



# Disgust and preference for familiar brands

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Received: 23 June 2020 / Accepted: 18 January 2021 / Published online: 5 February 2021  
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## Abstract

Disgust represents an undesired state that signals the presence of threats in the external environment, leading to a change in needs and motivations aimed at coping with the threats. The present research aims at studying the effects of disgust in a consumer setting, proposing that once disgusted consumers show an immediate avoidance for familiar (vs. unfamiliar) brands. However, this avoidant reaction is followed by an opposite response of preference for familiar (vs. unfamiliar) brands. Moreover, conversely to the immediate response of avoidance of familiar brands, the subsequent response of preference for familiar brands is even stronger in case the consumer is depleted, showing a more deliberative nature of that response. The proposed results contribute to both emotion and consumer research debates demonstrating how an externally induced emotion, as disgust, influences consumers' brand choice over time. Moreover, the present findings offer interesting suggestions to brand managers and retailers in order to better promoting the commercialized brands.

**Keywords** Disgust · Brand familiarity · Ego-depletion · Consumer behavior

## 1 Introduction

Emotions influence our everyday behavior over time giving rise to different psychological patterns for which we develop opposite coping strategies. In fact, emotional reactions begin quickly rising their pick of intensity, and then they slowly decline to a stable level, giving way to a qualitatively different type of emotional reactions that will slowly disappear over time (Solomon and Corbit 1978). Despite psychological literature offers several examples of different reactions deriving from the same emotion (see for instance Katcher et al. 1969; Church et al. 1966), consumer research seems to mainly focus on immediate reactions deriving from emotions, omitting the study of possible opposite effects. This is particularly

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relevant if we consider negative emotions that, compared to positive ones, are supposed to longer protract their effects (Taylor 1991), and their intensity can change over time not necessarily with the same intensity. The influence of negative emotions on consumer reactions has received extended attention by previous research, especially regarding brand reactions (e.g. Babin et al. 1998; Romani et al. 2012) and social advertising appeals (Brennan and Binney 2010), however research about the effects of situational negative emotions on consumer choices seems to be less studied. This lack of research is especially verified for disgust, a negative emotion often related to anxiety disorders (e.g., fear of contamination, Cisler et al. 2009) that involves feelings of nausea and revulsion when individuals are exposed to repulsive stimuli (Ekman 1970). Physical disgust characterizes several aspects of consumer everyday life, as it is experienced primarily in relation to the sense of taste, and secondarily to any other stimulus which causes similar feeling considering the other senses (e.g., sight, touch) sometimes producing also anxiety disorders (Cisler et al. 2009). From an evolutionary perspective this negative emotion has evolved as a response to offensive foods that may cause harm to the organism, and therefore it is triggered by objects or people who possess attributes that signal any possible disease alert (Oaten et al. 2009). Given the easiness with which disgust can be elicited in our daily life, this negative emotion has been demonstrated to influence also our consumer behaviors. In that sense, previous research found that disgust is the underlying mechanism that explains the negative relationship between advertising content and purchase intention (Shimp and Stuart 2004), moreover it lowers the evaluations towards an associated object (Morales and Fitzsimon 2007), and the related customer satisfaction and brand attitude (Machleit and Eroglu 2000). Moreover, disgust has been identified as the cause that explains the lower consumers attitude towards previously touched items (Argo et al. 2006), towards clothes made from recycled plastic (Meng and Leary 2019) and towards expertise products (Guido et al. 2018). Recently, Donato and Miceli (2020) found a dual response to disgust characterized by an immediate preference for structure, but also an opposite, subsequent tendency to prefer unstructured stimuli, showing that such a typically avoidance-triggering emotion can then lead to opposite effects. However, authors did not directly test their conceptual model also to marketing related stimuli, and more importantly, they did not identify possible boundary conditions that can regulate the subsequent, complementary responses to disgust. The present research aims to cover this gap analyzing the immediate and the subsequent response to disgust toward familiar (vs. unfamiliar) brand choices and identifying in the *ego depletion* a boundary condition that regulates such effect.

Brand familiarity can be considered as the most rudimental form of consumer knowledge, and relates to the number of brand-related experiences the consumer has had (Alba and Hutchinson 1987), whereas ego depletion represents a state in which the self does not have all the cognitive resources it has normally (Baumeister and Vohs 2007). Daily life offers several examples of ego depletion episodes, or situations in which people perform poorer on a self-control task after having already engaged in a previous task requiring self-control. For example, people who had suppressed their thoughts in an initial task, at first show—if motivated—to be more able

to control their attention doing some choices, as eating a healthier food, but subsequently show less persistence, as eating more palatable (but unhealthy) food (e.g., Hirt et al. 2016).

Generally, it is very likely that consumers experience disgust in their daily life (e.g., exposure to a revolting stimulus, or to a disease threat), however this negative feeling is likely to influence not only their immediate reactions, but the subsequent ones. This is quite relevant, considering that consumers are involved in several consequential choices everyday, and therefore the study of the effect of disgust on these choices and the eventual influence of ego-depletion may be quite relevant for a consumer reasearch perspective.

The present research aims at analyzing such situations, demonstrating that disgust generates an immediate tendency to *avoid* familiar (vs. unfamiliar) brands, and that this immediate response if followed by a subsequent opposite tendency to *prefer* familiar brands. However, once depleted, consumers show an even stronger subsequent response of preference for familiar brands, whereas the immediate response of avoidance for unfamiliar brands is not influenced by depletion. As a consequence, differently from the immediate response to disgust, the subsequent one has a more deliberative nature, and therefore may be influenced by ego depletion. Conversely, the nature of the immediate response is totally instinctive, and therefore not depending by the cognitive resources available for the individual.

These results contribute to both emotion and consumer research debates, as they show how a negative emotion, such as disgust, can influence a typical consumer decision, that is familiar (vs. unfamiliar) brand choice. Moreover, the present research goes more in depth to the dual response of disgust, confirming the dual pattern already demonstrated by previous findings (i.e., Taylor 1991; Donato and Miceli 2020) and investigating the nature of these two responses, showing an important moderator, namely ego depletion.

In what follows, firstly a review of disgust literature will be provided, then, argumentations supporting the proposed conceptual model and two experimental studies will be presented. Finally, the paper will discuss the found results presenting managerial implications, limitations, and further avenues for future research.

## 2 Conceptual framework

### 2.1 Disgust and brand familiarity

According to Rozin and Fallon (1987) disgust can be defined as a basic negative emotion characterized by nausea and revulsion that arises when subjects are exposed to potentially contagious stimuli, with the main objective of protecting people from pathogens or infections (Tybur et al. 2013).

Research concerning disgust (e.g., Chapman et al. 2009; Olatunji and Sawchuk 2005; Rozin et al. 1993; Tybur et al. 2009) generally agrees that an evolutionary perspective best describes the development and the function of that emotion, converging to the idea that people respond to the undesired state of disgust through an instinctive (physical and psychological) *avoidance* of the disgust eliciting stimulus

(Haidt et al. 1984). This instinctive avoidant response implies not only the immediate physical removal and mental rejection of any disgust eliciting threats present in the environment (Rozin and Fallon 1987), but also a series of psychological responses of rejection as social exclusion (Navarrete and Fessler 2006; Sherman and Haidt 2011), conformity to social norms (Tybur et al. 2013), conservative political orientation (Inbar et al. 2012), social conservatism (Terrizzi et al. 2012) and high prejudice (Taylor 2007).

Marketing researchers have mainly linked the role of disgust to touch. For instance, Argo et al. (2006) demonstrated that consumers evaluate products previously touched by other shoppers as less favorably because they are perceived as infected. Morales and Fitzsimons (2007) developed a theory of product contagion in a consumer context, in which disgusting products are believed to transfer offensive properties by physical contact with other products previously touched, thus influencing evaluations. Recent research within marketing by Guido et al. (2018) demonstrated that contamination based disgust reduces product purchase intention. Similarly, Meng and Leary (2019) showed that a recycled product can serve as a contamination cue, and that disgust sensitivity amplifies such contamination perception toward expertise products. Disgust plays a pivotal role also in marketing communication, and in particular in shock advertising (Dahl et al. 2003) and in promoting prosocial behavior (e.g., Allred and Amos 2018). Generally, it has been demonstrated that disgusting advertisements lead to a negative attitude toward the ad, without improving brand recall (Dens et al. 2008), whereas in two experiments Shimp and Stuart (2004) show that consumers' level of felt disgust mediates the relationship between advertising content and purchase intention. Furthermore, Heath et al. (2001) manipulated disgust in the messages of urban-legends stories and found that people were more willing to share stories that elicited stronger disgust. These latter findings coincides with those of Vosoughi et al. (2018) that showed that false news, which typically inspire disgust, fear, and surprise, spread faster and to more people than true news, which inspire joy, sadness, trust, and anticipation.

The role of emotions that consumers experience toward brands has been largely studied by marketing research, with a recent attention especially to negative feelings, such as hate (Zarantonello et al. 2016; Fetscherin 2019), dislike (Dalli et al. 2006) and avoidance (Grégoire et al. 2009). Such negative feelings can explain consumers' negative attitude towards brands, that in turn can result in brand rejections (Galvagno 2011; Sandıkçı and Ekici 2009), brand opposition (Wolter et al. 2016), brand revenge (Grégoire et al. 2009), brand sabotage (Kähr et al. 2016), or even in brand disgust (Alba and Lutz 2013). However, little is known about how disgust emotion externally induced can influence brand choice. This is a particularly relevant issue, as exposure to potentially contaminated or infected stimuli is very common in individuals' daily life, even during shopping behavior.

Additionally, disgust has been proved to have a dual response in terms of preference for structure: an initial preference toward structured logos followed by a subsequent response of preference toward unstructured logos (Donato and Miceli 2020). However, it is not clear if this dual response of disgust can be observed also for other marketing related variables, as brand choice, and if there are possible boundary conditions that may influence such dual effect.

In particular, given the avoidant nature of disgust, one may expect that once disgusted, consumer shows an immediate avoidance toward the disgust-eliciting stimulus (Woody and Tolin 2002), but how this avoidant response is manifested in a typical consumer context, such as the choice between more or less familiar brands is unknown.

Brand familiarity derives from the number of brand-related experiences the consumer has had (Alba and Hutchinson 1987). Similarly, Hoch and Deighton (1989) refer to familiarity as the number of product-related experiences accumulated by the consumer. As a consequence, familiar brands refer to those brands that are well-known and commonly used by consumers, and they are perceived as more predictable (Bornstein et al. 1990), certain (Park and Lessig 1981), and comforting (Titchener 1910). Conversely, unfamiliar products, and therefore also brands, can reduce a consumer's sense of control, further compounding the feelings of a lack of control rather than resolving them (Faraji-Rad et al. 2017).

According to previous research the avoidant motivation tendency characterizing disgust is a passive predisposition that relies on escape (i.e., Carver and Harmon-Jones 2009; Izard 1993). Using the “*fight-flight*” analogy (Skinner et al. 2003), this avoidance tendency may motivate customers to “take flight” avoiding further potential damage and choosing, therefore, the brands perceived as more comforting and secure, namely the familiar ones. However, disgust is also characterized by a “certainty” appraisal (Smith and Ellsworth 1985), meaning that disgusted people are exactly aware of the contaminated or infected stimulus that want to avoid and are able to predict the final outcome of their own unpleasant situation (i.e., avoiding or rejecting the infected stimulus). As a consequence, once disgusted consumers do not need to restore security looking for the most predictable and comforting stimulus as a familiar brand, conversely they feel an immediate avoidant tendency that will be poured toward the more conceptually proximal, or familiar, stimulus in their environment. Consequently, the immediate avoidance tendency triggered by disgust will motivate consumers to avoid the familiar (vs. unfamiliar) brands. Formally:

H<sub>1</sub>: Once disgusted, consumers show an immediate tendency to avoid familiar (vs. unfamiliar) brands.

However, according to the opponent-process theory of Solomon (1980), emotions in general are experienced as pairs of opposite reactions and when one is felt, the other is suppressed and vice versa. This assumption is in line with the *mobilization-minimization* hypothesis proposed by Taylor (1991) according to which threatening events induce an initial strong and rapid response of *mobilization* characterized by a higher focus on the stimuli that elicit the negative feeling. This mobilization response is then followed by a *minimization* reaction, that can be defined as an intentional response that aims at reducing the impact of the threatening event, prompting people to reflect on how attenuate the psychological negative consequences of the undesired state. Despite the mobilization-minimization theory was largely used for explaining reactions toward very traumatic events such as violence (e.g., Marshall et al. 2000), Donato and Miceli (2020) demonstrated that the same theory can explain also the effects of disgust. In particular, they found that after an initial desire for structure, disgust generates a subsequent response of lower desire for structure,

implying, therefore, a double-sided response of disgust. Similarly, it is possible to suppose an analogous pattern of disgust response also in terms of preference for familiar brands, implying an immediate avoidance (i.e., mobilization) of familiar brands, and an opposite subsequent response aiming at minimizing the undesired effects of disgust (i.e., minimization). Conversely to the immediate response, the subsequent reaction to disgust generates a higher preference (instead of avoidance) for familiar (vs. unfamiliar) brands. Formally:

H<sub>2</sub>: Compared to the immediate tendency of avoidance towards familiar brands, disgust generates a subsequent tendency of preference towards familiar (vs. unfamiliar) brands.

## 2.2 Disgust and ego depletion

Theoretical and empirical contributions noted the *deliberative* nature of the minimization response aiming at reducing the negative feelings deriving from a threatening event over time. For example, Bohner et al. (1988) underlined that negative events are more likely than positive or neutral ones to elicit causal reasoning mainly in order to find external justifications that can reduce and attenuate the negative implications deriving from such events (e.g., Williams et al. 1982; Schwarz and Clore 1988). In addition, Matlin and Strang (1978) found that negative events are recalled slower than positive events because people try to reinterpret negative events as positive or at least as neutral, in the attempt to reduce the negative consequences deriving from such events (Taylor and Brown 1988; Isen 1984). In addition, Ray et al. (1982) proposed that in situations where complete denial is implausible (e.g., negative events that do not imply any trauma, Ray et al. 1982), the process of minimization involves denial (i.e., a defense mechanism characterized by refusal to acknowledge painful events or feelings—see Baumeister et al. 1998a, b) coupled with rationalization (i.e., defense mechanism in which negative events, or feelings, are logically justified or made tolerable by plausible explanations—see Diehl et al. 1996).

As a deliberative process, minimization response should imply the ability to *control* the automatic avoidant impulse (mobilization) typical of disgust. The ability to control impulses and the ability to monitoring one's behavior in order to achieve a specific goal (i.e., search for explanations in order to erase the undesired state of disgust) refer to *self-regulation* (see for instance Bandura 1991). Acts of self-regulation depend on the expenditure of limited resources, and when that resources are depleted by previous use, people are less effective at subsequent self-regulating processes (Tice et al. 2007), generating an impairment of self-control. The impairment of self-control compromises the capacity to control oneself, implying therefore a temporary inability of the self to function optimally in acts of self-regulation determining a status of *ego depletion* (Baumeister and Vohs 2007). Ego depletion can be defined as a “a temporary reduction in the self's capacity or willingness to engage in volitional action (including controlling the environment, controlling the self, making choices, and initiating action) caused by prior exercise of volition” (Baumeister et al. 1998a, b), p. 1253).

In line with the research of Baumeister et al. (1998a, b) the self devotes limited resources for all acts of volition (as opposed to automatic) processing, and when these resources are exhausted, people are less successful at controlling themselves or at responding rationally (Tice et al. 2007). As a result, they act more impulsively or they strengthen their emotional reactions (Baumeister 2002).

Consequently, on the basis of the abovementioned contributions it is possible to suppose that ego depletion moderates the relationship between disgust and preference for familiar (vs. unfamiliar) brands. In particular, it is possible to propose that consumers will respond to disgust state through a subsequent (minimization) response of preference of familiar brands and that depletion will amplify such effect, meaning that the subsequent preference for familiar (over unfamiliar) brands triggered by disgust will be magnified in case the consumer is depleted. Conversely, ego depletion is not expected to influence the immediate response of avoidance of familiar brands, given the impulsive (not deliberative) nature of such immediate response. Then, in case of immediate response, it is expected that consumers in a disgust state will continue to adopt a (mobilization) response of avoidance of familiar brands because they are not able to control their avoidant impulse. Formally:

H<sub>3</sub>: The subsequent tendency of preference toward familiar (vs. unfamiliar) brands generated by disgust is moderated by ego depletion. In particular, the subsequent tendency of disgust to prefer familiar (vs. unfamiliar) brands is strengthened by ego-depletion. The immediate tendency of preference for unfamiliar (vs. familiar) brands is not expected to be influenced by ego-depletion.

Two experimental results tested the proposed hypotheses.

### 3 Overview of experiments

The objective of the first study is to show that compare to a control condition, disgust generates the tendency to avoid familiar (vs. unfamiliar) brands (H<sub>1</sub>). Then, the objective of the second study is twofold: first compare the immediate (i.e., mobilization) and the subsequent (i.e., minimization) responses to disgust showing the presence of an opposite response of tendency of preference of familiar (vs. unfamiliar) brands; second demonstrate the deliberative nature of the subsequent response to disgust, showing how ego depletion reinforces the tendency of preference for familiar brands and not the immediate response of avoidance of familiar brands. Two studies were conducted in two distinct European Countries: the first one in Italy and the second one in The Netherlands. In both studies brand familiarity was operationalized through the choice between national (mainstream) vs. foreign (niche) FMCG brands.

### 3.1 Study 1

Study 1 was designed to test  $H_1$ , namely whether in case of exposure to a disgust salient condition, versus a control condition, participants have a higher tendency to avoid familiar brands.

*Design and Participants* Study 1 considered a single (emotion: disgust vs. control) factor between-subjects design. Ninety-four Italian participants (46 females;  $M_{age} = 24.50$ ,  $SD = 3.31$ ) recruited from a social network (i.e., Facebook) voluntarily took part in an online experiment.

*Procedure* Participants were told that the study consisted of various unrelated parts. Each participant was randomly assigned to one of the two experimental conditions (disgust or control). The disgust manipulation was adapted by Donato and Miceli procedure (2020), according to which subjects are presented with a disgusting vs. control scenario and they are asked to write an essay about it. In particular, in the disgust scenario participants were presented with a disgusting IAPS<sup>1</sup> image (see "Appendix A") and they were asked to write an essay about the feelings, the thoughts and the emotions that the exposure to image was able to elicit them. In the control condition, participants were simply asked to write an essay about the route that they usually take in order to go to their work/school, without any IAPS image exposure.

After the experimental condition administration, participants were informed that they have to perform a different task related to their brand preferences. In particular, they were asked to choose between 7 national mainstreams (i.e., familiar) paired with 7 foreign less known (i.e., unfamiliar) FMCG brands. Each pair of brands was belonging to the same product category (e.g., biscuit, coffee, etc.). In the pairing of familiar versus unfamiliar brands, the familiar brand was presented on the left in 4 cases and on the right in the remaining three cases, moreover the choice order was randomized (see "Appendix B"). All the familiar brand choices were coded as 1, whereas the unfamiliar brand choices were coded as 0, then the choices were summed in order to create an overall familiarity score (DV).

Subsequently, a manipulation check was administered asking participants to indicate to which extent the writing task of the study (i.e., disgust manipulation) made them feel disgusted (1 = not at all; 7 = a lot). The study ended with questions about demographic information (age and gender), then participants were debriefed and thanked for their participation.

*Results and Discussion* A first one-way ANOVA revealed that the manipulation was successful ( $F(1, 92) = 37.73$ ,  $p < 0.001$ ), as participants in the disgust condition were significantly more disgusted ( $M_{Disgust} = 3.07$ ,  $SD = 1.74$ ) than participants in the control condition ( $M_{control} = 1.29$ ,  $SD = 1.03$ ). Then, in order to test  $H_1$  a second one-way ANOVA considering the overall brand familiarity score previously computed as the

<sup>1</sup> International Affective Picture System.



dependent variable was conducted confirming a main significant effect of disgust ( $F(1, 92) = 5.87, p = 0.02$ ). Coherently with expectations, participants in disgust condition present a significantly lower preference for familiar brands ( $M_{Disgust} = 0.65, SD = 0.19$ ) than participants in control condition ( $M_{control} = 0.75, SD = 0.17$ ).

The present findings empirically confirm  $H_1$ , according to which disgusted consumers show an immediate avoidance towards familiar (vs. unfamiliar) brands.

However, the present study operationalized familiar vs. unfamiliar brands through mainstream national vs. less common foreign FMCG brands that are both commercialized in Italy, moreover, participants were simply asked to choose their preferred brand, and consequently one may infer that the proposed brands did not differ in terms of perceived familiarity. As a consequence, an online post-test involving 57 Italian subjects (36 females;  $M_{age} = 30.87, SD = 5.93$ ) recruited through a snowball sampling via a social network (i.e., Facebook) was launched with the objective of demonstrating that the brands used in Study 1 significantly differ in terms of perceived familiarity. Participants were asked to rate their perceived familiarity of all 14 brands showed in Study 1 through a single-item likert scale (i.e., "Please indicate to which extent do you perceive the following brand as familiar"; 1 = Not at all familiar, 7 = Very Familiar). Perceived familiarity of both national ( $M = 5.95, SD = 1.11$ ) and foreign ( $M = 4.07, SD = 1.05$ ) brands were averaged, and results of a paired sample t-test showed that the difference of these two mean scores was significantly different ( $M_{\Delta} = 1.87, SD = 0.97; t(56) = 14.66, p = 0.000$ ), demonstrating that the national vs. foreign proposed brands differ in terms of perceived familiarity.

### 3.2 Study 2

The objective of Study 2 is twofold: firstly, demonstrate the presence of a subsequent (opposite) response (i.e., minimization) of disgust resulting in higher preference for familiar (vs. unfamiliar) brands ( $H_2$ ); secondly to demonstrate the deliberative nature of the subsequent response to disgust, showing therefore the moderating role of ego depletion ( $H_3$ ).

*Design and Participants* Study 2 was a 2 (disgust response: immediate vs. subsequent)  $\times$  2 (ego-depletion: present vs. absent) between-subjects design. One hundred and twelve Dutch undergraduate students (63 females;  $M_{age} = 21.55, SD = 2.55$ ) took part in a lab experiment in exchange of a small monetary reward (4 euros).

*Procedure.* Participants were told that the study consisted of various unrelated parts. Each participant was randomly assigned to one of the four experimental conditions. In particular, subjects were firstly presented with the same disgusting scenario used in Study 1 matched with the IAPS disgusting image (see "Appendix A"), and then they were asked to write an essay about it. After that, following the same procedure of Donato and Miceli (2020), participants in the immediate disgust condition were asked to reply to the DV questions about brand familiarity presented (vs. not presented) with the same disgusting IAPS image in the background (see "Appendix C"). Such operationalization is coherent with previous research on disgust. In

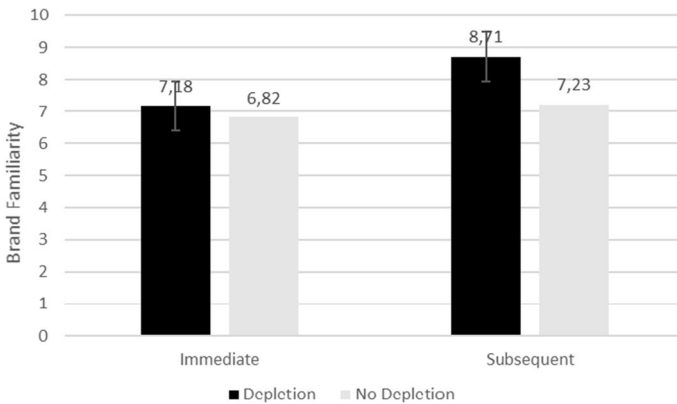
fact, Woody and Tolin (2002) and more recently Schaller et al. (2010) identified the presence of pathogens and repulsive stimuli as a reinforcement of the state of disgust (i.e., disgust salient stimuli) and therefore, as the key factors determining the *immediate avoidance* response resulting from disgust. Removing such reinforcements from the consumer environment would, therefore, approximate a subsequent response to disgust emotion.

Then, depending on the condition (ego depletion: present vs. absent) participants were asked to write a second essay about the route that they usually take in order to go to University. Similarly to Schmeichel (2007), in the ego depletion condition participants were asked to write the essay without using the letters “A” and “N”, whereas in the absence of ego depletion condition participants wrote the same essay but without any kind of restriction.

After the IVs administration (disgust response and ego depletion) the DV (brand familiarity) was measured following a similar procedure as in Study 1. In particular, participants were asked to choose between 10 familiars (vs. unfamiliar) FMCG brands (see "Appendix D"). Since the experiment was conducted in a Dutch University among Dutch students, 10 brands popular in the Netherlands were matched with foreign brands not available in The Netherlands (e.g., Italy, Poland, England etc.). Each pair of brands was related to the same product category (e.g., coffee, hot-dog, ice-cream) and to the same dominant brand color (see "Appendix D"). The order of presentation for each pair of brands was random. Moreover, in the pairings of familiar versus unfamiliar brands, the familiar brand was presented on the left in half of the cases and on the right in the remaining cases. In order to have an overall score for brand familiarity all the familiar brand choices were coded as 1, whereas the unfamiliar brand choices were coded as zero. Then, an overall brand familiarity score was computed summing all the familiar brand choices made by participants among the 10 choices.

Then, manipulation checks of disgust emotion (“Think about the first writing task made for this study and indicate to which extent this task made you feel disgusted” 1 = Not at all; 7 = A lot) and perceived difficulty of depletion manipulation (“Think about the second writing task made for this study—i.e., route made for going to University—and indicate to which extent do you think that the task was difficult to perform” 1 = Not at all; 7 = A lot) plus demographics items (age, gender and nationality) were administered. Finally, participants were debriefed and compensated for their participation.

**Results and Discussion.** A first one-way ANOVA on disgust manipulation revealed that participants in both immediate and subsequent response to disgust were equally disgusted ( $M_{\text{imm\_disgust}} = 2.46$ ,  $SD = 1.01$ ;  $M_{\text{sub\_disgust}} = 2.66$ ,  $SD = 1.01$ ,  $F(1,110) = 1.03$ ,  $p = \text{ns}$ ), whereas a second one-way ANOVA tested if the ego depletion manipulation was successful. Results showed a significant main effect of ego depletion on the perceived difficulty measure ( $F(1,110) = 64.06$ ;  $p < 0.001$ ), confirming that participants in ego depletion condition recognized the task as significantly more difficult ( $M_{\text{Depletion}} = 5.76$ ,  $SD = 1.71$ ) than participants in no ego depletion condition ( $M_{\text{No\_Depletion}} = 3.04$ ,  $SD = 1.89$ ).



**Fig. 1** Graphical representation of results of Study 2

Then, it was tested if the subsequent response to disgust generates higher preference for familiar brands ( $H_2$ ) and if this response is amplified by ego depletion ( $H_3$ ). A 2 (disgust response: immediate vs. subsequent)  $\times$  2 (ego depletion: present vs. absent) ANOVA was conducted on the previously computed overall brand familiarity score. Coherently with  $H_2$  results showed a significant main effect of disgust ( $F(1,108)=14.66$ ,  $p<0.001$ ), demonstrating that participants in the subsequent response to disgust present a significantly higher preference for familiar brands, than participants in the immediate response to disgust ( $M_{imm\_disgt}=7.00$ ,  $SD=1.37$ , vs.  $M_{subs\_disgt}=7.95$ ,  $SD=1.50$ ). Moreover, also ego depletion significantly influences brand familiarity preference ( $F(1,108)=13.25$ ,  $p<0.001$ ), with depleted participants showing a higher preference for familiar brands than not depleted participants ( $M_{depl}=7.96$ ,  $SD=1.54$ ;  $M_{no\_depl}=7.04$ ,  $SD=1.35$ ). More importantly, those main effects were qualified by a significant interaction effect between disgust response and ego depletion ( $F(1,108)=4.77$ ;  $p=0.03$ ). In line with  $H_3$ , simple main effects analyses showed that in case of subsequent response to disgust depleted participants have a significantly higher preference for familiar brands than not depleted participants ( $M_{Depl\_subsequent}=8.71$ ,  $SE=0.25$ ;  $M_{No\_Depl\_subsequent}=7.23$ ,  $SE=0.24$ ;  $F(1,108)=17.57$ ;  $p=0.00$ ). Additional simple main effects analyses revealed that in case of immediate response to disgust participants have a higher preference for familiar brands when they are depleted than when they are not depleted ( $M_{Depl\_immediate}=7.19$ ,  $SE=0.26$ ;  $M_{No\_Depl\_immediate}=6.82$ ,  $SE=0.26$ ), however in line with the instinctive nature of the immediate response of disgust, the difference was not significant ( $F(1,108)=1.02$ ;  $p=ns$ ).

These results confirm  $H_3$ , and more in detail that the subsequent response to disgust has a deliberative nature, and consequently, the complementary response of preference for familiar brands is magnified in case of disgusted consumers are also depleted (Fig. 1).

## 4 General discussion

The present research confirmed the notion that consumers respond to disgust state through two complementary responses: an immediate automatic avoidant (i.e., mobilization) process and a subsequent deliberative attempt to mental erasing (i.e., minimization) the negative consequences deriving from disgust (Donato and Miceli 2020). Differently from previous contribution, the present paper aimed at analyzing the effect of such a dual response for a very relevant marketing related variable, that is brand familiarity preference. According to the found results, disgust generates an immediate avoidance for familiar brands, and a subsequent opposite preference for familiar brands. More interestingly, the present research aimed at analyzing more in depth the nature of the subsequent response to disgust that, as a deliberative process, is amplified in condition of ego depletion. Conversely, given the instinctive nature of the immediate avoidant response, ego depletion did not affect neither its avoidant nature, neither its intensity.

Two experiments demonstrated the proposed hypotheses. In particular, study 1 showed that compared to a control condition, when disgust is triggered consumers present a lower preference for familiar brands. Study 2 corroborates this finding, demonstrating also the presence of an opposite subsequent response of disgust, consisting in a higher preference for familiar brands, and that this preference is strengthened in case the subjects are depleted.

Overall, these results contribute to the growing body of research that seeks to better understand the reactions deriving from negative emotions, and in this particular case from disgust in a marketing context, showing the presence of a deliberative response to disgust that works in accordance with the minimization strategy proposed by Ray et al. (1982) and by Taylor (1991). Moreover, these results can have interesting implications also in terms of consumer behavior. According to Park and Lessing (1981) familiarity can be an important heuristic explaining consumer decision making especially under uncertainty (Metcalfe et al. 1993). The fact that a negative emotion as disgust generates an immediate preference for unfamiliar stimuli (i.e., brands) seems to be quite unexpected and can be attributed to the certainty appraisal that characterizes such a negative emotion. This finding is opposite to previous research according to which disgust sensitivity is positively correlated with conservatism, and therefore with the rejection of novelty, and thus the rejection of unfamiliar brand (e.g., Inbar et al. 2012; Tybur et al. 2010; Terrizzi et al. 2012). However, previous research did not distinguish between the dual nature of the disgust response, and therefore it was not underlined that the general conservatism deriving from disgust, and therefore the rejection of unfamiliar brands, is a stable but subsequent response, anticipated by an instinctive avoidance of the more conceptually closer stimulus (familiar brands), in favor to the farthest one (unfamiliar brands).

Additionally, this research contributes to the branding literature, showing how externally induced negative emotions can influence brand choice over time, and how ego depletion can affect such choices. In particular, Study 2 shows that depleted

consumers are more likely to choose familiar (over unfamiliar) brands, outlining the role of cognitive resources in determining the consumers' brand preferences.

From a managerial perspective the present results give different insights to brand managers, especially to those involved in the launch of their brands in new markets. According to the proposed results advertising appeals related to contamination are not appropriate in the long run for promoting brands perceived by consumers as unfamiliar, despite in the short run these appeals seem to push toward novel or emerging brands. This means that communication for those brands should be focused on customers reassurance. On the other hand, the fact that disgust generates an immediate avoidance of familiar brands could be particularly relevant for those product categories that automatically elicit disgust, such as detergents, personal hygiene goods, or even foods if not efficiency packaged. For such product categories it is fundamental that customers do not perceive any form of possible contamination, otherwise the switch to an unfamiliar brand during shopping experience could be likely to happen. The present results are therefore very relevant especially in terms of shelves space management and allocation, and in particular in terms of shopping environment. In line with the proposed results, in case the shopping environment facilitates an immediate response to disgust (e.g., likelihood of exposure to disgust-sensitive stimuli such as meat or sanitary items), after an immediate instinctive reluctance for familiar brands, consumers will show a higher tendency to prefer familiar brands. Thus, retailers that want maximize sales of familiar brands should locate them in places in which any contamination source is absent. Conversely, the presence of contamination threats could facilitate the choice of novel brands, especially for impulse buying choices. Therefore, the instinctive response of preference for unfamiliar brands deriving from disgust seems to be the key for a possible success of emerging brands, over established ones. Consequently, emerging brands should invest in package design, in a way to underline security, and avoid any possible contamination source. Moreover, given that both experimental studies use real brands and that, except for package color in study 2, the paired stimuli were completely different, novel brands in order to benefit from the instinctive choice deriving from disgust do not need to imitate leading brand design, implying that emerging brands should be easily distinguishable from the mainstream ones in the category.

Additionally, the instinctive preference of unfamiliar (over familiar) brand is not influenced by depletion, this underlines the instinctive nature of that tendency. Retailers can exploit this result using tactics aiming at promoting impulse buying for such brands, as displaying them around high-demand items, or using the right language for communicating urgency.

The present research represents a first step for understanding the effect of disgust on brand preferences, and as a consequence it is subjected to several limitations, including the non-probabilistic samples used in the two European selected countries (i.e., Italy and The Netherlands). However, the replication of the found results in two different countries confirms the generalizability of the dual response to disgust in terms of brand familiarity preference. Additionally, the criterion used in order to approximate the concept of brand familiarity employed in the present research implied the usage of national (vs. international) brands (Italians for the Italian sample of Study 1 and Dutch for the Dutch sample of

Study 2) maintaining the same product category. This operationalization, in turn, determined the usage of distinct stimuli, that therefore present several differences, as for example shape, logotype, brand, and even color in Study 1. These differences may, to some extent, have influenced consumers' evaluations compromising the internal validity of the studies. One possible alternative could be to use only brand names, without showing logos, or product pictures. However, the absence of a logotype to which refer, especially for unfamiliar (i.e., unknown) brands, could make participants suspicious about the effective existence of the brand itself. As a consequence, the logic behind the presence of real foreign brands images (and not only brand names) was aimed at maximizing the external validity of the presented results, as it approximates real situations of shopping behavior in which customers are asked to choose between real products in the marketplace. Future studies could apply a different operationalization of familiarity, using different type of stimuli and not necessarily brands.

Moreover, several questions still remain about the subsequent response to disgust. This research mainly focused on physical disgust which responds primarily to cues of infection, however disgust has been demonstrated to be deeply related also to our sense of morality. Moral disgust refers to the preservation of social order, and its main function is to avoid immoral behaviors (Rozin et al. 1993). Further research can verify if the subsequent response of preference for familiar brands, and familiar stimuli in general, is also applicable to moral (and not only physical) disgust, or also to anger that shares with disgust the certainty appraisal.

Another important question is if the subsequent response can be applied also to other consumer related variables, as risk-avoidance. According to the found results, disgust should generate an immediate tendency to choose novel (i.e., risky) stimuli, and a subsequent preference for more familiar (i.e., safe) alternatives, however this assumption was not explicitly tested, therefore further research is needed in order to verify the relationship between the dual response of disgust and risk propensity. Additionally, the present research did not verify the underlying mechanism that explained the dual response to disgust towards familiar (vs. unfamiliar) brand preferences. Donato and Miceli (2020) identified discomfort as a possible mechanism that relates the dual response to disgust with a higher/lower preference for structure, but the present research did not explicitly tested if the same mechanism is able to explain also the relationship with preference for familiar/unfamiliar brands. In particular, other alternative explanations should be ruled out, as for example certainty appraisal.

Also, this research assumes that the immediate response implies high intensity of the disgusting experience, whereas the subsequent response arises when the intensity of the disgusting experience is lower, as a consequence immediate and subsequent response to disgust have been distinguished using the presence (vs. absence) of a disgust salient stimulus as operationalization. Further research could measure the duration of these two responses in terms of the time interval occurring between unfamiliar vs. familiar brand choices.

Finally, the present research did not consider other emotions intrinsically associated or derived from the brands used for operationalizing brand familiarity (vs. unfamiliarity). Further research could take into account also these aspects in

order to find possible correlations between disgust (previously induced) and emotions elicited by specific brands, in order to better describe the found results.

## Appendix A

IAPS image eliciting disgust used in both study 1 and study 2.



## Appendix B

Example of (familiar vs. unfamiliar) brand pairs used in study 1.



## Appendix C

Example of immediate vs. subsequent disgust response manipulation.



Which of the following coffee brand do you preferer?



Which of the following coffee brand do you preferer?



## Appendix D

*Examples of two familiar (to the left) vs. unfamiliar (to the right) brands of coffee and hot dog respectively used for Study 2.*



**Funding** Open Access funding provided by Luiss University.

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