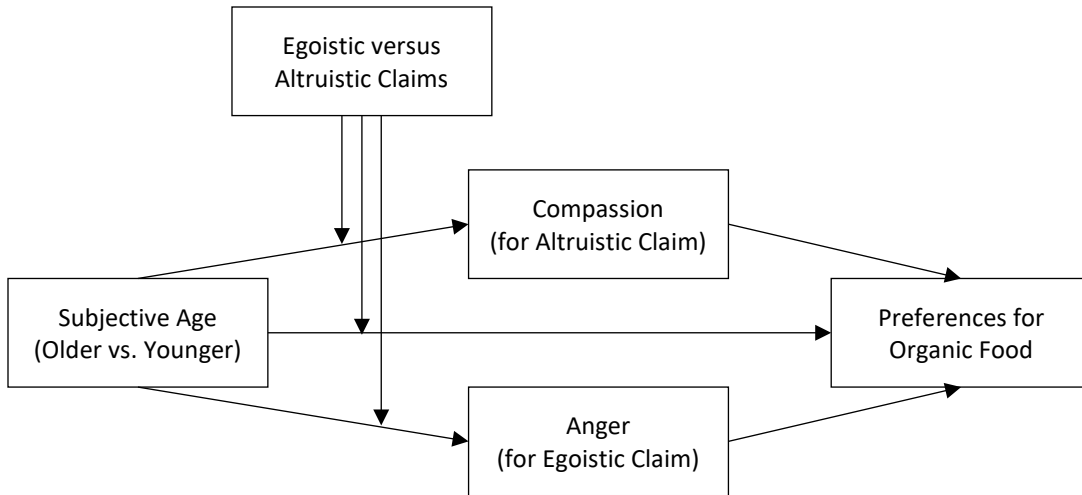


Figure 1. Conceptual Model

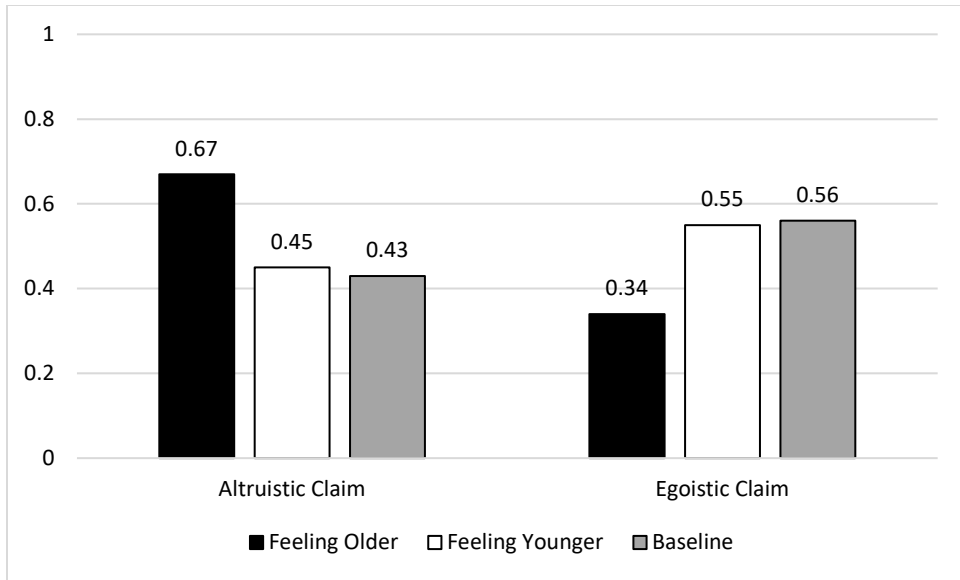


Figure 1. Probability of Participants Choosing Organic Fruits (Study 1)

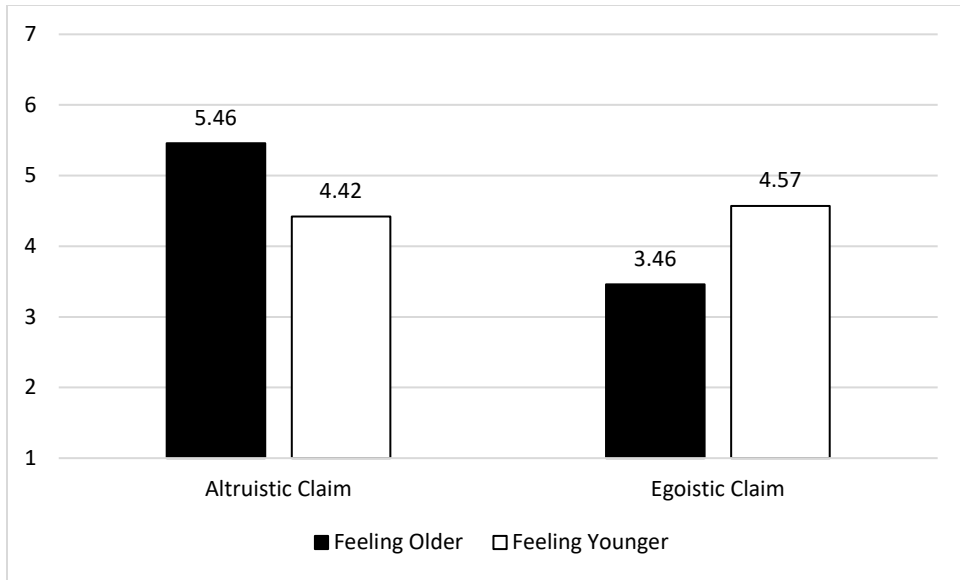


Figure 3. Likelihood of Purchasing Organic Fruits (Study 2)

Appendix

Study 1 Scenarios

Feeling Young – Environmental Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice an **elderly** supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the collapse of the environment**. However, such organic fruits cost 20% more than the former ones you saw.

Feeling Old – Environmental Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice a **teenage** supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the collapse of the environment**. However, such organic fruits cost 20% more than the former ones you saw.

Baseline – Environmental Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice a supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the collapse of the environment**. However, such organic fruits cost 20% more than the former ones you saw.

Feeling Young – Health Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice an **elderly** supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the deterioration of your health**. However, such organic fruits cost 20% more than the former ones you saw.

Feeling Old – Health Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice a **teenage** supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the deterioration of your health**. However, such organic fruits cost 20% more than the former ones you saw.

Baseline – Health Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice a supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the deterioration of your health**. However, such organic fruits cost 20% more than the former ones you saw.

Study 2 Scenarios

Feeling Young – Environmental Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice a supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the collapse of the environment**. This supermarket assistant also mentions that yesterday, many **elderly customers** bought these organic fruits. However, such organic fruits cost 20% more than the former ones you saw.

Feeling Old – Environmental Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice a supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the collapse of the environment**. This supermarket assistant also mentions that yesterday, many **teenage customers** bought these organic fruits. However, such organic fruits cost 20% more than the former ones you saw.

Feeling Young – Health Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice a supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the deterioration of your health**. This supermarket assistant also mentions that yesterday, many **elderly customers** bought these organic fruits. However, such organic fruits cost 20% more than the former ones you saw.

Feeling Old – Health Consequences

Suppose you need to purchase fruits. You enter a supermarket and see the fruits you particularly like. Nevertheless, while you keep walking in the supermarket, you notice a supermarket assistant promoting the same fruits except for the fact that these ones carry a certification to be 100% organic. This supermarket assistant states that you should purchase organic fruits. If you decide to buy the non-organic ones, you actively contribute to **the deterioration of your health**. This supermarket assistant also mentions that yesterday, many **teenage customers** bought these organic fruits. However, such organic fruits cost 20% more than the former ones you saw.