Paradox of Disgust and Its Appeal:
Goal-Driven Disgust Is Less Disgusting and More Appealing

Hee Yeon Hwang
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A11637012
Sixth College
Faculty Advisor: Nicholas Christenfeld

Faculty Advisor Signature Date

Introduction

Disgust is an emotion that elicits rejection to unpleasant stimuli to protect the body from contamination (Rozin, P., Haidt, J., & McCauley, C. R., 2008). There are many different domains that elicit disgust but the most stereotypical domains of disgust are disgust from bodily products, contact with death or corpse, or poor hygiene. Most people would find eating spoiled food aversive or nauseating due to the fact that they will probably become sick after eating that food. Most people would still feel the same way about even thinking about or watching someone else eat spoiled foods. However, there has been many disgusting videos that have gone viral in recent years, such as pimple-popping videos. One YouTube channel that goes by the name of "Dr. Pimple Popper" creates regular videos on pimple-popping videos (Dr. Pimple Popper., 2015, July). Dr. Pimple Popper is a dermatologist and has created over 800 videos that shows her "popping" her patients' pimples or cysts. She currently has over 2 million subscribers to her channel and her most popular video has over 30 million views. In comparison, a famous talk show host, Conan Obrien's video that was posted around the same time as Dr. Pimple Popper's has only around 8 million views. This one example shows how popular some of the disgusting videos are, even though people should be straying away from them.

The paradox of people seeking out these disgusting videos created the research question on why or what makes people want to watch the disgusting videos. There are some past research that shows correlations to certain traits or predictors of response to disgusting stimuli (Kelley, N. J., Crowell, A. L., Tang, D., Harmon-Jones, E., & Schmeichel, B. J., 2015). This study also shows that people who might be less sensitive to disgust might be less defensive to disgusting stimuli. Another study proposed the idea of theory of benign masochism, which is the enjoyment of negative bodily response (Rozin, P., Guillot, L., Fincher, K., Rozin, A., & Tsukayama, E., 2013). The study argues that since the negative stimuli is at a safe distance, people feel safe from the proposed threat. Although these past research show insight on what might predict people to deliberately watch disgusting videos, since no other research has explicitly studied on just hedonic disgust and its predictors, the two studies described in this paper were only exploratory.

Study 1

The first study consisted of 247 participants from the University of California, San Diego (UCSD)'s undergraduate students, who took the survey for class credit. There were 180 females and 67 males and the average age was 20.4 years old, ranging from 18 to 33. The participants were also 50.6% Asian Americans/Pacific Islander, 21.1% Hispanic/Latino, 19.4% Caucasian, 8.5% mixed race, and 0.4% African American.

Methods

The participants began the survey by answering five different scales, which included the Disgust Propensity and Sensitivity Scale - Revised (DPSS-R), Big Five Inventory (BFI), Sensation Seeking Scale (SSS), State-Trait Anxiety Inventory (STAI), and the Basic Empathy Scale (BES). DPSS-R is a more valid version of the original Disgust Propensity and Sensitivity Scale (DPSS) (van Overveld, M., de Jong, P. J., & Peters, M. L., 2010). DPSS – R is a measure for both disgust propensity and disgust sensitivity. Disgust propensity is how often people react

to disgust and disgust sensitivity is how intense people react to disgust. Examples of some of the disgust propensity questions include "I avoid disgusting things" and examples of disgust sensitivity questions include "When I feel disgusted, I worry that I might pass out." DPSS – R is measured in a 1 (never) to 5 (always) scale.

The survey used a 10-item version of the BFI (Rammstedt, B., & John, O. P., 2007) that measures five subscales of personality. These subscales ranked participants from extraversion to introversion, agreeableness, conscientiousness, neuroticism, and openness to experience. One example of one of these subscale questions is "I see myself as someone who does a thorough job," to measure conscientiousness. BFI is measured in 1 (disagree strongly) to 5 (agree strongly) scale. The SSS measures people's level of "optimal stimulation level" (Zuckerman, M., Kolin, E. A., Price, L., & Zoob, I., 1964) with four subscales of seeking thrill and adventure, disinhibition, seeking experience, and susceptibility to boredom. For the first survey, the subscale of susceptibility to boredom was removed to reduce the overall time to finish the survey. The subscales were measured with answers of true or false.

The short version of STAI was also used to decrease the overall time to take the survey. This short form is found to be a valid measure of STAI, which measures anxiety as both state and trait (Marteau, T. M., & Bekker, H., 1992). An example of the questions include, "I am tense" and the scale if from 1 (almost never) to 4 (almost always). The last scale was the BES, which measures both cognitive and empathic empathy (Jolliffe, D., & Farrington, D. P., 2006). Cognitive empathy is knowing what others are feeling and empathic empathy is experiencing others' feelings. These two subscales were measured from 1 (strongly disagree) to 5 (strongly agree).

The survey also asked the participants about their video watching habits on 6 different types of disgusting videos. The videos and their descriptions were as follows: 1) *Food Challenge Videos* that show people consuming unpleasant foods (e.g., baby foods, dog foods, bugs, etc.). 2) *Ear Wax Removal Videos* that shows ear wax being removed from a person's ear. 3) *Pimple-Popping Videos* that show pimples or cysts being popped or removed from a person's body. 4) *Surgery Videos* that show open surgeries of a person's body (NOT amputation). 5) *Amputation Videos* that show surgical removal of a person's body part. 6) *Corpse Videos* that show dead human bodies. These videos were ranged from the least disgusting, *Food Challenge Videos,* to most disgusting, *Corpse Videos*.

The first question on the videos asked, "Have you ever watched any of these videos?" The participants answered with the following options for each of the 6 videos: 1) No, I never heard of these videos. 2) No, I only know that these videos exist. 3) Yes, I have once watched these videos but quickly stopped. 4) Yes, I have watched few of these videos out of curiosity. 5) Yes, I deliberately watched these videos. Since the question of interest was looking for differences between people who purposely seek out these disgusting videos and people who do not, the answer "Yes, I deliberately watched these videos" was coded as 1 and the rest were coded as 0.

If the participants answered that they "watched these videos but quickly stopped," "watched few of these videos out of curiosity," or "deliberately watched these videos," for any of the videos, they were asked to check the affect they felt before, during, or after watching that particular video. The list of affects were satisfaction, relief, tranquil, excitement/thrill, amusement, joy, disgust, anger, anxiety, fear, sad, embarrassment, and other. The affects satisfaction, relief, tranquil, excitement/thrill, amusement, and joy were considered as positive

affects. There also was a free response portion that asked the participants to talk about their experiences of watching these types of disgusting videos.

Results

The five different scales were included in the study to see whether certain traits in the participants predicted the paradoxical behavior to seek disgusting stimuli. Table 1 shows the correlation between the five scales, DPSS-R, BFI, SSS, STAI, and BES, and whether people watch disgusting videos deliberately. The positive r values mean that people who scored higher on the scale are more likely to watch that type of video more deliberately. The negative r values mean that people who scored lower on the scale are less likely to watch that type of video deliberately. Although the results showed some significances in the correlations, since the study was exploratory and the r values are small, the effect size was not very significant. Thus, the five different scales are not good predictors on whether people would likely to watch a type of video deliberately.

Table1: Correlation between 5 scales and their subscales to people's video watching habits. R values are shown and "*" means that p-values are less than 0.05 and "**" means that p-values are less than 0.01.

	Food	**Ear**	**Pimple**	**Surgery**	**Amputation**	**Corpse**
Disgust propensity	-0.06134051	-0.03387237	-0.1435405*	-0.08888056	0.04578906	0.103309
Disgust sensitivity	-0.02777008	-0.03255827	-0.1317977*	-0.09523715	0.03914301	0.022442
Extraversion	.05420936	0.09951279	0.153744*	0.1126435	0.0305541	-0.2009555**
Agreeableness	-0.03467892	0.07670636	0.02136407	0.04526555	0.09262674	0.0319407
Conscientiousness	-0.04240996	0.04595687	0.08854122	0.03493197	0.1212107	-0.06276936
Neuroticism	0.07625513	0.02111752	0.004105703	-0.1070798	-0.02743011	0.1117608
Openness	-0.06550555	0.02396416	0.08674494	-0.01361143	0.005082071	-0.1188185
Thrill and adventure seeking	-0.0143133	0.07806033	0.07722018	0.1408827*	0.1128969	-0.06749581
Experience seeking	0.07389097	0.03866602	0.130779*	0.1396655*	0.04263349	-0.0784995
Disinhibition	0.05038765	-0.01729841	0.02750498	0.06326006	0.02486106	-0.0153357
STAI(short form)	-0.03525761	0.03472886	0.05059759	0.1043274	-0.005742786	-0.04944898
Emotional contagion	-0.02602612	0.1488295*	0.1536962*	0.07345186	0.02353018	0.02487226
Cognitive empathy	0.09128591	0.1237997	0.1154916	0.1064548	-0.00900096	0.01347957
Emotional disconnection	0.04666473	-0.1000604	-0.08233817	-0.03540182	0.04416007	0.0637288

There were definitely people who deliberately watched these disgusting videos and the amount of people varied for each of the 6 different videos. The percentage of people who deliberately watched each video are shown in Table 2. Although there were not a lot of people who deliberately watched these videos, the interesting finding was that more people watched *Pimple-Popping* and *Surgery Videos* even though they were more disgusting than the *Food Challenge Videos*. In order to further find out why more people seemed to watch some of the more disgusting videos, the free response section was analyzed.

Table 2: Shows the percentage of people who deliberately watch each types of videos.

Type of Videos	**Percentage of People Who Deliberately Watched the Video**
Food Challenge Videos	10.1%
Ear Wax Removal Videos	3.6%
Pimple-Popping Videos	12.6%
Surgery Videos	14.2%
Amputation Videos	1.6%
Corpse Videos	0.8%

In the 47 instances the participants talked about feeling disgusted while watching the videos, at least 38.3% of them also reported feeling simultaneously positive affects such as satisfaction, relief, amusement, and interest. Thus, the data was analyzed to see whether people reported feeling both disgust and any positive affect when they were watching the videos. Table 3 shows the results of the percentage of people who reported only feeling disgust, only feeling positive affects, feeling both disgust and positive affects, and neither disgust nor positive affects. It should be mentioned that the percentage of people who reported their affects included people who not only watched the videos deliberately, but also out of curiosity or watched and then quickly stopped. The results showed that people felt both disgust and positive affects more than feeling only disgust, only positive affects, or neither, for all types of videos other than amputation and corpse videos. Through regression analysis, people who felt both disgust and positive affects while watching the videos did not predict whether they watch the videos deliberately or not. However, it seems noteworthy more people still reported simultaneously feeling disgust and positive affects when they are watching disgusting videos, regardless of whether people's affect predicts deliberate watching habits.

Table 3: Percentage of people who reported only feeling disgust, only feeling positive affects, both disgust and positive affects, neither disgust nor positive affects, when they were watching each type of video.

	Only Disgust	Only Positive Affects	Both Disgust and Positive Affects	Neither Disgust Nor Positive Affects
Food Challenge	17.68%	28.18%	48.62%	5.52%
Ear-Wax Removal	20.00%	20.00%	45.33%	14.67%
Pimple-Popping	32.03%	15.69%	41.83%	10.46%
Surgery	24.22%	26.71%	25.47%	23.60%
Amputation	36.59%	12.20%	17.07%	34.15%
Corpse	38.46%	1.92%	13.46%	46.15%

Discussion

The results of the first survey showed that the five scales, DPSS-R, BFI, SSS, STAI, and BES did not predict whether people watched disgusting videos deliberately. Some people did report that they deliberately watch disgusting videos but there also didn't seem to be a pattern on whether the higher the level of disgust in a video predicted lower number of people who deliberately watch them. Another finding from this survey was that people seemed to feel both disgust and positive affects more when they watch the disgusting videos. However, this paradox did not predict whether people who feel both disgust and positive affect would deliberately watch the videos or not.

Study 2

Although Study 1 gave the start of an insight on why people seek out to watch disgusting videos, it did not give a conclusive answer. There may not have been a pattern on whether the more disgusting videos predicted to have less people who deliberately watched them because there may be an "optimal" disgust level for people to find it simultaneously appealing. There is also a chance that the type of motivations in the disgusting videos can make it more appealing, such as the video being goal-driven or having a component of being "completed" (Shidlovski, D., & Hassin, R. R., 2011). Since there might also have been a possibility for people who would enjoy the disgusting videos but just not have watched it yet, in Study 2, the participants are asked hypothetical questions on how they would feel if they were to watch a certain video.

There were 201 participants who took the survey for class credit as UCSD undergraduate students. The participants were ages 18 to 33 with a mean of 20.3 and consisted of 67 males, 132 females, and 2 other identified genders. There were 57.7% Asian American/Pacific Islander,

18.9% Caucasian, 16.9% Hispanic/Latino, 5.5% mixed race, 0.5% Native American, and 0.5% African American.

Method

The first part of the survey contained the Disgust Propensity and Sensitivity Scale – Revised (DPSS-R), which was the same from the first survey. The second part of the survey asked the participants how much disgust and appeal they would feel if they were to watch a 1 minute video of a person: 1) Plucking their own hair. 2) Chewing food with their mouth open. 3) Throwing spit or phlegm. 4) Picking their nose. 5) Touching their eyeballs. 6) Picking lice off of another person's scalp. 7) Having their blood drawn. 8) Eating spoiled food. 9) Throwing up. 10) Having their ear wax removed. 11) Having their pimples popped. 12) Having surgery. 13) Having diarrhea. 14) Having an amputation. 15) Eating maggots off a corpse. 16) In a pool of sewage waste. 17) consuming bodily waste. The scale of how much disgust and appeal the participants would feel was from 1 (not at all), to 7 (very). These video lists were also broken up into two different categories, *goal-driven videos*, and *not goal-driven videos*.

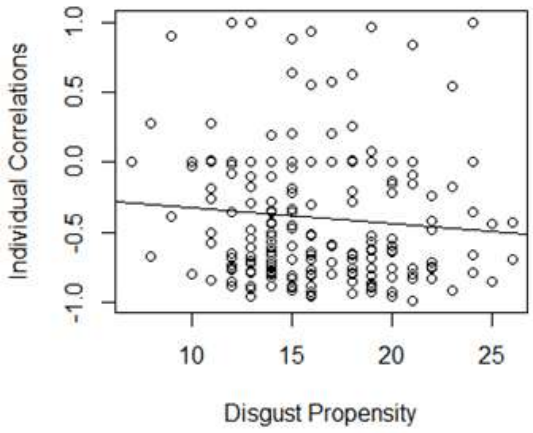
Goal-driven videos consisted of videos that have a goal like picking lice off of another person's scalp or having blood drawn. There is a specific goal in the video that is achieved by the end of it. The lice gets all picked off or the blood is completely drawn. The not goal-driven videos consisted of videos that did not have any goals. Examples of these videos were touching their eyeballs or being in a pool of sewage waste. There is no specific goal or end of the action in these videos. A list of goal-driven videos included a person plucking their own hair, picking their nose, picking lice off another person's scalp, having their blood drawn, having their ear wax removed, having their pimples popped, having surgery, having an amputation, and eating maggots off a corpse.

Results

There were two different steps to see whether there was an "optimal" level of disgust that people found appealing. The first step was to correlate each of participant's disgust level ranking of each video to the videos' appeal levels. So each participant received an r value on how well their disgust level for each video predicted their appeal levels for that video. The positive correlation would mean that the more disgusting a person found a video, the more appealing the video felt. The negative correlation would meant that the less disgusting a person found a video, the more appealing the video felt. These r values were then correlated to people's disgust propensity and then disgust sensitivity.

This second step gave an overall correlation on whether people's disgust propensity or disgust sensitivity predicted how appealing they would find more disgusting videos. The positive overall correlations would mean a person's higher disgust propensity or disgust sensitivity would predict how much more appealing they would find more disgusting videos. The negative overall correlations would mean a person's lower disgust propensity or disgust sensitivity would predict how much more appealing they would find more disgusting videos. However, we found inconclusive evidence in our analysis of the graphs or correlations. This final correlation is shown through the Graphs 1 and 2 as well as its small overall r values in Table 4.

Graph 1: Disgust Propensity and Individual Correlations



Graph 2: Disgust Sensitivity and Individual Correlations

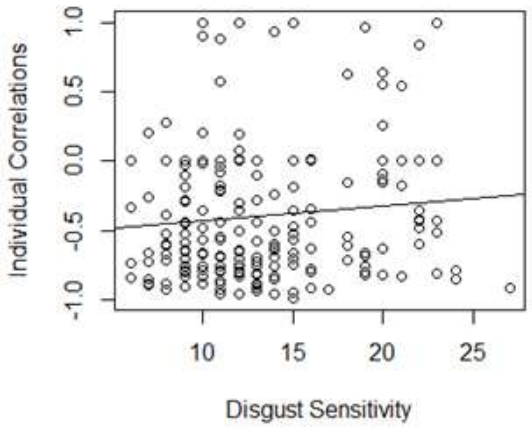


Table 4: Overall correlation of disgust propensity and disgust sensitivity to the individual prediction on how appealing they found more disgusting videos in the 17 videos.

	Disgust propensity	**Disgust sensitivity**
Individual Correlations	-0.09027911	0.1031248

Thus, the last analysis looked at whether people found goal-driven videos more appealing compared to the not goal-driven videos. First, the means of the disgust levels and appealing levels for all 17 videos were compared with an ANOVA test. The ANOVA for the disgust level on goal-driven videos and not goal-driven videos resulted with $F(1,199) = 253.11$, $p = 2.2e\text{-}16$. The ANOVA for appealing level on goal-driven videos and not goal-driven videos resulted with $F(1,199) = 241.26$, $p = 2.2e\text{-}16$. There was significant differences in both ANOVAs comparing the disgust and appealing levels for the two different categories of videos. The goal-driven videos had lower levels of overall disgust and higher levels of overall appealing compared to the not goal-driven videos. Since Table 5 shows that the means for goal-driven videos and not goal-driven videos were not similar, there was a post-hoc analysis.

Table 5: Mean disgust levels and appealing levels on goal-driven and not goal-driven videos

	Goal Driven Video	**Not Goal Driven Video**
Feeling Disgust	4.709784	5.600746
Feeling Appealing	2.462687	1.789801

In order to make the overall means of the goal-driven videos same to not goal-driven videos, the lower and higher rankings of disgust and appealing videos had to be dropped. Table 6 shows the goal-driven and not goal-driven videos dropped based on the disgust rankings and Table 7 shows the goal-driven and not goal-driven videos dropped based on the appealing rankings. After these videos were dropped, the new average means, shown in Table 8 and 9, became similar enough to do another ANOVA test. After making the appeal level means similar, the ANOVA for the disgust level on goal-driven videos and not goal-driven videos resulted with $F(1,199) = 253.97$, $p = 0.00298$. After making the disgust level means similar, the ANOVA for appealing level on goal-driven videos and not goal-driven videos resulted with $F(1,199) = 107.4$, $p < 2e\text{-}16$. There was significant differences in both ANOVAs showed that goal-driven videos were less disgusting and more appealing compared to the not goal-driven videos.

Table 6: Overall mean of disgust ranking for videos. The highlighted videos are goal-driven videos and the bolded videos are the ones used to get the mean of the 2 separate categories for the final ANOVA.

Rank	Videos	Disgust
1	Blood	3.373134
2	Pluck	3.467662
3	Surgery	3.950249
4	**Eyeball**	**4.263682**
5	**Ear**	**4.651741**
6	**Chew**	**4.721393**
7	**Nose**	**4.885572**
8	**Pimple**	**4.890547**
9	**Amputation**	**5.149254**
10	**Spit**	**5.393035**
11	**Lice**	**5.447761**
12	**Spoiled**	**5.726368**
13	**Throw up**	**6**
14	Sewage	6.094527
15	Diarrhea	6.099502
16	Consume	6.507463
17	**Maggots**	**6.572139**

Table 7: Overall mean of appealing ranking for videos. The highlighted videos are goal-driven videos and the bolded videos are the ones used to get the mean of the 2 separate categories for the final ANOV

Rank	Videos	Appealing
1	Consume	1.557214
2	**Maggots**	**1.61194**
3	Throw up	1.656716
4	Diarrhea	1.691542
5	Chew	1.701493
6	**Sewage**	**1.701493**
7	**Spit**	**1.716418**
8	**Nose**	**1.771144**
9	**Spoiled**	**1.885572**
10	**Lice**	**2.059701**
11	**Pluck**	**2.243781**
12	Eyeball	2.40796
13	Amputation	2.532338
14	Ear	2.621891
15	Pimple	2.870647
16	Blood	2.895522
17	Surgery	3.557214

Table 8: Adjusted mean disgust levels on goal-driven and not goal-driven videos to compare appealing levels together.

	Adjusted Goal Driven Video	**Adjusted Not Goal Driven Video**
Feeling Disgust	5.266169	5.220896
Feeling Appealing	2.24461	1.873632

Table 9: Adjusted mean appealing levels on goal-driven and not goal-driven videos to compare disgust levels together.

	Adjusted Goal Driven Video	**Adjusted Not Goal Driven Video**
Feeling Disgust	5.093284	5.369403
Feeling Appealing	1.921642	1.927861

Discussion

Study 2 showed that although there is not an "optimal" level of disgust that people find appealing, goal-driven videos were shown to be less disgusting and more appealing than not goal-driven videos. These results imply that people's level of disgust to disgusting stimuli may be lessened by goal-driven factors and people's level of appeal to disgusting stimuli may be increased by goal-driven factors. This knowledge may be helpful finding new methods in reducing disgust and increase appeal in homophobic mindsets (Olatunji, B. O., 2008) or even prevent self-disgust that causes depression (Overton, P. G., Markland, F. E., Taggart, H. S., Bagshaw, G. L., & Simpson, J., 2008).

However, since these two studies were just exploratory, there needs to be an experimental study that controls the videos to be the same except a goal-driven factor. The list of videos in the second study provides different goal-driven videos than not goal-driven videos as possible confounds. There should also be an effort to see whether there are separate effects of goal-driven factors on reducing disgust and increasing appeal since they are two different affects. It would also be beneficial to see this effect of goal-driven factors in a sample bigger than just undergraduate students.

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