

Gender Differences in the Perception of Disgust

Neurobiology and Behaviour

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1 DESIGN

1.1 Defining the problem

Focus question: Is there an increase in the perception and rating of disgust in females rather than males?

Hypothesis: If disease related pictures are shown to a female participant they will rate it higher, in terms of disgust than the male participants.

Background Information:

Disgust is a powerful human emotion that is signalled by the presence of certain olfactory or visual stimuli. Odour molecules possess a large variety of features and due to this they excite specific receptors more or less strongly. These signals are then combined by the different receptors in order to create what individuals perceive as smell. Olfactory receptor neurons in the nose are different to other neurons due to their short lifespan however regenerate on a regular basis. (Moran, 2007) Vision however is the ability of the eye to focus and detect light using the photoreceptors located on the retina of each eye. The photoreceptors sense and encode the patterns created by light found in the individuals surroundings. These photoreceptors are sensory neurons and the axons of particular retinal ganglion cells start from the back of the eyeball in the individual's optic nerves and then following the central nervous system to reach the brain where the information is then processed. (Marieb, 1995)

When confronted with certain items and situations humans are said to feel disgust. Some examples of these include faeces, vomit, sweat, blood, pus, sexual fluids, dead bodies, rotting meat, slime, maggots, rats, sickness and even events such as incest, theft and tyranny. (Curtis and Biran, 2001) Disgust itself is thought to be a universal emotion within humans and when experiencing it, many humans across different cultures display similar facial expressions. It can also manifest to produce certain symptoms such as lowered blood pressure, nausea and even skin conductance response; in which the sweat glands raise the moisture level of the skin due to the sympathetic nervous system. (Curtis et al. 2004) It has been argued that 'core disgust' relates to the oral ingestion of substances which could cause illness, for instance rotten meat. This continues to say that violations of the body and sexual behaviour remind individuals of their animal nature and hence mortality, this in turn causes anxiety. (Rozin, 2000) For this reason this experiment aims to test whether or not a sample of individuals will experience more disgust and also display more universal physiological symptoms of disgust when exposed to images of potentially noxious or contaminated substances and materials to those which are similar yet less likely to be linked to disease or illness. This is similar to the experiment conducted by Curtis et al in 2004. (Appendix One)

It has been proposed that disgust serves as an evolutionary adaption serving to bias behaviour away from risk of infectious diseases in general and not just via consumption. (Curtis and Biran, 2001) An example of this the bodily excretions and secretions of others are also avoided because they may contain high concentrations of bacterial and viral pathogens. These parasitic agents can enter a host's body via the nose, skin or sexual organs, not simply via the mouth. Disgust has since basic times evolved with the formation of society and due to this in the social domain individuals may experience disgust by the presence of immoral or unjust actions. (Curtis et al, 2004)

It is a common belief that females have an increased perception of disgust in regard to things found to be more harmful or risky. The study conducted by Curtis et al found that overall the disease salient images were rated as more disgusting by females than males. The difference in score for disease threat compared with its paired stimulus was also significantly greater for females than males. This in itself suggests that females are capable of responding more sensitively specifically to disease threats than males. Similar results were also found in previous studies such as that by Haidt et al and Fessler et al. (Curtis et al, 2004) Data is located within the Appendix. (Appendix Two) Several other studies have revealed that women report stronger feelings of disgust than men. (Journal of Psychophysiology, 2008) Differences between males and females reported and physiological disgust responses, such as their heart rate, electro dermal activity and other features listed previously. As such this experiment aims to investigate as to whether one particular gender has a lower tolerance in regards to disgusting imagery.

Investigation variables

Table 1: Practical Investigation Variables

Type of variable	Identified Variable
Independent	Whether the participant is male or female
Dependent	The participants ranking of disgust (1 for least disgusting, 5 for most disgusting) Any change in facial expression will also be noted in qualitative observations.
Controlled	Participants' age The quality of the stimuli The size of the stimuli Atmosphere Position of participants (i.e. stance)
Uncontrolled	Participants' previous experiences and exposure Participants' current mental state Participant's health Smell of room External Stress Time of day How recently the participants have eaten

1.2 Controlling Variables

Treatment of controlled variables

TABLE 2: Control Treatment of Variables

Variables	Control treatment
Participants' age	All participants will be asked their age prior to receiving a consent form. Only those 16-17 years of age will be accepted to take part.
The quality of stimuli	The images will be of the same quality and taken from the same source (All from same website or all taken from the same camera)
The size of stimuli	All images will be compressed or enlarged to the same size
Atmosphere	The room in which the experiment is conducted will not change for the different participants. No music and lighting should remain the same.
Position of participants	When tested the participants will be seated in the same seat to view the image on the desk before them.

Control used for comparison – The design of this experiment does not allow for any control to be used for comparison. As there experiment involves a comparison of male and female responses.

1.3 Experimental Method

Materials

Apparatus Required	Quantity
<ul style="list-style-type: none">• Pictures of disease related objects• Pictures of non disease related objects• Pictures of socially unacceptable situations• Pictures of socially acceptable situations• Desk• Chair• Printed out rating system sheets• Notebook for Observations	<ul style="list-style-type: none">555511201

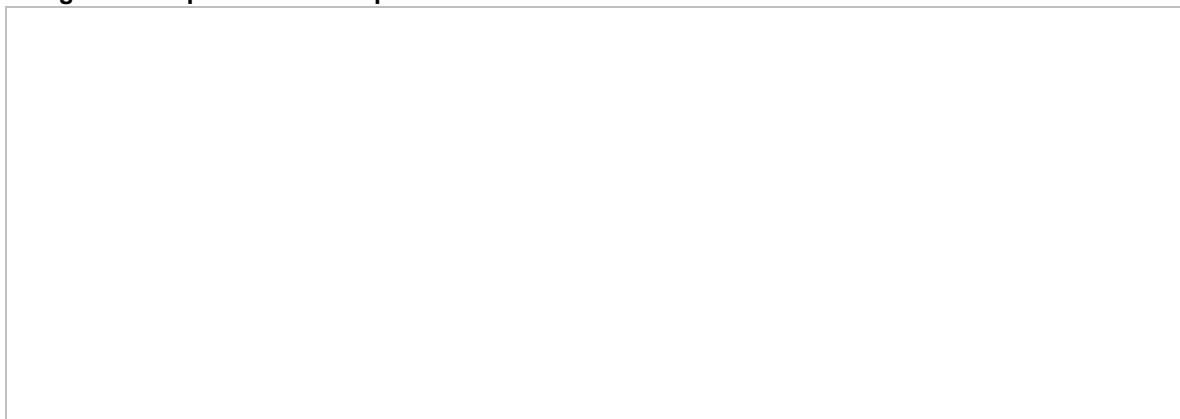
Practical Safety and Risk Assessment

The Practical Safety and Risk Assessment is attached to the end of this report in the Appendix. (Appendix Three). A copy of a participant consent form (Appendix Four) and a Risk Assessment for research using human participants are also included. (Appendix Five)

Method

1. First print off 20 participant forms and hand them to participants. Make sure they sign them as well as their parent or guardian. Ascertain that they understand what they are expected to do and are able to withdraw at any time.
2. Collect the consent forms off the participants
3. Take one participant into an empty classroom and sit them down at a desk with the pictures in front of them.
4. Give them another chance to withdraw from the experiment
5. Have the participant look over the pictures and rate them out of five on a score sheet. Five being the most disgusting and one being the least.
6. Record any facial expressions of disgust they may display.
7. Once they have finished inform them of their rights and give a quick debriefing statement.
8. Next repeat the experiment using the other participants
9. Collect all results and return all equipment.

Diagram 1: Experimental Setup



Modifications to Experiment:

It was difficult to get enough participants to take time out to do the experiment so instead the pictures were printed out in survey form and handed out to participants. This resulted in more participants offering to complete the survey. The experimenter stood by as the participants completed the survey to prevent discussion between participants.

1. Data collection and processing

Qualitative Data: It was noticed that some participants had difficulty determining what the images were and a few participants actually complained as to the quality and size of the images.

Quantitative Data: Table 3: Raw Data for the Female Participants

Disgust Responses	Participant Number									
Image No.	1	2	3	4	5	6	7	8	9	10
1	1	1	1	1	4	1	1	3	1	2
2	1	3	1	1	1	1	2	4	3	4
3	1	1	1	1	1	1	1	3	1	1
4	1	1	1	1	1	1	1	3	2	1
5	1	1	1	1	1	1	1	1	1	3
6	2	2	2	1	4	1	3	4	4	4
7	3	4	1	1	5	3	5	1	4	5
8	1	2	1	1	3	2	3	4	3	3
9	1	1	1	1	4	1	3	3	2	3
10	4	1	1	1	2	1	4	3	1	2
11	3	3	1	2	5	2	3	4	5	5
12	1	1	1	1	1	1	2	2	1	1
13	2	2	1	1	3	1	1	2	1	2
14	4	2	1	1	3	1	1	3	2	3
15	1	2	1	1	1	1	2	4	2	4
16	2	2	1	1	4	1	3	5	3	2
17	1	1	1	1	1	1	1	1	1	1
18	1	1	1	1	1	1	1	1	1	1
19	2	2	1	1	5	3	1	4	1	5
20	1	2	1	1	1	1	1	1	1	2

Table 4: Raw Data for the Male Participants

Disgust Responses	Participant Number									
Image No.	1	2	3	4	5	6	7	8	9	10
1	1	1	1	1	1	2	1	3	1	2
2	2	1	1	2	1	2	1	4	1	3
3	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	2	1	1	3	1
5	1	2	1	1	1	2	1	1	4	2
6	1	1	1	1	1	3	3	3	2	2
7	3	2	2	3	3	4	1	4	2	4
8	1	1	1	2	2	2	1	2	5	3
9	1	2	1	1	1	2	1	3	4	2
10	1	1	1	1	1	2	1	1	1	1
11	3	2	2	2	3	4	3	4	5	4
12	2	1	1	2	1	3	1	2	2	2
13	1	1	1	1	1	2	1	1	2	2
14	1	1	1	1	1	2	1	1	1	2
15	2	2	1	2	2	3	1	2	5	2
16	2	1	1	2	3	3	2	1	5	2
17	1	1	1	1	1	1	1	1	1	1
18	1	1	1	1	1	2	1	1	1	1
19	1	1	1	2	3	4	1	3	3	2
20	1	1	1	1	3	1	1	3	2	1

Processing Raw Data:

Statistical Analysis	Formulae	Sample Calculation
Mean	$\bar{X} = \frac{\sum X}{n}$	$\bar{X} = \frac{2.2+3.1+3.8+3.2+4.1}{5} = 3.1$
Standard Deviation	$s = \sqrt{\frac{\sum (x - \bar{x})^2}{N-1}}$	$S = \sqrt{\frac{(2.2-3.1)^2 + (3.1-3.1)^2 + (3.8-3.1)^2 + (3.2-3.1)^2 + (4.1-3.1)^2}{5-1}}$

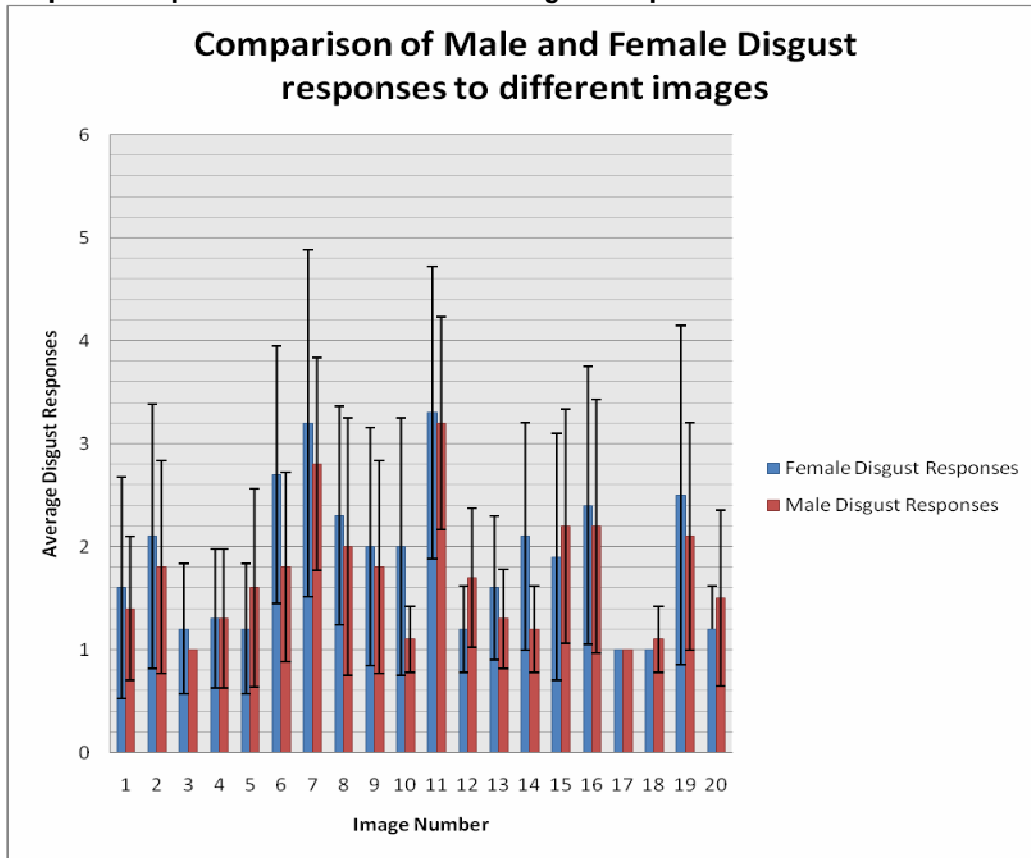
2.2 Presenting Processed Data**Results Table**

Table 5: The Average Disgust Rating per Picture for Male and Female Participants

Gender	Image Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Male	1.4	1.8	1.0	1.3	1.6	1.8	2.8	2.0	1.8	1.1	3.2	1.7	1.3	1.2	2.2	2.2	1.0	1.1	2.1	1.5
Female	1.6	2.1	1.2	1.3	1.2	2.7	3.2	2.3	2.0	2.0	3.3	1.2	1.6	2.1	1.9	2.4	1.0	1.0	2.5	1.2

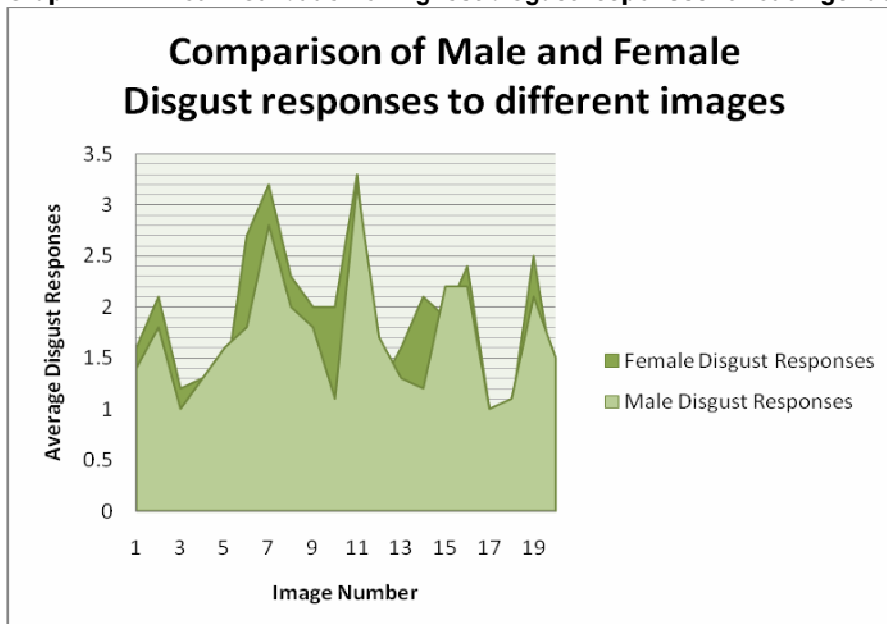
Results Graph(s)

Graph 1: Comparison of Male and Female Disgust Responses



This graph displays the different disgust response between male and female participants for the same set of pictures. The standard deviation of each genders response for the images is also displayed on the graph in order to show the deviation of the data and the large spread of results. The large standard deviation indicates that the participants' results varied a great deal and gives the impression that the personal experiences and opinions of the participants interfered with the results and caused variance in data. As such it was decided that an Area Graph would allow for a better interpretation of data, merely based on the averages.

Graph 2: An Area Distribution of highest disgust responses for each gender



The Area Distribution Graph shows how the Female Disgust Response more than often exceeds that of the Male Disgust Response. The results show that Male disgust responses were greater for image numbers five, twelve, fifteen, eighteen and twenty. These images can be located in Appendix Six and were found to be that of a coffee stain, tape worm, acne scars, moss and a petri dish cookie. These results are unusual and perhaps indicate that the male participants were more aware as to what the tape worm was as it is believed the female participants mistook it for pasta. In the other cases it is suspected that the male participants were not aware as to the harmless nature of the cookie and coffee stains however may have been aware as to the risk associated with the biological material moss. For all other images it was found that the average disgust of female participants was higher than that of the male responses.

3 CONCLUSION and EVALUATION

3.1 Conclusion

Conclusion Statement

The aim of this experiment was to ascertain whether or not females rated higher in regards to disgust in images and whether or not this correlated with how disease related or dangerous the picture was. Data and observations from this experimental survey showed that in most cases female participants did in fact rate higher for disgust than the male participants with the exception of a few images. Overall it was found that women rated higher for dangerous images just as picture number eleven, which was that of a hook worm sticking out of a man's finger. Despite this it was found that men rated higher in regards to the tape worm. Overall the data showed that female participants generally presented higher disgust ratings than males when shown the images.

Conclusion Explanation

The hypothesis of the experiment was supported by the results as there appeared to be a greater rating of disgust averaged among the female participants in comparison to the male participants. However this may not merely be due to the belief that females are more capable of responding sensitively specifically to disease in order for survival, but may be due to the individual participants past experiences and exposure to disgust. Despite this, the results from this experimental survey support the findings of several other studies in suggesting that females have stronger feelings of disgust than their male counterparts.

This difference in the disgust response may not simply be due to the genetic composure of men and women but rather their trained responses or environmental factors which influence their behaviour and emotions. In the study conducted by Curtis et al it was found that as participants aged and were exposed to more disgusting things in life, they developed a lesser disgust response. (See Appendix Two) As such the difference between each gender may not only be due to their specific gender but rather also the amount of exposure the individuals had had to each of the items pictured in the survey.

This theory is supported by the large standard deviation in the female participants in comparison to the male participants. This suggests that the female participants had a more varied response to the image and that they each had a different amount of exposure and therefore disgust response to each individual picture. For example in image six, of blood stains on a cloth there was a large spread of data. (See Appendix Six for each image and Graph One for the data) This could be due to the fact that some of the participants are frequently exposed to blood or it may be assumed that as they were all attending the Queensland Academy for Health Science the majority wished for professions in the Health Sciences, that they would be expected to deal with blood. However as the variation shows some of the female participants were highly disgusted with the blood, with one rating it five out of five for disgust. (Table Three).

Another reason why the results were so varied may be due to the participant's individual personalities or health issues which were not investigated or determined at the time. This may have had a severe impact of the results as the data may not merely be reflecting the differences of male and female responses but rather displaying the difference related to each of the participants' personalities. An example of this can be seen for the images nine, ten, twelve and thirteen which display images of insects. These insects, other than number nine which displayed a tick were all harmless and non parasitic, but despite this some of the female participants may have Entomophobia or a fear of insects and as such rated it higher than participants without the phobia. This means that the data would not merely represent the disgust responses for each gender as there would be outliers or great examples of varying responses between some participants.

The examples of when the male participants rated the images as more disgusting for image numbers five, twelve, fifteen, eighteen and twenty. Which were that of a coffee stain, tape worm, acne scars, moss and a petri dish cookie. This is quite unusual to the expected results however it may be explained as the men had difficulty determining what some of the images were and as such may have rated them higher than they would have if they had been aware of what the images actually were. This can be shown through the highly rated disgust at the petri dish shaped cookie, which although it poses no threat, some of the participants may not have been able

to ascertain that it was actually a cookie and as such rated it as if it were a petri dish filled with some unknown yellow solution.

Through the data it seems that females on average rated higher in regards to disgust at the images than the male participants. It is possible to suggest that this may be due to the genetic need to protect female survival for the continuation of the species or merely due to the way in which girls are raised to be more clean in nature. (Ts-Si, n.d.a) This variance in the raising of male and females can lead to the higher disgust rating in girls as boys seem to be raised in a way in which they are more exposed to dirtier items whereas girls are usually encouraged to be clean and tidy. These factors, genetic and environmental allow for an explanation as to possibly why the female participants of this study rated the images as more disgusting in average than the male participants did.

3.2 Evaluating Procedures

Reliability

This survey and the data obtained may not be seen as reliable due to the small number of participants involved from each gender. Each of the participants was a student at the Queensland Academy for Health Science and as such it is difficult to generalise the data to other students let alone other members of the male and female gender. However the large number of images used for the experiment ensures that the difference in results between genders is consistent with other pictures. The results from this experiment may not be viewed as very precise as the scale given to participants only included ratings from one to five and often participants were unsure as to where to score images at. This could have a great impact on the results, as some participants may have meant to give an image a score of five however felt that this rating may be considered too high and as a result rerated it. The results were entirely based on the individuals rating of the images and as such vary in uncertainty and reliability. This may cause the experiment to be regarded as unreliable as it depended on participants eyesight and reasoning, which would have varied on a case by case basis.

In this experiment calculations involving the mean and standard deviation were used in order to produce useful data from the results. This particular experiment however has a high standard deviation among the results for both male and female disgust responses. As such the unreliability and inaccuracy of the data is inadequate in order to propose a theory regarding the gender differences in disgust responses. Despite the large possibility for human errors in regard to the rating and judgement of the data, it still shows that there appears to be a relatively distinguishable difference in responses of disgust between the genders.

Limitations / Weaknesses / errors in laboratory investigations

There are many weaknesses within this investigation; however the main ones are that concerned with the potential human error and variables concerned with each participant which are likely to have had an effect on the rating of images and therefore the results in total. It is possible that by not controlling the individual differences between participants, such as choosing participants with the same exposure to the items in the images may have allowed for more accurate and representative results. As this was not controlled it may have allowed for severe infrequencies in data between each participant as the ratings would not be reflective of the genders true results or the individual's real disgust response, rendering the data possibly incorrect.

Another limitation for the experiment is the fact that only a small sample of participants was used in order to represent each gender and all of which were found to be obtaining the same school. Thus despite the fact that twenty participants in total were utilised, ten for each gender, the data collected is specific only to the age group of the participants attending the Queensland Academy for Health Sciences. The data collected only shows the participant's ratings from one to five, and therefore does not allow for more precise ratings of each image.

Also by conducting the survey in a lesser controlled environment, distractions may have affected their individual disgust responses. The presence of the experimenter may have also had an impact on their responses as it may have caused the participants to feel anxious with their presence and caused them to feel pressured for time. As such the participants may have attempted to complete the survey as quickly as possible neglected their true disgust rating for the quickest. The environments in which the investigation was conducted in were not adequately controlled and this may allow possible unknown variables to impact the results. This experiment can be found to lack in validity as there are too many unidentifiable variables, such as human error and individual personality factors which may have the ability to affect the results.

3.3 Improving the Investigations

Modifications to Experiment

In order to improve this experiment, variables that were found to be uncontrolled will need to be either monitored or controlled as much as possible to allow for accurate data to be collected. This could be made possible by testing the participants disgust responses in a quiet room in which they would be left alone to rate the images. It would be necessary to also try and maintain that all participants had the same exposure to the images in the survey prior to testing. This could be made possibly by enquiring as to their parent's profession, any phobias they may possess, what they wish to be once they are older or their current profession in combination with information regarding their current physical health, as illness may make the participant more susceptible to feeling disgust. It would also be necessary to get a larger sample, possibly from different schools as this would allow for the results to be able to be generalised to a larger population sample.

3.4 **Bibliography**

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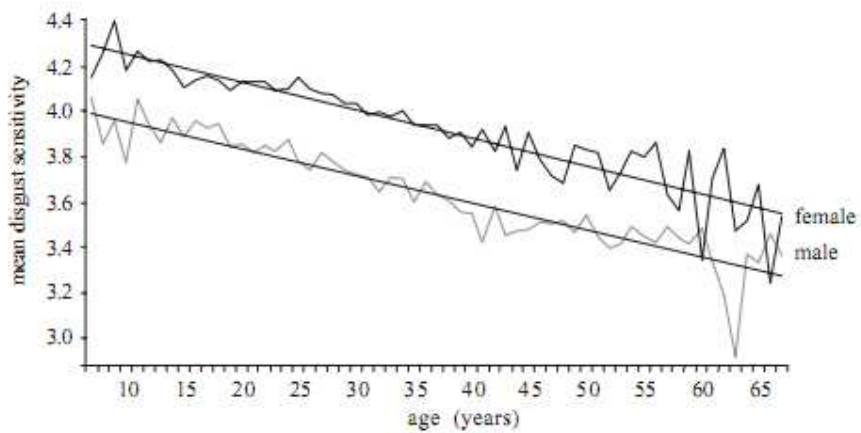
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3.5 **Appendix**

Appendix One: Curtis et al, 2004. Paired disgust sensitivity stimuli and average disgust scores

pair	disease irrelevant	disease relevant
(a)	 $\bar{x} = 1.6$	 $\bar{x} = 2.6$
(b)	 $\bar{x} = 1.5$	 $\bar{x} = 3.1$
(c)	 $\bar{x} = 1.2$	 $\bar{x} = 2.0$
(d)	 $\bar{x} = 1.6$	 $\bar{x} = 3.9$
(e)	 $\bar{x} = 3.6$	 $\bar{x} = 4.6$
(f)	 $\bar{x} = 3.7$	 $\bar{x} = 3.3$
(g)	 $\bar{x} = 2.8$	 $\bar{x} = 3.5$

Appendix Two: Disgust Sensitivity by age and gender (Curtis et al. 2004)



Appendix Three: QAHS STUDENT ACTIVITY RISK ASSESSMENT and PRAC ORDER FORM

Appendix Four: Participant Consent Form

PARTICIPANT CONSENT FORM

This form grants consent by the signatory below for participation in the study "How do certain images differ in affecting male and female disgust response" conducted by Kayla Jackson and is being conducted in order to investigate how certain factors affect behaviour and the perception of senses.

During this study, you will be asked to observe a series of pictures and then be asked to rank the pictures out of five (one being least disgusting and five being the most) The risks you will be exposed to include possible risk of embarrassment and mild anxiety.

The information that you provide will be kept secure and will remain confidential. You may withdraw from this study at any time without prejudice, as your participation is voluntary. You will receive no benefit from participating in this study. If you have any further questions about this study, please contact either Kayla via kjack135@eq.edu.au.

Informed consent statement:

This study has been approved by Queensland Academy for Health Sciences and adheres to the Academy's Guidelines of the ethical conduct of experiments using human participants. You are free to discuss your participation in this study with the student's supervisor, Mrs Wylie(contactable via email on cwyli2@eq.edu.au). If you would like to speak to the Principal of the Academy, who is not involved in the study, you may contact Ms Leanne Nixon on 5510 1100.

I (Participant's name) _____ voluntarily consent to taking part in 'How do certain images differ in affecting male and female disgust response' conducted by Kayla Jackson

- I have read and understand the purpose, extent and possible effects of my involvement in this investigation.
- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that this investigation has been approved by Queensland Academy for Health Sciences and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007).
- Any information that is collected and any individual data created about or on me will remain confidential.
- This investigation will be carried out in a way which will not demean me or harm me physically or mentally in any way.
- I understand that I have the right to withdraw from this investigation at any time.

Participant's Signature: _____ **Date:** _____

If participant is under 18 years of age:

I have explained the investigation to my child who has signed above, and have no objections to his/her involvement in this investigation.

Parent's/Guardian's Name: _____ **Signature:** _____

Date: / /

Information for the Participant
The effect of disease relative or socially unacceptable images on disgust reception
Kayla Jackson

Thank you for taking the time to participate in this study. The following details are provided to inform you about the project. Please read this statement carefully and feel free to ask any questions that you have at any time.

- **Reason for the study:** being conducted in order to investigate how risky either to the body or socially affects individuals disgust response.
- **How long the study will take:** around 10 minutes for each participant
- **Description of your involvement:** during this study, you will be asked to observe a series of pictures and rank them out of five
- **Possible risks you will be exposed to:** Minor anxiety, possible risk of embarrassment and possible discomfort
- **Benefits from your participation in the study:** Learning the effect of how dangerous an piece of stimulus may be on an individual's disgust and being able to understand your own perception of disgust in greater depth.
- **How will the information you provide stay confidential?** All results will be kept anonymous on password-protected computers.
- **How will your privacy be protected?** Own results will be kept anonymous and stored in a locked locker as well as in digital format on password-protected computers.
- **How will all the information be kept secure?** Own results will be kept anonymous and stored in a locked locker as well as in digital format on password-protected computers.
- **How to access emergency medical treatment should an injury occur:** First aid care will be provided by the school office if required.
- **Statement that the subject's participation is voluntary and that they may withdraw at anytime without prejudice:** Subjects' participation is voluntary and that they may withdraw at anytime if they so wish without prejudiced.
- **Statement that advises what would happen to data already collected should they withdraw after commencing the project:** Results from withdrawn participants will be destroyed and all evidence of their withdrawal shall also be destroyed.
- **Contact details for further questions about participation in the project:** If you wish to ask further questions as to your participation in the experiment please contact Kayla Jackson via kjack135@eq.edu.au
- **How you will be given feed back after the project is completed:** Participants are able to email the experimenter if they wish to view the results from the entire experiment.

This study has been approved by Queensland Academy for Health Sciences and adheres to the Academy's Guidelines of the ethical conduct of experiments using human participants. You are free to discuss your participation in this study with the student's supervisor, Mrs Wylie (contactable on email cwyli2@eq.edu.au). If you would like to speak to the Principal of the Academy, who is not involved in the study, you may contact Ms Leanne Nixon on 5510 1100.

APPENDIX 5 COVER SHEET FOR SUBMISSION

**Cover Sheet to for Application to obtain
Approval to undertake human research**

1. **Title of Research Project:** How do certain images differ in affecting male and female disgust response

2. **Student Undertaking Study:** Kayla Jackson **Class:** 11B

3. **a. Duration of the Project**

Proposed commencement date	27/10/11	Proposed completion date	28/10/11
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b. Location of study: Upper C Block or E023

4. **Number of participants required in study:** 20 (10 female, 10 male)

5. **Recommended/ Not Recommended for Approval (list reasons):**

Classroom Teacher Name: _____ **Signature:** _____

Date: / /






6. **Approval granted by:**


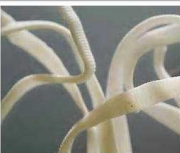



Leanne Nixon (Principal) **Signature:** _____ **Date:** / /




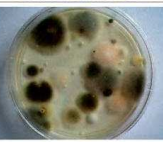

Appendix Six: Survey for Participants

Gender of Participant: male ♂ / female ♀

Image	Disgust Rating	Is it harmful?
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO

	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO

	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO

	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES/NO

Appendix Sever: Turnitin Receipt

first name *

Kayla

last name *

Jackson

submission title *

Neurobiology and Behaviour

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