

The influence of the emotion of disgust on attitudes towards a product and purchase decisions

Wpływ wstrętu na postawę wobec produktu i decyzję o zakupie

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Abstract:

Research regarding the impact of the emotion of disgust on economic decisions is scarce. To fill this gap, we present the results of a study that measured women's ($N = 87$) attitude towards a new face cream that they could buy following exposure to either a neutral or a disgust-inducing stimulus. Furthermore, we compared the influence of disgust connected with a product (the product could neutralize the disgusting stimulus) to disgust not associated with the product. The results confirmed the significant influence of disgust (but only disgust associated with the product) on the attitude towards the product. In particular, the women in the group in which we induced disgust connected with the product has a more positive attitude towards the cream than women in the control group and women in the group in which we induced disgust not associated with the product. Due to the cream's high purchase price, none of the women decided to buy it.

Keywords: disgust, consumer decisions, consumer behaviour, consumer attitudes.

Streszczenie:

Badania dotyczące wpływu wstrętu na podejmowanie decyzji ekonomicznych są bardzo rzadkie. Niniejszy artykuł stara się wypełnić tę lukę. Przedstawiono w nim wyniki badania, w którym badano postawę 87 kobiet wobec nowego na rynku polskim kremu do twarzy bezpośrednio po ekspozycji bodźca neutralnego lub wywołującego wstręt. Kobiety testowały, oceniały, a następnie mogły kupić krem. Porównano również, w jaki sposób na postawy i zachowania konsumentów wpływało wzbudzenie wstrętu powiązanego (produkt mógł zneutralizować bodziec wzbudzający wstręt) i niezwiązanego w żaden sposób z produktem. Uzyskane wyniki w dużej mierze potwierdziły postawione hipotezy. Kobiety, u których wzbudzono wstręt za pomocą bodźca powiązanego z produktem, miały bardziej pozytywną

postawę wobec produktu niż kobiety z grupy kontrolnej oraz kobiety, u których wywołano wstręt za pomocą bodźca niewiązanego z produktem. Ze względu na zbyt wysoką według badanych cenę kremu żadna z kobiet nie zdecydowała się na jego zakup.

Słowa kluczowe: wstręt, decyzje konsumentów, zachowania konsumenckie, postawy konsumentów.

1. Theoretical introduction

Extensive knowledge and research has been done on the influence emotions such as sadness, joy or fear exert on economic decisions. In their study, Katia M. Harlé and Alan G. Sanfey (2007) showed that a negative affect influences decisions in the Ultimatum Game. It is also commonly known that associating a product with positive emotions in commercials invokes positive emotions towards the product (Isen, 2001). Marian Chapman Burke and Julie A. Edell (1989) proved that feelings directly and indirectly affect attitudes toward the ad and the brand. Moreover, there is evidence to show that the long-term emotional states affect our economic decisions. For example, people suffering from depression are more rational in the Ultimatum Game (Harlé, Allen & Sanfey, 2010). Still, scientific reports on the impact of disgust on economic decisions are scarce (Shimp & Stuart, 2004; Dens, De Pelsmacker & Janssens, 2008). This is surprising given that it is one of the basic, fundamental human emotions (Plutchik, 1980) and that existing studies concerning the impact of emotions on economic behaviour indicate that disgust can have significant influence. For example, it has been found that disgust increases the acceptance of negative offers in the Ultimatum Game (Bonini et al., 2011) and influences selling and buying

prices in an endowment effect context (Lerner, Small & Loewenstein, 2002). Terence A. Shimp and Elnora W. Stuart's study (2004) proved that disgust mediated the relationship between an advertisement's content and the intention to purchase what was being advertised. Nathalie Dens, Patrick De Pelsmacker and Wim Janssens (2008) showed that disgust led to a more negative attitude towards advertisements than non-disgust ones. There are also a number of articles demonstrating the significant effect of disgust on the effectiveness of anti-smoking messages (Tugrul, 2015; Leshner, Bolls & Thomas, 2009). In all the aforementioned cases, disgust is invoked by a promotional message. In contrast, therefore, in our study we decided to examine how disgust induced by non-advertising stimuli influences the attitudes and decisions of consumers.

Since little remains known about the impact of disgust on economic decisions, we formulated our hypothesis on the basis of research results regarding the influence of anxiety or fear on consumer decisions. This was justified because of the similarity of these two emotions. Fear and disgust both prompt the body to react defensively, particularly to act to avoid unpleasant experiences (Epstein, 1972; Tomkins, 1991; Frijda, 2005). In particular, according to Joshua M. Tybur, Debra Lieberman, Robert Kurzban and Peter DeScioli (2013) fear invokes avoidance reactions to the threat large carnivores pose, while disgust is a response to the threat of microorganisms. However, these emotions differ in certain respects (Frijda, 2005; Smith & Ellsworth, 1985). Fear induces an instant desire to escape, but does not specify immediately what the escape is from. In other words, fear does not have to be linked to a specific object. In contrast, disgust is brought on by a specific object the individual wants to avoid.

Therefore, in our study we wanted to compare the effect of accidental disgust induced by a stimulus in some way associated with the product (the product may neutralize the disgust) and disgust induced by a stimulus completely unrelated to the product. Taking under consideration the fact that in everyday life disgust is induced by stimuli that are not part of the marketing message, the results of our study can be interpreted more broadly as evidence of the significant impact of disgust on both attitudes and decision-making. In particular, we would like to show that disgust, which may be neutralized by the decision, affects the process of decision making in a different way than disgust which cannot be neutralized or reduced by the decision.

It is commonly known that the reaction to fear depends on its intensity (Chebat, Laroche, Badura & Filiatrault, 1995; Tavassoli, Schultz & Fitzsimons, 1995). In particular, strong fear leads to avoidance or repression of the promotional message, while moderate fear increases the persuasiveness of the information. Thus, in our study we decided to use disgust-inducing stimuli of moderate strength. It has been scientifically proven that persuasive messages based on fear operate according to the principle of the connection between the fear-inducing stimulus and information on how to avoid or reduce the perceived threat (Tanner, Hunt & Eppright, 1991; Williams, 2012). Analogously, we wanted to compare the influence of disgust a product can neutralize to the effect of disgust not associated in any way with the product. We suspected that the product which may neutralize the disgust will be assessed more positively. On the other hand, disgust the product does not address may cause it to be viewed more negatively. We formulated these two hypotheses:

H1: Disgust associated with the product positively affects the attitude toward the product and the desire to purchase the product in comparison to control condition.

H2: Disgust not associated with the product negatively affects the attitude toward the product and the desire to purchase the product in comparison to control condition.

2. Research design

To verify these hypotheses, in autumn 2013 we conducted an experiment involving 87 economically active women aged 19 to 45 (mean age = 26.24, $SD = 5.422$). Because they are more sensitive to disgust than men, we examined only women (Rozin, Haidt, McCauley, Dunlop & Ashmore, 1999). Women were invited to take part in a focus study of a new face cream being introduced on the Polish market¹. The cream was indicated for daily use by women below 45 years of age. The women were randomly assigned to one of three experimental conditions²: 1) disgust associated with the product (product may neutralize the disgust) ($N = 29$), 2) disgust not associated with the product ($N = 28$) and control group ($N = 30$). All women from each experimental condition participate in one of three, 30-minute sessions (there are different sessions for each experimental condition).

At the beginning of the study, the experimenter stood next to a poster and read out information about the origin of the cream, its ingredients, application and effects.

¹ The women declared that they had never had in any way to deal with this specific cream, or with this brand cosmetic products.

² 30 women were invited to take part in each experimental condition but three of them did not come.

Given the prevalence of visual advertising messages, we decided to manipulate disgust with visual stimuli, using posters that differed by experimental condition. Condition 1 was a disgusting image of pathological changes in facial skin³ (disgust associated with the product); condition 2 was a disgusting image of a rat (disgust not associated with the product); condition 3 was a commercial for the private university (control condition).

Subsequently subjects were asked to watch, smell, touch, and test on their skin a sample of a facial cream under a brand to enter the Polish market but which was not yet available. Afterwards, respondents were asked to complete a questionnaire assessing the cream's⁴ packaging, smell, effectiveness and consistency. In addition, women commented on its texture (how sticky the cream was and how much the cream stung their faces). All aspects of the cream were assessed on a 10-point Likert scale (from 1 – “I strongly disagree” to 10 – “I strongly agree”). Finally, the women were asked to declare the extent to which they would like to buy the cream (also on a Likert scale from 1 – “I definitely do not want to buy” to 10 – “I definitely want to buy”) and how much they would be willing

to pay for this cream (in PLN). Finally, at the end of the study, participants were given the option to buy the cream at a price that was very high for the Polish market: 200 PLN (around 50 EUR). While no women bought the cream at that price, we asked them additionally if they would be eager to buy this cream at a lower price or take a free sample of it (again on the 10 point Likert scale from 1 – “I definitely wouldn't buy it/ take a free sample” to 10 – “I definitely would”). The questionnaire enabled us to measure various aspects of the women's attitude to the product, including the behavioural one.

3. Results

3.1. Attitude toward the product

This section will outline the attitude towards the product across the three conditions. Nine questions on the 10-point Likert scale were used to measure the women's attitude. The internal reliability of this questionnaire was analyzed with Cronbach's alpha. Seven of the nine questions demonstrated satisfactory internal consistency ($\alpha = .793$) while the other two (concerning: stickiness and packaging) significantly decreased internal reliability. They were therefore not taken into account in the calculations for the scale on attitude. Exploratory Factor Analysis (EFA) with the Principal Component Analysis (PCA) method of parameter estimation without rotation was conducted to explore the dimensional structure of the items. A single-factor solution emerged with good matrices indicator ($K-M-O = .791$; Bartlett sphericity $\chi^2 (df = 21) = 192.987, p < .001$). Kaiser criterion confirmed a one-factor solution. Results of the PCA yielded a one-factor solution accounting for 48% of the total variance. Thus the women's attitude toward the product was

³ The disgusting images were selected on the basis of pre-testing, in which 10 images featuring skin pathologies and 10 images not associated with dermatological problems were evaluated by 20 women aged 19–43. Images used in the study induced a moderately strong disgust (a mean of around 8 on a 10-point scale) and at the same time did not evoke any other emotions such as anger, fear or sadness (a mean below 3.5 on 1–10 scale of the strength of emotion). The level of disgust induced by the two images used in the study did not differ in a statistically significant way ($t = .803, p = .432$).

⁴ Aspects of the assessment of the cream were chosen based on the results of previous marketing research indicating the importance of these features to potential female consumers of this product.

Table 1. The descriptive statistics for the attitude toward the product depending on experimental condition

Experimental condition	Mean	SD	N
Disgust associated with the product	5.9310	1.86248	29
Disgust not associated with the product	5.0204	1.79051	28
Control condition	4.8095	1.80870	30
Total	5.2512	1.86555	87

measured as a mean answer from the seven 10-point-scale questions. Table 1 presents the descriptive statistics for the attitude toward the product in each of the conditions.

The K-S test distribution of the variable shows that attitude towards the product does not differ significantly from the normal distribution. This allowed us to use ANOVA to test the hypothesis. There was a significant difference in the attitude toward the cream between the three experimental conditions ($F(2, 87) = 3.128, p = .049, \eta^2 = .069$). With regard to Hypothesis 1, it was discovered that women from the group “disgust associated with the product” have a more positive attitude toward the product than women from the control condition ($F(1,58) = 5.506, p = .022, \eta^2 = .088$). At the same time, and contrary to Hypothesis 2, women from the group “disgust not associated with the product” have an attitude toward the product similar to women from the control group ($F(1,57) = .199, p = .657$). Finally, women from the group “disgust associated with the product” tended to have a more positive attitude toward the product than women from the group “disgust not associated with the product” ($F(1,57) = 3.537, p = .065, \eta^2 = .060$).

3.2. The desire to purchase and try out the cream

There were no significant differences in the real purchase of the cream. In fact, not a single

participant opted to purchase it, likely due to its high price. Women from all of the groups considered the cream to be very expensive (mean = 8.15 on a scale of 1 to 10, where 10 stands for “extremely high price”), a fact corroborated by the desire – or indeed lack thereof – to buy the cream before and after its price was revealed ($t = 8.217, p < .001$).

Despite the lack of actual cream purchases, there were significant differences between the groups in terms of their willingness to buy or try out the cream ($F(10,87) = 2.117, p = .028, \eta^2 = .117$). In particular, when the women saw a poster with disgusting skin diseases, they were more inclined to buy the cream before its price was disclosed than was the control group ($p = .066$), and also more inclined to try the cream at home for free ($p = .05$) (see Figures 1 and 2). However, the differences between women who saw the disgusting poster with the rat and women from the other experimental conditions were not found to be significant. There were no significant differences in the declared desire to buy the cream after the price was disclosed. Women participating in the group that saw the skin disease poster would have been more willing to buy the cream if its price were lower than were the women in the room with the picture of rat ($p = .053$). However, in comparison to the control group, the differences were not significant ($p = .265$). Women from the control group were significantly more willing to pay 200 PLN

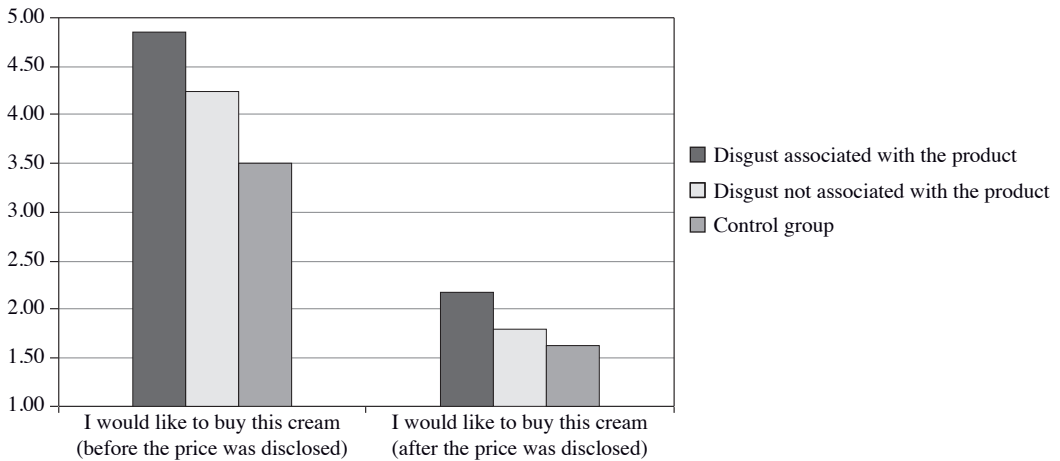


Figure 1. The willingness to buy the product before and after the price was disclosed – mean answers depending on experimental treatment

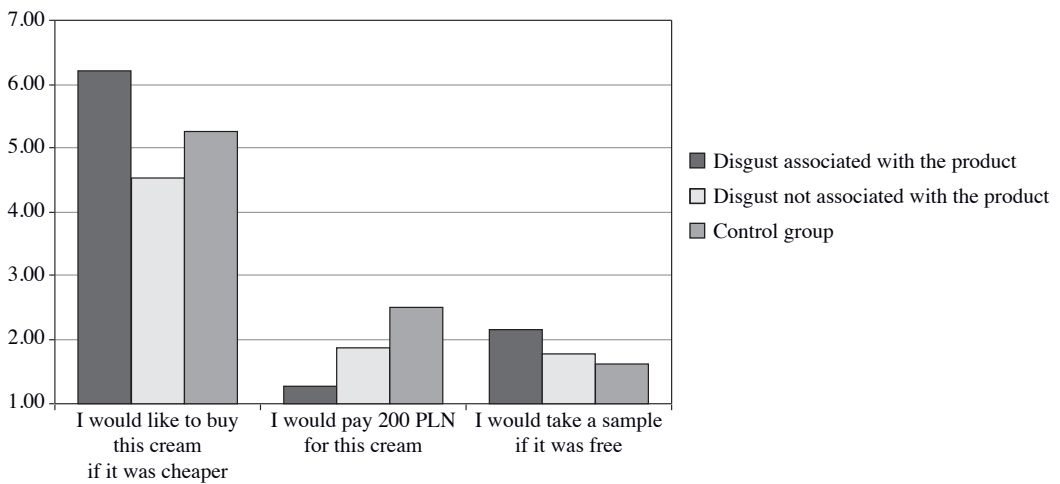


Figure 2. The willingness to use or buy the product – mean answers depending on the experimental procedure

for the cream than were those who saw the skin disease poster ($p = .041$). There were no differences between the other groups. Women from all of the groups were not likely to pay so much for the cream (mean answer around two on ten-point scale).

4. Discussion and conclusions

The results obtained in our experiment can be summarised as follows: exposure to a disgusting stimulus positively affects the evaluation of products that may reduce or eradicate the

disgusting problem. Similarly, as in the case of the use of fear in advertising (Tanner et al., 1991; Williams, 2012), the stimulus inducing disgust needs to be associated with the product. In other words, it must be possible to mitigate the disgust caused by the stimulus by using the product. On the other hand, a stimulus that induces disgust but is unrelated to the product in any way does not have a significant impact on the attitude towards the product or the desire to purchase it.

Due to the high price of the cream used in the study, we were not able to verify whether a positive attitude towards the cream would cause it to be purchased. Before the price was disclosed, women declared that they were more likely to buy the cream than after. The women were willing to pay around 45 PLN for the cream, which is over four times less than the actual price. However, many face creams in Poland cost less than 45 PLN. So, significant differences in terms of the stated desire to buy the cream before and after the disclosure of its price should come as no surprise.

The decision of whether to buy a product will obviously be affected by its price. If it is several times higher than expected, there will be no purchase. However, significant differences between the groups were reported with regard to their willingness to buy or try out the cream. As we expected, women exposed to disgusting stimuli associated with the product declared themselves more willing to buy or take a free sample of the product than were the women in the control group. However, they were less likely to pay as much for the cream. The results of our study should therefore be replicated in an experiment incorporating different, reasonably priced products. It would also be valuable to improve the measurement of attitudes and

purchase intentions using a method based on the theory of planned behavior (Ajzen, 1991; 2002).

In future studies, various disgust-inducing visual, scent- or taste-based stimuli should be applied. Disgust stimuli both related and unrelated to the product should apply to the users of the product – it would not be animals, such as the rats we used in our study, that would be featured on the posters, but rather people. We would then be confident that the ineffectiveness of disgust induced by the stimulus not associated with the product is not due to the fact that the disgust does not refer to the user but the animal.

As we did prior to our study, the stimuli should be pretested to see if they induce only disgust and not other emotions such as anger, sympathy or fear. It is crucial to avoid overlapping emotions as such an occurrence makes the further interpretation of results difficult if not impossible, as has been the case in numerous other studies (Pinto & Priest, 1991; Holbrook & Westwood, 1989).

It would be interesting to test whether the effects observed in our study on a sample of women are replicable in children or men, who are less sensitive to disgust than women (Olatunji & Broman-Fulks, 2007). In general, in future study the individual respondents' sensitivity to disgust should be controlled as a possible significant covariant. It would also be a good idea to verify whether the results obtained have not arisen for reasons other than those assumed. For example, a poster depicting skin disease which is expected to induce disgust may act as priming and lead to illness or even mortality salience (Greenberg, Solomon & Pyszczynski, 1997). Using different kinds of stimuli to induce disgust may, according to George Mandler (1982), affect the depth of information processing. Incongruence literature

maintains that, while little elaboration occurs when information is congruent, incongruence triggers cognitive elaboration (Russel, 2002).

Despite the shortcomings and limitations indicated, the results of our study are an important contribution to the understanding of the influence of disgust on consumer attitudes and behaviour. The study can also be interpreted more generally as an example of the impact of disgust on attitudes and decision-making processes. This study's most important contribution is that it provides empirical evidence of the importance of the nature of the disgust inducing stimulus and its association with an attitude or decisions. We hope that our study become an inspiration for other researchers to further explore this issue of great practical importance. Further research on the impact of disgust on human decision-making and consumer behavior may be implemented not only in the marketing and advertising fields, but also in campaigns focused on the promotion of healthy lifestyles, prophylaxis, and many other fields.

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