# MENTAL REPRESENTATIONS OF GAY MEN: THE ROLE OF WILLINGNESS TO CONTACT AND DISGUST SENSITIVITY

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# MENTAL REPRESENTATIONS OF GAY MEN: THE ROLE OF WILLINGNESS TO CONTACT AND DISGUST SENSITIVITY

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# DECLARATION OF ORIGINALITY

I, Erdem Ozan Meral, certify that

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ABSTRACT

Mental Representations of Gay Men:

The Role of Willingness to Contact and Disgust Sensitivity

Our behavioral intentions towards outgroups might be related with how we picture them in our heads. In the current study, we investigated willingness to engage in contact with gay men, and disgust sensitivity as possible factors that might be associated with our mental images regarding gay men. We adopted the Reverse-Correlation paradigm to form the mental images. Our results suggested that people had biased representations of gay men based on how willing they are to engage in contact with them. Regarding disgust, we showed that to better understand the relationship between disgust, mental representations of gay men and behavioral intentions, a more detailed investigation of different dimensions of disgust is warranted. Moreover, we also showed that the otherwise favorable cues such as femininity and happiness in faces might not always be utilized resulting in a general unwillingness to engage in contact. These results highlight the importance of valence information in stereotype content and the fit between the valence and one's evaluation of the group, and most importantly, our mental image regarding a group and its relationship to our behavioral tendencies.

# ÖZET

## Gey Erkek Zihinsel İmgeleri:

## Temasta Bulunma İstekliliğinin ve Tiksinme Hassasiyetinin Rolü

Öteki olarak adlandırdığımız gruplara olan davranışsal yönelimlerimiz kafamızda onları nasıl canlardığımızla ilişkili olabilir. Bu çalışmada, gey erkeklere yönelik zihinsel temsillerimizle ilişkili olabilecek faktörler olarak gey erkeklerle temasta bulunmaya istekli olmak ve tiksinme hassasiyeti incelenmiştir. Zihinsel imgelerin oluşturulması için, Ters Korelasyon (Reverse Correlation) tekniği kullanılmıştır. Sonuçlarımız insanların gey erkeklerle temasa geçmeye ne kadar istekli olduklarıyla ilgili olarak önyargılı zihinsel temsilleri olduğunu göstermiştir. Tiksinme, gey bireylere yönelik zihinsel temsiller ve davranışsal yönelimlerin arasındaki ilişkiyi anlayabilmek için de, tiksinme duygusunun farklı boyutları da ele alınarak daha detaylı bir araştırma yapılması gerektiği ortaya çıkmıştır. Ayrıca, aslında olumlu bilgiler taşıyan feminenlik ve mutluluk gibi bilgilerin de her zaman kullanılmayacağını ve genel bir temasa geçme konusunda isteksizliğe yol açabileceği de gösterilmiştir. Bu sonuçlar stereotip içeriğinin valans bilgisinin ve bu bilgi ile kişinin önyargılı olduğu grubun değerlendirmesi arasındaki uygunluğun, en önemlisi de, kişinin bir gruba yönelik zihinsel imgesinin ve bunun o gruba yönelik davranışlarla olan ilişkisinin önemini vurgulamaktadır.

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# CHAPTER 1

# INTRODUCTION AND LITERATURE REVIEW

Prejudice and discrimination toward sexual minorities is still highly prevalent across the world. Most sexual minorities, such as gay men or lesbian women, are perceptually ambiguous groups in the sense that their sexual orientation cannot be identified with certainty from visual information. Thus, perceivers are forced to use cues that help them infer a target person's sexual orientation. Lay conceptions of gay men and lesbian women, considering these cues, are still based on the belief of gender inversion. That is, people often believe that gay men usually have and display more feminine characteristics, and that lesbian women usually have and display more masculine characteristics (Kite & Deaux, 1987). Likewise, in Turkey, the context of the present study, research has found that more feminine appearance, behaviors, and difference from same-sex individuals were included in the stereotype content regarding gay men (Sakalli, 2003). Inclusion of gender-inversion cues in the semantic content of stereotypes suggests that people rely on these cues to infer one's sexual orientation.

Investigations of how people categorize individuals as gay or straight is not limited to studies focusing on semantic information. Recent studies have used dynamic, thin slices of nonverbal behavior (Ambady, Hallahan, & Conner, 1999), sound (Smyth, Jacobs, & Rogers, 2003), and more important for the purposes of this study, static facial features (Freeman, Johnson, Ambady, & Rule, 2010; Hughes & Bremme, 2011; Skorska, Geniole, Vrysen, McCormick, & Bogaert, 2015). As it is with the semantic information, femininity emerges as a cue signaling a face's sexual orientation (Freeman et al., 2010; Stern, West, Jost, & Rule, 2013).

One of the cues that people might use in judging sexual orientation is movement patterns (Ambady et al., 1999): when presented with either short (1 or 10 seconds) nonverbal and nonvocal videos, or still images of people, observers were more likely to judge the sexual orientation of the person in the image if it was dynamic, compared to still images. Even when the images were presented as outlines, without static information such as clothing and hair, people were able to guess the sexual orientation of the targets in the images better than chance. Although there was no information about how these cues were perceived or characterized, this study shows that dynamic movement information can be used in judgments of sexual orientation and leads to accuracy levels that are significantly better than chance levels. Sound is another cue that people utilize to make judgments about the sexual orientation of a person. In a study (Smyth et al., 2003), the authors reported a significant relationship between judgments of femininity and judgments of sexual orientation made about clips of recorded speech. Even though the constructs of femininity-masculinity and sexual orientation (in the form of a binary straight-gay spectrum) are found to be highly related in the study, it was noted that they were not identical. According to the authors, the difference between the two constructs lays in the fact that participants not classifying gay-sounding voices as feminine if they have a low fundamental frequency. This study shows that sound can also be used as a tool in judgments of sexual orientation, and that femininity is used as a cue as well. Another cue (a set of cues) that is of importance for the current study is the information signaled by a person's face (taken as a static image). It has been found that people can judge the sexual orientation of an individual from a face picture with an accuracy that is significantly better than chance even after a very brief exposure of 50ms (Rule & Ambady, 2008). If people can make better than chance judgments of a person's

sexual orientation just by looking at their face, there must be some information signaling sexual orientation, at least in some of the faces depicted. One study (Freeman et al., 2010) investigated whether people could be making use of gender inversion cues while making these judgments. Authors found that people were making use of gendered cues to judge a person's sexual orientation: if a face was to appear gender inverted, it was more likely for participants to judge that face as being gay/lesbian compared to heterosexual. Moreover, in the same study, authors showed that participants were also likely to over-utilize gendered cues. If a face was gender typical, even if it was gay or lesbian, participants were more likely to judge the person as straight. In another study (Stern et al., 2013), the authors stated that there was an association between using cues pointing to gender inversion in facial judgments of sexual orientation and endorsing stereotypes about gender inversion and sexual orientation. People who showed higher endorsement for these stereotypes were found to be more likely to utilize gender inversion cues in facial judgments of sexual orientation.

Even if there's individual differences, and if the underlying mechanism is not error-prone, these studies indicate that people are able to judge one's sexual orientation from a static facial image with some accuracy and that femininity information is used while deciding about whether a male person is gay or straight. The abovementioned studies focus on what the perceivers are utilizing while making judgments about sexual orientation. Another line of work focuses on whether there's facial structural variations between people who self-identify as gay/lesbian and heterosexual. For example, facial asymmetry was found to be related with judgments of sexual orientation (Hughes & Bremme, 2011). In this study, the facial metrics of heterosexual and gay/lesbian participants were investigated. The gay/lesbian face

pictures included in the study had measures that were more asymmetrical than their heterosexual counterparts. Sexually dimorphic characteristics were also investigated; heterosexual men had features that are considered to be more masculine compared to gay men. The authors also asked a set of participants to make sexual orientation judgments, and results suggested that if a male's face had more masculine structural characteristics, it was more likely to be perceived as heterosexual then gay. Another related study (Skorska et al., 2015) investigated a comprehensive set of facial metrics with a set of face photos. The authors reported that there were structural differences among people who identify as gay, lesbian or heterosexual. Moreover, some of these structural differences reported in this paper were in line with the gender inversion hypothesis (e.g. gay men and straight women having convex cheeks; lesbian women and straight men having smaller foreheads).

This group of studies show that people utilize a wide spectrum of cues to make a judgment about one's sexual orientation (also for a review see: Rule & Alaei, 2016). Moreover, the relationship between the cues and the sexual orientation judgments seem to be based on gender inversion: People seem to rely on cues that signal diversion from one's perceived sex to say that are not straight. Although there's support for actual facial feature differences (Hughes & Bremme, 2011; Skorska et al., 2015), not every individual seems to employ these cues to the same extent. For example, political orientation is shown to have an effect on these judgments as conservatives being more likely to rely on these cues compared to liberals (Stern et al., 2013). Current state of these studies leave room for the possibility of people having differing mental representations of gay men and lesbian women in their mind. If there's variability in people's judgments of sexual orientation, they might be relying on a different set of cues, or their threshold for

these cues to alter their judgments (e.g. level of femininity in a face that is needed for one to judge a person as gay) might be different. Our aim with the current study, in the broadest sense, is to investigate if there's such a variability in mental representations of gay men.

A relatively new and innovative method called reverse correlation (Dotsch & Todorov, 2012) has emerged as a tool to study how people mentally represent outgroups. A standard reverse correlation image classification (RCIC) task involves asking the participant to choose one of the two face photos that are presented side-by-side based on a target category. The target category could be a social category (e.g., Moroccan: Dotsch, Wigboldus, Langner, & Van Knippenberg, 2008; Black: Krosch & Amodio, 2014), a trait (e.g., trustworthiness and dominance: Dotsch & Todorov, 2012), or expression of an emotion (e.g., Jack, Caldara, & Schyns, 2012). The face photos presented are actually the same base image superimposed with random noise. The base photo is usually created by averaging multiple face photos in order to create a neutral and average looking face and reduce the effects of individual identities and facial features on the answers as much as possible. In a single trial, one of the two faces displayed has a random noise superimposed, and the other one has the inverse of that random noise pattern superimposed. Adding the inverse form of the same noise pattern maximizes the differences between the two presented faces (Dotsch & Todorov, 2012). Adding a different random noise pattern to the same averaged base photo in every trial, ensures that each set of presented photos are slightly different from each other. The participant selects, of the two faces, the one that most resembles the target category for a number of trials. Afterwards, the noise patterns from the photos selected to resemble the target category are averaged to form the classification image (CI). The CI can be thought as a mental representation

approximation of the target category, or a visual prototype. Since the differences between face photos are resulting from randomly generated noise patterns this method can be used without having to make any assumptions regarding the facial features of the target category (Dotsch & Todorov, 2012; Todorov, Dotsch, Wigboldus, & Said, 2011). Therefore, it becomes the perfect candidate for studying the mental representation of a perceptually ambiguous outgroup such as gay men. Employing reverse correlation, recent studies have found that femininity (Dotsch, Wigboldus, & van Knippenberg, 2011) and happiness (Tskhay & Rule, 2015) is a part of mental representations of gay men. These findings converge with those from both the semantic and visual investigations of the stereotype content. In addition, the assumption-free nature of creating mental representations in a data-driven fashion enables researchers to investigate stereotypical representations from a new, more ecologically valid[1] perspective. For example, a deeper investigation of the categorization processes resulted in the finding that people rely on cues signaling stereotypicality in varying degrees (Dotsch et al., 2011). Specifically, Dotsch and colleagues found that people who are more prejudiced against gay men were less likely to use femininity information (i.e., their perception of how feminine a target face is) when they are asked to categorize a face as gay or straight. Other research suggests that femininity in faces can create preference and that it can be considered a positive trait especially when face composites are used (Perrett et al., 1998; Rhodes, 2006). The evidence thus suggests a more nuanced way of categorization based on stereotyping: People who are prejudiced will only be more likely to use stereotypical information when that information is in line with their evaluation of the group.

[1] The ecological validity of the method derives from two factors. First, no assumptions have to be made about the characteristics of the group studied. Therefore, the outcome is not limited to a set of characteristics defined prior to the study. Second, besides the semantic investigation, visual part of the equation can also be examined.

Therefore, people who are more prejudiced toward gay men might refrain from using femininity as a cue signaling group membership since femininity also signals positive traits (Dotsch et al., 2011).

As it can be seen from previous work on the contact hypothesis (Pettigrew & Tropp, 2006) there is a negative relationship between attitudes towards an outgroup and the level of contact with that group. Because of the promising effects of contact on intergroup relationships, we thought that factors affecting one's willingness to engage in contact (WTEC) is also an important variable to examine. Studying the factors that might affect intergroup contact seems to be promising both for better understanding the processes underpinning intergroup contact and for providing information for intervention programs that are aimed at reducing animosity between groups. Considering the patterns of findings concerning mental representations of gay men and the contact literature, we reasoned that one's mental representation about a group should be related with their willingness to engage in contact with that specific group. Additionally, if the behavior in question is intergroup contact then assessing the intention to engage in that behavior (i.e., willingness to engage in contact) can serve as a proximal assessment for the actual behavior with high predictive value (see: Ajzen, 1991).

When considering willingness to engage in contact with gay men another factor that is of importance and that should be taken into consideration is the emotion of disgust. The first reason for using disgust is that intergroup contact, especially close contact, is said to be related with the affective component of intergroup attitudes (Esses & Dovidio, 2002; Tropp & Pettigrew, 2005). Based on a meta-analysis of relevant studies, Tropp and Pettigrew (2005) found that affective indicators of intergroup prejudice were more strongly related with intergroup contact

than the cognitive indicators. Furthermore, Esses and Dovidio (2002) tested a similar hypothesis experimentally and found that willingness to engage in intergroup contact was based more strongly on affect than cognition. Therefore, disgust, compared to comparable cognitive factors such as receiving negative information about gay men, should be more closely related to WTEC. The second reason is that disgust, specifically, as an emotion is believed to be a part of the Behavioral Immune System (BIS: Schaller & Park, 2011; Schaller, 2015) which facilitates behavioral avoidance responses when cues signaling possible pathogens are detected. This system is responsible from working as a first line of defense against pathogens. However, since these pathogens are not visually visible, the system has to rely on other cues to signal possible threat. For example, morphological anomalies that have no real connection with an infectious disease can result in an implicit activation of the concept of 'disease' (Ryan et al., 2012). However, the system does not only signal threat when there's a physical cue that might actually be associated with an infection. Since many diseases can be transmitted via interpersonal interaction, attitudes and contact intentions regarding other people are also affected by this system (e.g. Park, Faulkner, & Schaller, 2003). For example, in one study exposing people to the threat of an infection had resulted in an elevated level of prejudice toward immigrants who are from places that are subjective foreign for the participants (Faulkner, Schaller, Park, & Duncan, 2004). In the broad context of research concerning BIS, disgust sensitivity and experimental induction of disgust were specifically found to be related negatively with attitudes toward homosexuality (Crawford, Inbar, & Maloney, 2014) and people's stance on gay right issues (Inbar, Pizarro, & Bloom, 2009). Another related study investigated the link between possible contagion and willingness to engage in contact with gay men (Crandall, Glor, & Britt, 1997). This

study did not directly measure disgust, but manipulated the description of a disease to be associated with homosexuality and found that associating homosexuality with a mild disease was effective in increasing the stigmatization caused by the disease. Stigmatization in this study was measured by an adapted version of Bogardus' (1925, as cited in Gentry, 1987) Social Distance Scale (SDS), supporting the link between avoidance behavior and the BIS in the specific case of gay men. Moreover, another study further supporting the link found that the need for physical cleansing was heightened if participants were to imagine a contact with a gay man compared to a heterosexual man (Golec de Zavala, Waldzus, & Cypryanska, 2014). Overall, these studies suggest that disgust is an emotion that has a specific relationship with contact with gay men, and it is capable of directly affecting one's attitudes toward gay men. Because of the affective nature of intergroup contact, disgust's relationship with people's attitudes toward gay men, and the interpersonal dimension of disgust (Rozin, Haidt, & McCauley, 2016), we decided to investigate the effects of disgust sensitivity on mental representations of gay men.

Do people who are more willing to engage in contact with gay men represent them more positively and if so, can these nuances in mental representation be captured by the reverse correlation paradigm? Is disgust sensitivity related with one's mental representations of gay men? How these two probably related concepts, WTEC and DS, would affect mental representations of gay men? By conducting the current study, we aimed to provide insights into these questions.

# CHAPTER 2

# OVERVIEW OF THE CURRENT STUDY

The current study consisted of two phases: the image generation phase and the image rating phase. First, participants took part in the image generation phase. We created two sets of CIs based on participants' willingness to engage in contact (WTEC) with a gay man and their disgust sensitivity (DS) levels. Following the creation of the CIs an independent sample of participants took part in the image rating phase of the study via an online survey. One group of participants rated the CIs on femininity, happiness and positivity, and another set of participants rated the images based on how willing they would be to engage in contact with the face depicted in each image. We recruited two sets of participants for the image rating part because we did not want the perception ratings (i.e., femininity, happiness, positivity) and the behavioral intention rating (i.e., willingness to engage in contact) to affect each other.

Regarding the classification images created based on participants' willingness to engage in contact with gay men, we expected a linear increase in all the ratings. More specifically we expected the high-WTEC group's CIs to be perceived the most feminine, positive and happiest, the low-WTEC group's CIs to be perceived the least feminine, positive and happy, and perceptions of the moderate-WTEC group's CIs to fall in-between. The same linear increase (from low- to moderate- to high-WTEC groups' CIs) was also expected for the willingness ratings given to the CIs.

We expected a reverse pattern of results for the CIs created based on the DS levels of the participants: a linear decrease in ratings. We expected for the image of the group with the low-DS scores to be rated the more feminine, positive and happier compared to the image of the groups with the moderate- and high-DS scores. The

moderate-DS group's CI was also expected to be perceived as more feminine, positive and happier compared to the high-DS group's CI. The same linear decrease was also expected in willingness ratings.

# CHAPTER 3

# METHODOLOGY

## 3.1 Image generation phase

### 3.1.1 Participants

With our design for the image generation phase (*2 (Construct: WTEC vs. DS) x 3 (Level: low vs. moderate vs. high between-subjects design*) we needed to collect data from 244 participants to detect a small to medium effect ($f = .20$) with .80 power at $p < .05$. However, because of the time limitations and logistics we could not reach our goal and stopped at 211 participants. Nonetheless, the power in reverse correlation studies depends on both the image generation and the image rating phase. Therefore, we aimed to compensate for the lack of power in the generation phase by using more conservative criteria while calculating the sample size in the image rating phase.

For the image generation phase, we collected data from 211 participants. Sexual orientation distribution of the participants was as follows: one participant identified as gay, 20 participants identified as bisexual, 2 participants selected 'other', 9 participants did not indicate their sexual orientation, and the remaining 179 participants identified as heterosexual. Male participants who identified as gay, bisexual or did not report their sexual orientations were excluded from any further analyses. After the exclusion of 4 male participants (2 identified as bisexual, 1 identified as gay, 1 did not report their sexual orientation), we were left with 207 participants (131 female, 76 male, $M_{age} = 20.51$, $SD = 1.58$, $Min_{age} = 18$ $Max_{age} = 29$). All participants were Boğaziçi University undergraduate students enrolled in

introductory psychology courses. Their time and effort were compensated with partial course credit.

### 3.1.2 Procedure and Materials

Upon coming to the laboratory participants read and signed the informed consent forms and were instructed on how the experimental procedure would progress. Thereafter, they first completed the RCIC task. Afterwards they moved on to filling the WTEC questionnaire (introduced below) and the Disgust Scale (Haidt, McCauley, & Rozin, 1994; Olatunji et al., 2007) measuring one's sensitivity to disgust. Before leaving the laboratory, they filled out the demographic information form and were debriefed and thanked.

#### 3.1.2.1 RCIC task

In the RCIC task modelled after Dotsch et al. (2008), in each trial, participants were presented with two face photos aligned horizontally on a computer screen. The photos were actually the same base face superimposed with a random noise pattern (for a detailed description of the noise generation procedure, see: Dotsch & Todorov, 2012). The base face was the average of fifty male faces (See Appendix A for the base face). These fifty faces were selected from a standardized database of Turkish faces (Özener, 2012) based on their suitability for the study's requirements (e.g., no beard, no facial ornaments, neutral expression). The faces were averaged using JPsychomorph, a free face morphing software (Tiddeman, Stirrat, & Perrett, 2005). Out of the two faces that are presented in each trial, one had a random noise pattern superimposed onto the base face and the other had the inverse noise pattern superimposed onto the base face. The location of the original and the inverse noise

pattern were randomized across trials. The task of the participants was to select which one of the two faces most resembled a gay man. In each trial, participants were first presented with a fixation cross at the center of the screen for 500ms followed by the two faces. The faces remained in the screen until participants responded by pressing the "d" key for the face on the left, or the "k" key on the keyboard for the face on the right. Following the response, there was a 1000ms inter-trial interval (See Figure 1 for the trial layout). There were 300 trials divided by two breaks, one after the 100th trial, and one after the 200th trial. Participants could continue the study by pressing "Space bar" when they feel ready. The RCIC task was implemented using PsychoPy (Peirce, 2007), an open-source application for controlling computerized experiments.

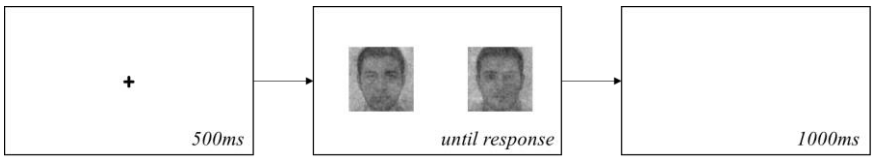


Figure 1. The trial layout for the RCIC task.

For each participant, the noise patterns from the faces that the participant selected as resembling a gay man were averaged using a script for R and guidelines provided by Dotsch et al. (2008). The resulting noise pattern was then superimposed onto the base face. The resulting face with averaged noise from the participant's responses is the CI for that participant. We created group-level CIs for high-, moderate- and low-WTEC groups and high-, moderate- and low-DS groups by averaging the noise patterns of the responses given by the participants based on their score on Disgust Scale (Olatunji et al., 2007) and WTEC (See Appendix B for all the CIs).

3.1.2.2 Willingness to engage in contact

WTEC with gay men was measured with an adapted version of Bogardus' (1925, as cited in Gentry, 1987) Social Distance Scale (SDS: Esses & Dovidio, 2002; Gentry, 1987). Participants were given a range of situations in which they indicated their likelihood of engaging in contact with a gay man if given the opportunity. There were items such as "*Having a gay man as my neighbor*," "*Living in the same house with a gay man*," and "*Using the same bathroom with a gay man to take a shower*." Participants indicated their responses on a Likert-type rating scale ranging from 1 (*not at all willing*) to 7 (*extremely willing*). Scores were calculated by averaging the responses for all the items for each participant. Cronbach's alpha for the scale was .97 (See Appendix C for the English version of the scale).

For the purposes of creating group CIs based on participants' WTEC level the participants were grouped into three categories: low-, moderate-, and high-WTEC. The cut-offs were determined based on the 33$^{rd}$ (WTEC score: 3.52) and 66$^{th}$ (5.78) percentile.

3.1.2.3 Disgust sensitivity

DS was measured with the revised version of the Disgust Scale (Turkish version; İnözü & Eremsoy, 2013; DS-R; Olatunji et al., 2007). It is a 27-item questionnaire in which participants indicate whether they agree and disagree with 14 statements such as *"If I see someone vomit, it makes me sick to my stomach"* and how disgusted they feel about 13 statements such as *"You see someone put ketchup on a vanilla ice cream and eat it"* on a Likert-type scale ranging from 0 (*strongly disagree*/*not disgusting at all*) to 4 (*strongly agree*/*extremely disgusting*). Scores were calculated

by averaging the responses for each question per participant[2]. Cronbach's alpha for the scale was .87 (See Appendix D for the English version of the scale).

Participants were grouped into three categories (low-, moderate-, and high-DS) to create group CIs based on their DS level. The cut-offs were determined based on the 33rd (DS Score: 2.04) and 66th (2.6) percentile.

#### 3.1.2.4. Demographics form

Participants reported their gender, age, and sexual orientation in the demographics form.

### 3.2 Image rating phase

#### 3.2.1 Participants

With our design (*one-way repeated measures ANOVA with three levels*) *repeated measures design*) for the image rating phase we needed to collect data from 227 participants to detect a small effect ($f = .10$) with .80 power at $p < .05$, assuming a medium correlation between the repeated measures ($r = .3$). In total 565 participants (273 for dimension rating, 262 for willingness rating phase) took part in the image rating phase of the study. With these criteria and the sample size, we tried to compensate for our failure to reach the ideal level of power in the image generation phase.

[2] Unlike previous research using the Disgust Scale, we used averaging instead of summing. By adopting averaging, we could also make use of the data coming from participants who left some questions unanswered.

#### 3.2.1.1 Dimension ratings

For the dimensions-rating part, 273 participants took part in the study. Sexual orientation distribution of the participants was as follows: 4 participants identified as gay, 5 participants identified as bisexual, 2 participants identified as lesbian, 5 participants selected 'other', 7 participants did not indicate their sexual orientation, 5 participants neither indicated their gender nor their sexual orientation, and the remaining 244 participants identified as heterosexual. Among the participants who identified as male, the ones who identified as bisexual, gay or did not report their sexual orientations were excluded from any further analyses. After the exclusion of 6 participants who neither indicated their gender nor their sexual orientation and 10 male participants (4 identified as gay, 1 identified as bisexual, 5 did not report their sexual orientation), we were left with 257 participants (149 female, 108 male, $M_{age}$ = 20.8, $SD$ = 1.65, $Min_{age}$ = 18 $Max_{age}$ = 29, 3 participants did not report their age).

#### 3.2.1.2 Willingness ratings

For the WTEC part, an independent sample of 262 people participated in the study. Sexual orientation distribution of the participants was as follows: 16 participants identified as bisexual, 7 participants selected 'other', 16 participants did not indicate their sexual orientation, and the remaining 223 participants identified as heterosexual. Among the participants who identified as male, the ones who identified as bisexual or did not report their sexual orientations were excluded from any further analyses. After the exclusion of 2 male participants (1 identified as bisexual, 1 did not report their sexual orientation), we were left with 260 participants (199 female, 61 male, $M_{age}$ = 21.73, $SD$ = 2.83, $Min_{age}$ = 18 $Max_{age}$ = 51, 5 participants did not report their age).

### 3.2.2 Procedure and materials

The image rating phase was carried out online. We sent out a link to the students enrolled in introductory level psychology courses. There were two separate surveys: one for the dimension ratings and one for the willingness ratings. Both surveys started with a question asking whether participants took part in the first phase of this study, or any study using RCIC task in the relevant semester. Only the participants who indicated that they did not take part in such a study were able to continue with the surveys. The ones who took part in the first part of the study were directed to the end of the survey and thanked. The participants who were eligible to take the surveys were presented with the informed consent form. After agreeing to take part in the study, participants saw instructions detailing the task that they would be presented with. Thereafter, participants in the dimension rating part were presented with 6 CIs, each for 3 times with different questions. Participants rated these CIs on femininity-masculinity, happiness, and positivity-negativity on a Likert-type scale ranging from 1 (*extremely masculine/unhappy/negative*) to 7 (*extremely feminine/happy/positive*). The order of the adjectives and the CIs were randomized individually for each participant. In the willingness ratings part, participants were presented with all 6 CIs, each for only once. They indicated their willingness to engage in contact with the face depicted in the image on a Likert-type scale ranging from 1 (*not at all willing*) to 7 (*extremely willing*). The order of the CIs was again randomized. After completing the ratings, participants were presented with the demographics form.

#### 3.2.2.1 Demographics form

Participants reported their gender, age, and sexual orientation in the demographics form.

# CHAPTER 4

# RESULTS

## 4.1 Image generation phase

Following Dotsch et al. (2011), the trials in which participants replied faster than 300ms were excluded from further analyses. Moreover, 13 participants were excluded from the group-level CIs because they replied faster than 300ms in more than 10% of the trials. After the exclusion of these 13 participants, the discarded trials due to responding faster than 300ms amounted up to 0.39% of all the trials. See Table 1 for the overall and level-wise descriptive statistics for WTEC and DS groups after the exclusion of participants.

Table 1

*Descriptive Statistics for WTEC and DS responses*

| | | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|---|
| WTEC | Overall | 194 | 1 | 7 | 4.51 | 1.92 |
| | Low | 64 | 1 | 3.44 | 2.18 | 0.84 |
| | Moderate | 66 | 3.67 | 5.78 | 4.73 | 0.64 |
| | High | 63 | 5.89 | 7 | 6.6 | 0.34 |
| DS | Overall | 194 | 0.48 | 3.68 | 2.32 | 0.65 |
| | Low | 65 | 0.48 | 2.04 | 1.59 | 0.36 |
| | Moderate | 63 | 2.04 | 2.6 | 2.35 | 0.16 |
| | High | 66 | 2.64 | 3.68 | 3.02 | 0.27 |

## 4.2 Image rating phase

We first report the ratings given to the CIs created based on WTEC ratings. Each dimension is reported separately followed by the willingness ratings. Afterwards we report the results regarding the CIs that are based DS levels. Skewness and kurtosis values for all the ratings (-.665 ≤ skewness ≤ .180; -.861 ≤ kurtosis ≤ .193) were in acceptable ranges.

### 4.2.1 Willingness to engage in contact

#### 4.2.1.1 Femininity

We conducted a one-way repeated measures analysis of variance on femininity ratings. The results show that the image generators' level of WTEC had a significant effect how feminine the CIs were rated $F(2, 510) = 9.340$, $p < .001$, $\eta_p^2 = .035$. Post hoc comparisons[3] revealed that Low-WTEC group's CI ($M = 3.48$, $SD = 1.26$) was rated to be less feminine compared to both Moderate-WTEC group's CI ($M = 3.70$, $SD = 1.29$), $t(510) = -2.45$, $p_{bonf} = .044$, $d = -0.17$. and High-WTEC group's CI ($M = 3.86$, $SD = 1.35$), $t(510) = -4.31$, $p_{bonf} < .001$, $d = -0.29$. The difference between the Mod-WTEC group's CI, and the High-WTEC group's CI, was not significant, $t(510) = -1.86$, $p_{bonf} = .191$, $d = -.12$ (see Figure 2). Partially supporting our hypothesis, we found that high- and moderate-WTEC group's CIs were perceived more feminine compared to low-WTEC group's CI.

[3] For all post hoc comparisons we report Bonferroni-adjusted *p* values. However, rather than dividing the alpha level with the number of comparisons, we multiply the observed (uncorrected) *p* values with the number of comparisons and still use .05 as our alpha level.

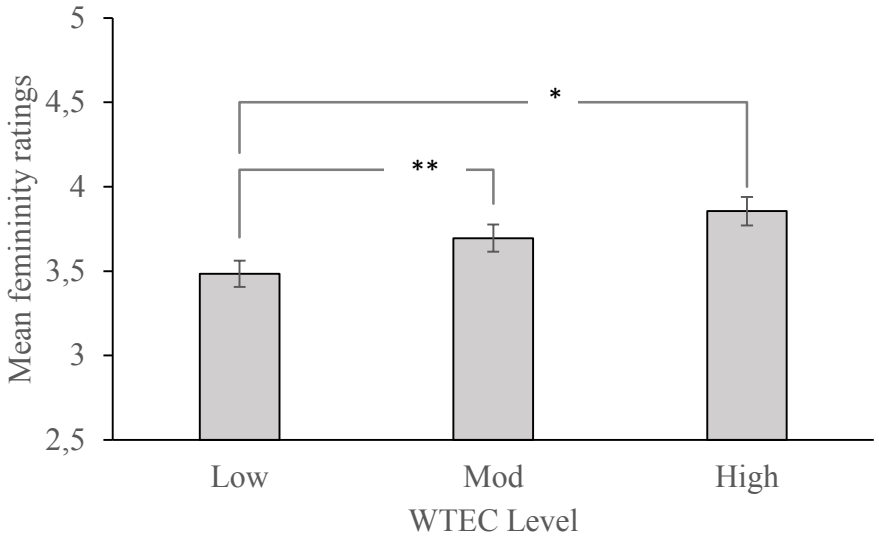


Figure 2. Femininity ratings for WTEC-group CIs

*Note*. Mean femininity ratings for 3 classification images created based on the responses of low-, mod- and high-WTEC groups. The error bars indicate standard error of the mean. *$p < .001$, ** $p = .044$

4.2.1.2 Happiness

We conducted a one-way repeated measures analysis of variance on happiness ratings. The results show that the level of WTEC levels of image generators had a significant effect how happy the CIs were rated, $F(2, 510) = 36.59$, $p < .001$, $\eta_p^2 = .125$. Post hoc comparisons revealed that Low-WTEC group's CI ($M = 4.01$, $SD = 1.2$) was rated to be less happy compared to both Moderate-WTEC group's CI ($M = 4.38$, $SD = 1.24$), $t(510) = -5.71$, $p_{bonf} = < .001$, $d = -.38$, and High-WTEC group's CI ($M = 4.70$, $SD = 1.27$), $t(510) = -8.37$, $p_{bonf} < .001$, $d = -.56$. The moderate-WTEC group's CI was also rated less happy than the high-WTEC group's CI, $t(510) = -2.66$, $p_{bonf} = .024$, $d = -.18$ (see Figure 3). Results of happiness ratings fully supported our hypothesis. We observed a linear trend where high-WTEC group's CI perceived to

be the happiest, low-WTEC group's CI to be the least happy, and the moderate-group's CI falling in between.

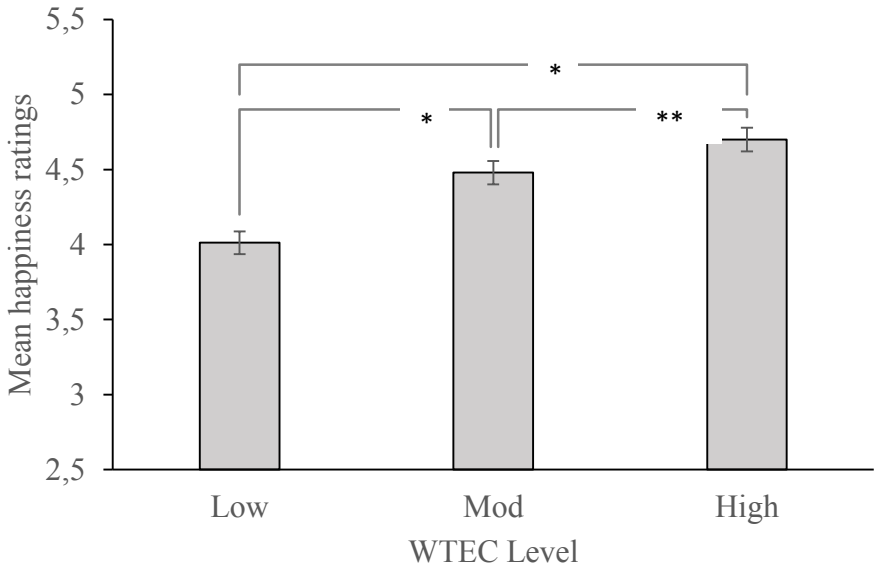


Figure 3. Happiness ratings for WTEC-group CIs

*Note*. Mean happiness ratings for 3 CIs created based on the responses of low-, mod- and high-WTEC groups. The error bars indicate standard error of the mean. *$p <$ .001, ** $p = .024$

4.2.1.3 Positivity

We have conducted a one-way repeated measures analysis of variance on positivity ratings. The results show that the image generators' level of WTEC had a significant effect on how positive the CIs were rated, $F(2, 508) = 37.7$, $p < .001$, $\eta_p^2 = .129$. Post hoc comparisons revealed that Low-WTEC group's CI ($M = 4.06$, $SD = 1.33$) was rated to be less positive compared to both Moderate-WTEC group's CI ($M = 4.68$, $SD = 1.29$), $t(508) = -6.94$, $p_{bonf} = < .001$, $d = -.47$, and High-WTEC group's CI ($M = 4.77$, $SD = 1.38$), $t(508) = -8$, $p_{bonf} < .001$, $d = -.52$. The difference between the Mod-WTEC group's CI, and the High-WTEC group's CI, was not significant, $t(508) = -1.06$, $p_{bonf} = .868$, $d = -.07$ (see Figure 4). Ratings of positivity, paralleled the ratings

of femininity and we could only partially support our hypothesis. High- and moderate-WTEC group's CIs were perceived to be more positive compared to the low-WTEC group's CI.

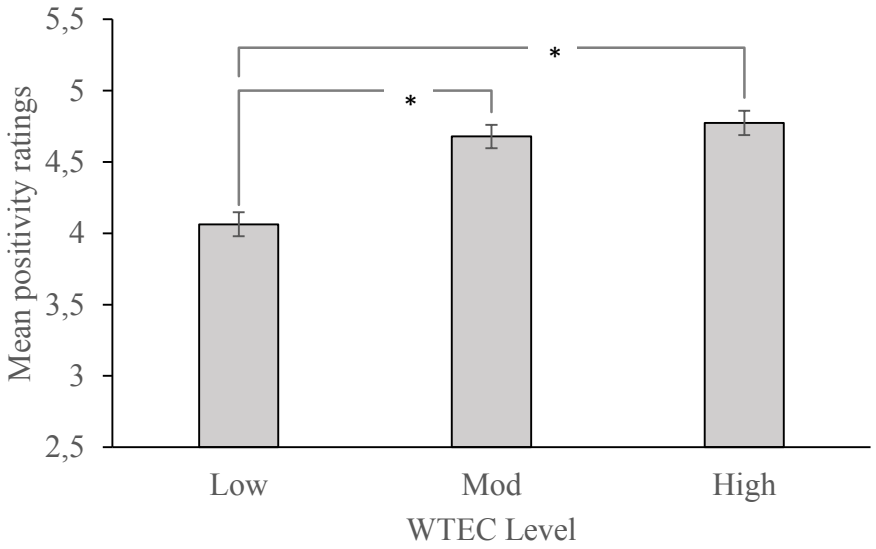


Figure 4. Positivity ratings for WTEC-group CIs

*Note*. Mean positivity ratings for 3 CIs created based on the responses of low-, mod- and high-WTEC groups. The error bars indicate standard error of the mean. *$p <$ .001.

4.2.1.4 Willingness to engage in contact

We conducted a one-way repeated measures analysis of variance on the ratings of how willing the participants were to engage in contact with each of the CIs created based on the WTEC level of participants in the image generation phase. The results show that WTEC level had no effect on willingness ratings, $F(2, 516) = 1.29$, $p = .276$, $\eta_p^2 = .005$. Participants' willingness ratings did not differ among Low-WTEC group's CI ($M = 3.50$, $SD = 1.48$), moderate-WTEC group CI ($M = 3.55$, $SD = 1.5$), and high-WTEC group CI ($M = 3.63$, $SD = 1.61$; see Figure 5). Results of

willingness ratings did not support our hypothesis. Our results indicated that people's willingness ratings did not change based on the level of WTEC of image generators.

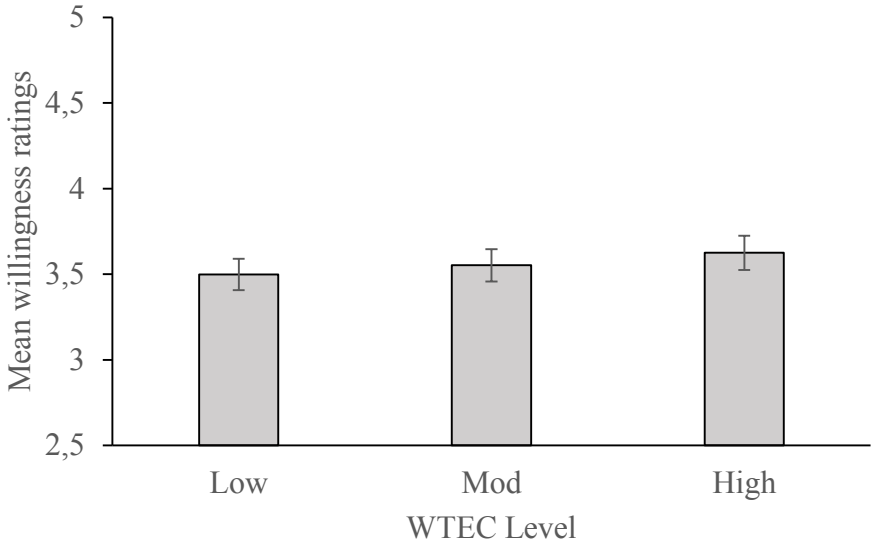


Figure 5. Willingness ratings for WTEC-group CIs

*Note*. Mean WTEC ratings for 3 CIs created based on the responses of low-, mod- and high-WTEC groups. The error bars indicate standard error of the mean.

### 4.2.2 Disgust Sensitivity

#### 4.2.2.1 Femininity

We conducted a one-way repeated measures analysis of variance on femininity ratings. The results show that the level of DS of the image generators did not have a significant effect on how feminine the CIs were rated, $F(2, 510) = 2.17$, $p = .115$, $\eta_p^2 = .008$. Femininity ratings did not differ among Low-DS group's CI, $M = 3.5$, $SD = 1.31$, moderate-DS group's CI, $M = 3.56$, $SD = 1.36$, and high-DS group's CI, $M = 3.68$, $SD = 1.32$ (see Figure 6). Failing to support our hypothesis, femininity ratings did not differ among CIs created based on participants with different levels of DS.

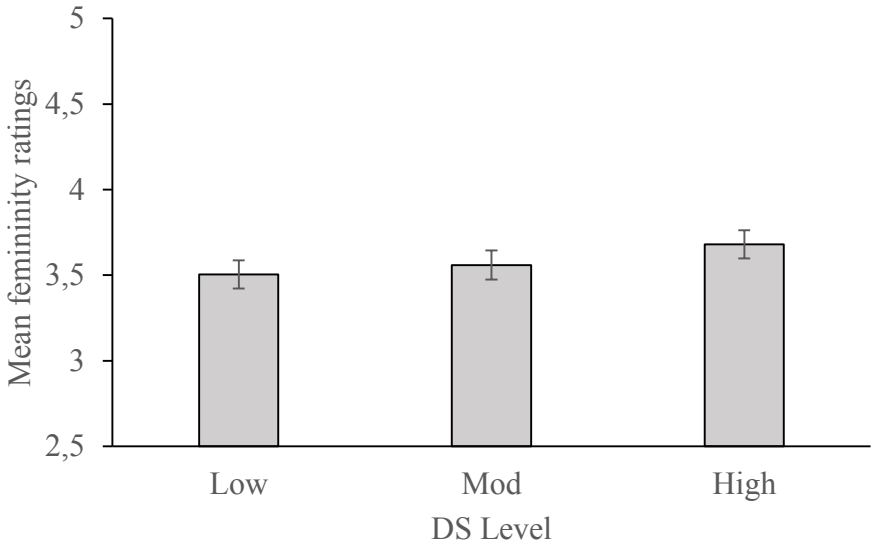


Figure 6. Femininity ratings for DS-group CIs

*Note*. Mean femininity ratings for 3 CIs created based on the responses of low-, mod- and high-DS groups. The error bars indicate standard error of the mean.

4.2.2.2 Happiness

We conducted a one-way repeated measures analysis of variance on happiness ratings. The results show that the DS levels of the image generators had a significant effect on how happy the CIs were rated $F(2, 510) = 25.5$, $p < .001$, $\eta_p^2 = .091$. Post hoc comparisons revealed that Low-DS group's CI ($M = 3.75$, $SD = 1.23$) was rated to be less happy compared to both Moderate-DS group's CI ($M = 4.37$, $SD = 1.29$), $t(510) = -7.07$, $p_{bonf} = < .001$, $d = -.49$ and High-DS group's CI ($M = 4.14$, $SD = 1.23$), $t(510) = -4.41$, $p_{bonf} < .001$, $d = -.31$. The moderate-DS group's CI was rated to be happier than the high-DS group's CI, $t(510) = 2.26$, $p_{bonf} = .024$, $d = .18$ (see Figure 7). Results of happiness ratings did not support our hypothesis: the moderate-DS group's CI was perceived to be the happiest followed by the high- and then the low-DS group's CI.

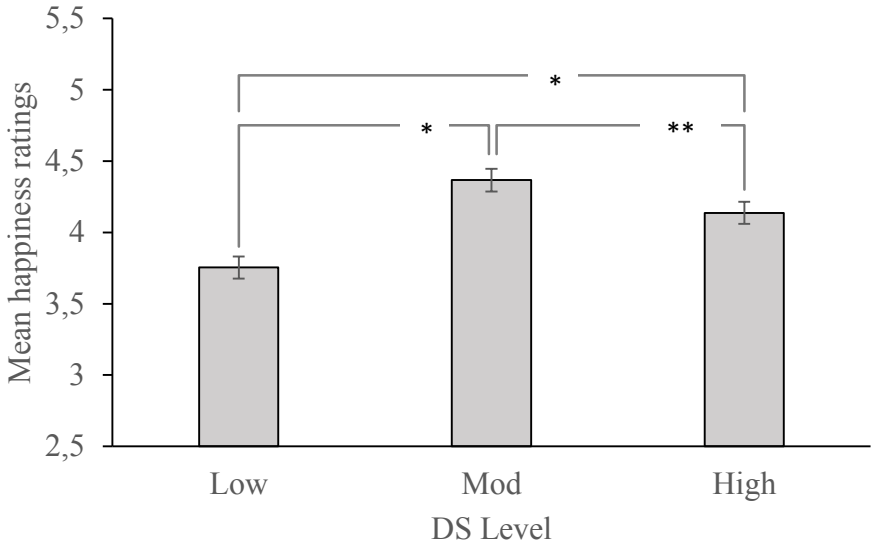


Figure 7. Happiness ratings for DS-group CIs

*Note*. Mean happiness ratings for 3 CIs created based on the responses of low-, mod- and high-DS groups. The error bars indicate standard error of the mean. *$p < .001$, **$p = .024$.

4.2.2.3 Positivity

We conducted a one-way repeated measures analysis of variance on positivity ratings. The results show that the image generators' DS levels had a significant effect how happy the CIs were rated, $F(2, 510) = 18.3$, $p < .001$, $\eta_p^2 = .067$. Post hoc comparisons revealed that Low-DS group's CI ($M = 3.96$, $SD = 1.26$) was rated to be less happy compared to both Moderate-DS group's CI ($M = 4.5$, $SD = 1.23$), $t(510) = -5.98$, $p_{bonf} = < .001$, $d = -.44$, and High-DS group's CI ($M = 4.31$, $SD = 1.25$), $t(510) = -3.8$, $p_{bonf} < .001$, $d = -.27$. The difference between the moderate-DS group's CI and the high-DS group's CI was not significant, $t(510) = 2.18$, $p_{bonf} = .090$, $d = .16$ (see Figure 8). Positivity ratings did not support our hypothesis and resulted in a similar pattern with happiness ratings. Both moderate- and high-DS group's CIs were perceived more positive then the low-DS group's CI.

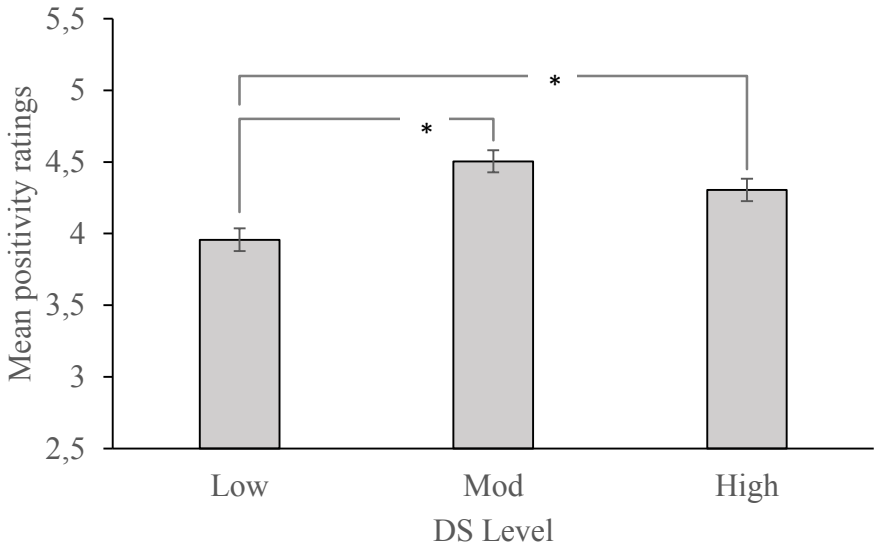


Figure 8. Positivity ratings for DS-group CIs

*Note*. Mean positivity ratings for 3 CIs created based on the responses of low-, mod- and high-DS groups. The error bars indicate standard error of the mean. *$p < .001$.

4.2.2.4 Willingness to engage in contact

We conducted a one-way repeated measures analysis of variance on the ratings of how willing the participants were to engage in contact with each of the CIs created based on the DS levels of image generators. Results showed that level of DS had a significant difference on willingness ratings given to the CIs $F(2, 510) = 7.43$, $p < .001$, $\eta_p^2 = .028$. Post hoc comparisons revealed that compared to moderate-DS group's CI ($M = 3.52$, $SD = 1.47$), participants were more willing to engage in contact with the person in the low-DS group's CI ($M = 3.81$, $SD = 1.51$), $t(510) = 3.56$, , $d = .19$ $p_{bonf} < .001$, and high-DS group's CI, ($M = 3.77$, $SD = 1.51$), $t(510) = 3.07$, $p_{bonf} = .007$, $d = .16$. The difference between ratings given to the high-DS group's CI and the low-DS group's CI was not significant, $t(510) = -.49$, $p = 1.00$, $d = -.03$ (see Figure 9). The image generators' DS levels showed a pattern that was not in line with our hypothesis: the least amount of willingness to engage in contact was

indicated for the moderate-DS group's CI and high- and low-DS groups' CIs did not differ from each other.

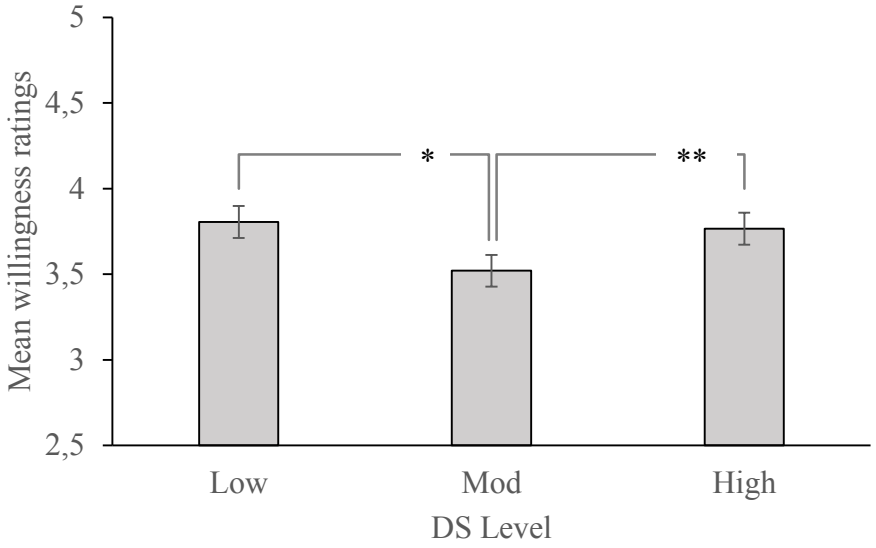


Figure 9. Willingness ratings for DS-group CIs

*Note*. Mean WTEC in contact ratings for 3 CIs created based on the responses of low-, mod- and high-DS groups. The error bars indicate standard error of the mean. *$p < .001$, ** $p = .007$.

4.3 Other (exploratory) analyses

We found the scores of WTEC and DS to be negatively correlated, $r = -.18$, 95% BCa CI [-.298, -.037], $p = .011$. The negative relationship between these two constructs supports our reasoning in terms of the expected negative relationship between the inverse effect they might have on mental representations. While creating the CIs we only used overall DS scores that was calculated by averaging responses given to all questions. However, previous research has indicated that the subscales (Core disgust; Animal Reminder disgust; Contamination-Based disgust) of the Disgust Scale have different psychological, physiological, and behavioral correlates (Olatunji et al., 2007; Olatunji, Haidt, McKay, & David, 2008). Moreover, Olatunji

and colleagues (2008) postulated that the contamination-based disgust coincides with Rozin, Haidt, and McCauley's (2016) interpersonal disgust dimension and that it is more related to diseases spread by people compared to core disgust, which is more related to diseases spread by objects. To investigate whether subscales of Disgust Scale had a different relationship with WTEC we calculated subscale scores for each participant. Afterwards we investigated the relationship between WTEC and each of the subscales separately. Even though we did not observe a significant relationship between WTEC and core disgust, $r$ = -.11, 95% BCa CI [-.298, -.037], $p$ = .116, and with animal-reminder disgust, $r$ = .026, 95% BCa CI [-.105, .169], $p$ = .723, there was a significant negative relationship between contamination-based disgust and WTEC scores, $r$ = -.43, 95% BCa CI [-.531, -.301], $p$ < .001. This pattern of results indicates that the negative relationship between DS and WTEC, $r$ = -.18, 95% BCa CI [-.232, .017], $p$ = .011, might be driven by the relationship between contamination-based disgust and WTEC.

Additionally, we also investigated whether willingness ratings given to the CIs were significantly different from the middle point (4) of the scale ranging from 1 (*extremely unwilling*) to 7 (*extremely willing*). For CIs created based on WTEC, willingness ratings given to low-, moderate- and high-WTEC groups' images were significantly lower than the middle point of the scale, $t(258)$ = -5.48, $p$ < .001, $d$ = -.34; $t(259)$ = -4.78, $p$ < .001, $d$ = -.3; $t(259)$ = -3.64, $p$ < .001, $d$ = -.23, respectively. This indicates that participants were relatively unwilling to engage in contact with any of the images. The size of the difference is progressively smaller from the low- to high-group, indicating that there might be a pattern that would support the linear relationship between the nature of CIs and willingness scores. Ratings given to low-, moderate- and high-DS groups' images were all significantly lower than the middle

point of the scale, $t(259) = -2.54$, $p = .012$, $d = -.16$; $t(256) = -5.22$, $p < .001$, $d = -.33$; $t(258) = -2.14$, $p = .033$, $d = -.13$, respectively. The effect sizes reveal a pattern that makes sense when we consider how these images were perceived. The moderate group that was perceived to be the happiest has the lowest rating of willingness. These results indicate that rather than being willing, people were more unwilling to engage in contact with the images that they were created.

# CHAPTER 5

# DISCUSSION

In the current study, our aim was to investigate mental representations of gay men with a focus on one's willingness to engage in contact with gay men and disgust sensitivity. Below we firstly discuss our findings regarding WTEC, then move on to discussing results on DS. After the perception ratings, we move on to the intention ratings and discuss participants' willingness ratings toward the images, followed by the discussion on the theoretical and empirical significance of the current study.

## 5.1 Willingness to engage in contact

We reported that levels of WTEC is associated with one's mental representations of gay men. Partially supporting our hypotheses regarding WTEC, people having high (vs. low) levels of WTEC had mental representations that looked more feminine, positive, and happier. Representing the person one would be more willing to engage in contact with not only more positively and happier but also more feminine-looking makes sense considering the evidence that femininity in male composite faces is perceived as a positive trait (Perrett et al., 1998; Rhodes, 2006). Even though, as expected, images created based on people who are high and low on WTEC differed from each other in terms of how they were perceived, we did not find support for our hypothesis in terms of the images created based on the moderate-level group. We expected a linear relationship between the levels of WTEC and the perception of the created images. However, this was only supported for the happiness dimension. Even in this case, the effect size for the difference was smaller compared to the other significant differences observed. One possible explanation, also a possible limitation

of our study, is that while categorizing participants into different WTEC levels in the first phase, we might not have differentiated moderate- and high-WTEC groups from each other as efficiently as we did with the low and high groups. The lower range (range = 1.1) and variance (*SD* = .34) of WTEC scores in the high-WTEC group also supports the idea that we might have failed to create an actually different group in terms of WTEC unlike the other two groups. It might also be that people who are only on the extremes of WTEC continuum have differing mental representations. However, to investigate this claim we would need to collect additional data. Overall, our data supports the idea that WTEC and the image one has in his/her mind about a gay man are related. People who were more willing to engage in contact with gay men created mental images that were perceived to have more approachable characteristics such as femininity and happiness.

### 5.2 Disgust sensitivity

We also investigated whether mental representations of gay men would differ based on one's disgust sensitivity. Our hypothesis regarding this relationship was not supported. One possible reason for the mixed results might be using overall DS scores instead of using the contamination-based disgust subscale (Olatunji et al., 2007). Previous literature on different subscales of DS, combined with our results showing the relationship between these subscales and WTEC, supports the idea that using contamination-based disgust instead of overall DS might be a better choice for further studies investigating a similar relationship. Another possibility is that the relationship between DS and how the mental representations are perceived is not a linear one. However, if this was the case we would expect to observe the same pattern of results with the other dimensions that were measured as well. Instead, a

fully non-linear (quadratic) relationship was only observed with happiness ratings whereas the pattern was not consistent in other two dimensions. Moreover, the contamination-based disgust driving the relationship between DS and WTEC makes the mixed set of results further uninterpretable. Insight into whether the relationship between ratings and DS levels is a linear one or not is not afforded by the data at hand and would only be possible by conducting further studies. Other than focusing on contamination-based disgust, manipulation of disgust might also offer insights into the relationship. While some studies treat disgust as a trait and measure general disgust sensitivity with self-report measures, similar to the current study (e.g., Crawford et al., 2014; Haidt et al., 1994), other studies use disgust induction. The method of inducing disgust varies from exposing participants to disgusting odors (Adams, Stewart, & Blanchar, 2014; Inbar, Pizarro, & Bloom, 2012), to showing them photos that are proven to evoke disgust (e.g., Buckels & Trapnell, 2013), to recalling a memory where they felt disgusted (Dasgupta, DeSteno, Williams, & Hunsinger, 2009). Therefore, with the data at hand we cannot offer insights into whether there is a relationship between DS and mental representations of gay men, and if there is, what its characteristics are.

### 5.3 Willingness ratings

Following Brown-Iannuzzi and colleagues (2016), besides gathering dimension ratings, we also asked an independent sample of participants to indicate their behavioral intentions towards the set of images we have created. We expected participants' willingness to engage in contact with these images to differ based on the levels of WTEC and DS of our image generators. Our results did not support hypotheses regarding the relationship between WTEC and DS and willingness to

engage in contact. For WTEC, participants showed no difference, and for DS, the moderate-level image was the one people were the least willing to engage in contact with. However, our exploratory analyses showed that people were more unwilling than willing to engage in contact with these images overall. Since the images have varying levels of favorable characteristics (femininity, happiness, positivity), unwillingness to engage in contact especially makes sense when we take Dotsch and colleagues' (2011) results into consideration. In their study, people who were prejudiced were less likely to categorize feminine-looking faces as gay compared to people who were less prejudiced. Even though we did not tell them that the faces were supposed to resemble gay men, since people use femininity as a cue to gay identity (Stern et al., 2013), the otherwise favorable characteristics such as femininity and happiness might have had the reverse effect in people who are more prejudiced toward gay people. This reasoning is further supported by the willingness ratings given to CIs created based on DS levels. The image that was perceived to be the happiest was the one people were most unwilling to engage in contact with. The idea that prejudice and stereotype content is related to different sets of biases was previously postulated by Amodio and Devine (2006). The authors showed that while implicit stereotypes were associated with judgments such as competency, prejudice was distinctively associated with behavioral intentions which are interpersonal. This supports the idea that even though femininity and happiness are included in mental images of gay men (Tskhay & Rule, 2015), if one has a negative evaluation of gay people, he/she might refrain from utilizing the positive cues signaled by femininity (Dotsch et al., 2011) and happiness when indicating their behavioral intentions. Similar to the people who are more willing to engage in contact with gay men having a more approachable mental image of gay men (more feminine-looking, happier, and

more positive), we expected the favorable cues in the created images to result in higher willingness ratings (i.e., making them look more approachable). However, if participants thought the faces resembled gay men because of the femininity information (Stern et al., 2013), based on their prejudice level, they might not have been influenced by favorable cues depicted in these faces. Hence, the participants might have indicated lower levels of willingness to engage in contact with the faces depicted in these images. Future research should investigate whether people who have negative evaluations of gay men are influenced by the positive cues to a lesser extent, compared to the people who have neutral, and more positive evaluations of gay men, when making behavioral intention judgments.

### 5.4 Theoretical and empirical significance

Although we could not provide clear-cut insights to all the questions we asked, we believe that answering these questions and our results are of significance both theoretically and empirically. From a theoretical perspective, this study contributes to the literature on intergroup relations and mental representations supporting the claim that people have systematically biased mental representations of outgroups (Dotsch et al., 2008; Krosch & Amodio, 2014; Paulus, Rohr, Dotsch, & Wentura, 2016). Although femininity is included in the content of the stereotype against gay men (Kite & Deaux, 1987; Sakalli, 2003), since it is considered a positive characteristics (Rhodes, 2006), people who are more willing to engage in contact with gay men had mental representations that are more feminine than that of people who are less willing. This emphasizes the need for a more nuanced understanding of characteristics that are included in stereotypes against various groups.

Also, to our knowledge, this is the first study investigating the mental representations of gay men and their relationship with disgust. This relationship is also of importance in terms of understanding the link between disgust and one's potential aversion to gay men. Combined with a proximal assessment of a psychological factor underlying behavior (WTEC), we aimed to offer a closer look into the impact of disgust on behavioral intentions toward gay men. This initial investigation can lay the ground work for investigating this relationship experimentally in the future by manipulating disgust. Our results suggested that employing different factors of disgust rather than the overall DS can offer greater insights into this question.

Empirically, the validity of the reverse correlation paradigm was further tested with regard to a visually ambiguous social category (gay men). Overall, the method yielded results that are parallel to the literature in terms of the stereotype content regarding gay men. Moreover, to our knowledge, this study is one of the first to examine mental representations of faces using reverse correlation in a non-WEIRD (Henrich, Heine, & Norenzayan, 2010a, 2010b) sample (see also; Gunaydin & DeLong, 2015).

# CHAPTER 6

# CONCLUSION

Understanding how behavioral intentions differ toward certain groups might be possible by understanding how we picture them in our heads. In the current study, we investigated willingness to engage in contact with gay men, and disgust sensitivity as possible factors that might be associated with our mental images regarding gay men. We showed that people had biased representations of gay men based on how willing they are to engage in contact with them. Moreover, we also showed that to better understand the pattern of relationships between mental representations and disgust, and how they are related with behavioral intentions toward gay men we need a more detailed investigation of different dimensions of disgust. However, the biased images of gay men in one's head seems to be more nuanced compared to the traditional understanding surrounding gender-inversion: Rather than less prejudiced people endorsing the stereotypes less and having less feminine-looking images in their heads, in this case people who are more willing to engage in contact with gay men (who are probably less prejudiced: Pettigrew & Tropp, 2006) had more feminine-looking images of gay men in their heads. Moreover, we also showed that the otherwise favorable cues such as femininity and happiness in faces might not always be utilized if the person is prejudiced against a group resulting in a general unwillingness to engage in contact. These results underline the need for a nuanced understanding of the valence of the information in the stereotype content, overall evaluation of the group and one's behavioral intentions toward the group. Whether these images are shaping our intentions or our intentions alter how we picture certain groups still requires further investigation and a more nuanced investigation of

disgust, intentions, and mental representations of gay men might offer clearer insights.

APPENDIX A

BASE FACE

APPENDIX B

Low-DS CI
Fem: *M* = 3.5, *SD* = 1.3
Hap: *M* = 3.75, *SD* = 1.23
Pos: *M* = 3.96, *SD* = 1.26
WTEC: *M* = 3.8, *SD* = 1.51

Low-WTEC CI
Fem: *M* = 3.48, *SD* = 1.26
Hap: *M* = 4.01, *SD* = 1.2
Pos: *M* = 4.06, *SD* = 1.33
WTEC: *M* = 3.5, *SD* = 1.47

Mod-DS CI
Fem: *M* = 3.55, *SD* = 1.37
Hap: *M* = 4.37, *SD* = 1.28
Pos: *M* = 4.5, *SD* = 1.23
WTEC: *M* = 3.52, *SD* = 1.47

Mod-WTEC CI
Fem: *M* = 3.7, *SD* = 1.29
Hap: *M* = 4.48, *SD* = 1.24
Pos: *M* = 4.68, *SD* = 1.29
WTEC: *M* = 3.55, *SD* = 1.5

High-DS CI
Fem: *M* = 3.68, *SD* = 1.32
Hap: *M* = 4.14, *SD* = 1.23
Pos: *M* = 4.31, *SD* = 1.25
WTEC: *M* = 3.76, *SD* = 1.51

High-WTEC CI
Fem: *M* = 3.86, *SD* = 1.35
Hap: *M* = 4.7, *SD* = 1.27
Pos: *M* = 4.77, *SD* = 1.38
WTEC: *M* = 3.63, *SD* =1.62

CLASIFICATION IMAGES AND DESCRIPTIVES

## APPENDIX C

## WTEC SCALE (ENGLISH VERSION)

Please indicate your willingness to engage in contact with a gay man if given the opportunity in the situations listed below:

1 = *Not at all willing*

7 = *Extremely willing*

1. Being in a party where there's a gay man
2. Being alone in a room with a gay man
3. Using the same bathroom with a gay man
4. Living in the same house with a gay man
5. Having a gay man as a colleague
6. Sleeping in the same room with a gay man
7. Having a gay man as a neighbor
8. Sitting next to a gay man during a trip
9. Using the same bathroom with a gay man to take a shower

APPENDIX D

DISGUST SCALE (ENGLISH VERSION)

Please indicate how much you agree with each of the following statements, or how true it is about you. Please write a number (0-4) to indicate your answer:
0 = Strongly disagree (very untrue about me), 1 = Mildly disagree (somewhat untrue about me), 2 = Neither agree nor disagree, 3 = Mildly agree (somewhat true about me), 4 = Strongly agree (very true about me)

____1. I might be willing to try eating monkey meat, under some circumstances.

____2. It would bother me to be in a science class, and to see a human hand preserved in a jar.

____3. It bothers me to hear someone clear a throat full of mucous.

____4. I never let any part of my body touch the toilet seat in public restrooms.

____5. I would go out of my way to avoid walking through a graveyard.

____6. Seeing a cockroach in someone else's house doesn't bother me.

____7. It would bother me tremendously to touch a dead body.

____8. If I see someone vomit, it makes me sick to my stomach.

____9. I probably would not go to my favorite restaurant if I found out that the cook had a cold.

____10. It would not upset me at all to watch a person with a glass eye take the eye out of the socket.

____11. It would bother me to see a rat run across my path in a park.

____12. I would rather eat a piece of fruit than a piece of paper

____13. Even if I was hungry, I would not drink a bowl of my favorite soup if it had been stirred by a used but thoroughly washed flyswatter.

____14. It would bother me to sleep in a nice hotel room if I knew that a man had died of a heart attack in that room the night before.

How disgusting would you find each of the following experiences? Please write a number (0-4) to indicate your answer:

0 = Not disgusting at all, 1 = Slightly disgusting, 2 = Moderately disgusting, 3 = Very disgusting, 4 = Extremely disgusting

____15. You see maggots on a piece of meat in an outdoor garbage pail.

____16. You see a person eating an apple with a knife and fork

____17. While you are walking through a tunnel under a railroad track, you smell urine.

____18. You take a sip of soda, and then realize that you drank from the glass that an acquaintance of yours had been drinking from.

____19. Your friend's pet cat dies, and you have to pick up the dead body with your bare hands.

____20. You see someone put ketchup on vanilla ice cream, and eat it.

____21. You see a man with his intestines exposed after an accident.

____22. You discover that a friend of yours changes underwear only once a week.

____23. A friend offers you a piece of chocolate shaped like dog-doo.

____24. You accidentally touch the ashes of a person who has been cremated.

____25. You are about to drink a glass of milk when you smell that it is spoiled.

____26. As part of a sex education class, you are required to inflate a new unlubricated condom, using your mouth.

____27. You are walking barefoot on concrete, and you step on an earthworm.

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