



The Influence of Sex-Related Experiences and Conservation Values on Self-Directed Disgust

Noémi Szalavetz

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Department of Psychology
University of Groningen
Examiner/Daily supervisor:
Dr. Mirjam Frey, Berber Brouwer, and Dr. Charmaine Borg

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Abstract

Previous research indicates adverse outcomes of self-directed disgust on sexual functioning and mental health. Previously, Brouwer et al. (2023) assessed the impact of sex-related scenarios on self-directed disgust (pathogen, sexual, and moral) in a female sample and found that they elicited all three types of (self-directed) disgust. The current study replicates and extends on Brouwer et al. (2023) by investigating self-directed disgust (pathogen, sexual, and moral) in the context of sex-related scenarios and conservation values. It is expected that the three sex-related pathways (pathogen, sexual, and moral disgust) elicit self-directed disgust, and that a higher regard for conservation values is positively associated with self-directed disgust (pathogen, sexual, and moral). A cross-sectional, within-subjects design with a mixed-gender sample ($N = 72$) was utilized. Participants imagined themselves and others in eleven experimental and eleven matching sex-related control scenarios, pertaining to the three types of disgust. After each scenario, participants rated their self-directed disgust level, mental contamination, ability to imagine and relate to each scenario. Afterwards, they filled out self-report questionnaires. A two-way repeated measures analysis of variance and correlational analysis were conducted for each gender. All three types of (self-directed) disgust were elicited by the sex-related scenarios, and a moderate ability to imagine and relate to them was observed. Pathogen and sexual but not moral self-directed disgust were associated with conservation values in men, while no associations were observed in women. The findings partially support previous literature and may provide implications for future treatment interventions aimed at sexual dysfunction.

Keywords: Self-directed disgust, mental contamination, conservation values, sex-related scenarios, sexual dysfunction

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Disgust

Hookup culture is a social concept which entails casual sexual activities and is especially prevalent in university students (James-Kangal et al., 2018). Tinder, an online dating platform, has approximately 75 million users as of 2022 (Iqbal, 2022) and aims to aid individuals in finding a partner. However, many users tend to utilize it for sexual purposes (Sevi, 2018). Interestingly, users who actively seek out short-term mating opportunities tend to share certain personality traits, such as high levels of openness to experience and low conscientiousness (Timmermans & Caluwé, 2017). In line with this, Tinder users appear to engage in greater health-related risks during mating, compared to individuals who do not use the platform, and display less disgust sensitivity towards casual sex-related activities (Sevi, 2018; Sevi et al., 2018). Accordingly, previous research indicates a reciprocal relationship between disgust and sexual arousal, in which disgust appears to reduce one's sexual arousal and sexual arousal seemingly decreases the elicitation of disgust (de Jong & Borg, 2015).

Disgust is an adaptive mechanism of aversion (Curtis et al., 2011) which can be distinguished into three distinct types: pathogen, sexual and moral disgust (Tybur et al., 2009). Pathogen disgust intends to protect one from contracting diseases. Accordingly, an increase in this type of disgust was observable during the COVID-19 pandemic (Milkowska et al., 2021) and is still persistent in the context of sexually transmitted diseases (Al-Shawaf et al., 2018). Meanwhile, sexual disgust helps avoid a lower value sexual mate who could potentially influence reproductive success (Tybur et al., 2009). An increased level of sexual disgust has been associated with a lower interest in casual, sexual relationships, which could partially be explained by the perceived heightened risks of diseases or plainly a preference of long-term mating strategies (Al-Shawaf et al., 2018). Moral disgust is associated with avoiding transgressions of societal norms, such as the engagement in sexual activities with a

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minor (Russell & Giner-Sorolla, 2013), and aims to ensure society's functioning (Tybur et al., 2009).

Given the risks involved around sexual acts, disgust can be viewed as a protective mechanism for the avoidance of illnesses and adverse sexual outcomes (Curtis et al., 2011; Kort et al., 2014; Tybur et al., 2009). Further, it promotes safe sexual practices. Concurrently, disgust can also become an issue for sexual relations when it is elicited in situations in which it is not appropriate or necessary (de Jong & Borg, 2015). Elaborately, de Jong and Borg (2015) explain that a sexual stimulus may elicit both disgust and sexual arousal. If the sexual arousal prevails, no dysfunction is expected. Contrastingly, if disgust is more prevalent during the appraisal of this stimulus, sexual dysfunction might occur (de Jong & Borg, 2015). Following, individuals might develop an avoidance of sexual interactions or experience difficulties during the act, if disgust prevails (de Jong & Borg, 2015). Vaginismus, defined as a painful contraction of the pelvic floor during coitus (Basson et al., 2004), could be viewed as one of these difficulties (Banaei et al., 2023). Prior to the development of vaginismus, an individual might experience disgust in several sex-related situations and resultantly, develop an avoidance towards sex (Lahaie et al., 2010). When facing a situation in which the individual could engage in coitus, their body might then react with muscle contractions to avoid any type of pathogens close to or within the body (Borg et al., 2010).

Further, disgust can be elicited by aspects of oneself via the cognitive appraisal of one's actions, beliefs, and internalized external stimuli, which are now considered part of oneself (Self-directed Disgust; Powell et al., 2015). Congruent with other-directed disgust, a distinction is made between pathogen, sexual, and moral self-directed disgust (Powell et al., 2015; Tybur et al., 2009). The development of the underlying schema for the switch from other- to self-directed disgust is not clearly understood (Powell et al., 2015). Nevertheless, it appears to be influenced by individual factors, including one's disgust sensitivity,

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temperament, sociocultural factors, and personal social learning experiences (Powell et al., 2015). Resultantly, criticism or abuse during childhood might contribute to the schema's development (Powell et al., 2015). The expression and impact of self-directed disgust might vary based on which type of self-directed disgust is experienced.

Pathogen self-directed disgust, defined as feeling disgusted by oneself based on feelings of dirtiness and contamination, tends to be elicited after the contraction of diseases and/or sexual assault (Powell et al., 2015). Concretely, victims of sexual trauma might display feelings of dirtiness and contamination, expressed by scrubbing their skin excessively, due to their experiences (Brake et al., 2021; de Jong & Borg, 2015). This phenomenon can be understood as 'mental contamination', as the individual holds cognitions of experiencing bodily sensations of, for instance, residue of foreign bodily fluids outside of any physical presence (Coughtrey et al., 2012). Further, a mere memory of the incident can contribute to experiences of mental contamination (Brake et al., 2021).

Following, sexual assault can be viewed as a violation to one's self-concept and, as such, negatively influence one's perception of themselves (Badour et al., 2013). Similarly, one might experience self-directed pathogen disgust after severe medical invasions, including a mastectomy or the removal of a man's testicle, due to the significant alterations of one's body that are accompanied by an increased risk of infections from, for instance, wounds (Azlan et al., 2017; Burden et al., 2018). Within the context of coitus, the impacted person might feel ashamed or dirty due to this major invasion of their body and their mental 'self'. Consequently, pathogen self-directed disgust might impact one's sexual functioning via the avoidance of sex-related stimuli which might trigger feelings of mental contamination (Steil et al., 2011).

Sexual self-directed disgust can be defined as feeling disgust towards one's sexual behavior, thoughts, or body, due to the belief that one has lower value mate qualities (Powell

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et al., 2015; Tybur et al., 2009). The belief typically arises after adverse experiences, such as one's partner's infidelity (de Jong & Borg, 2015) or after experiencing rejection by a romantic partner after weight gain (Major et al., 2012). More precisely, sexual self-directed disgust tends to be elicited by negative body image perceptions, trauma, religious or cultural beliefs, sexual dysfunctions, and negative or unfulfilled sexual experiences (de Jong & Borg, 2015; Smith et al., 2014; von Spreckelsen et al., 2018). A negative self-perception of one's body can induce feelings of disgust directed at one's sexual appearance or behavior (von Spreckelsen et al., 2018). Similarly, sexual self-directed disgust induced by trauma is focused on one's sexual acts and stems from the attempt to avoid acts which might resemble previously traumatic occurrences (Badour et al., 2013; Brake et al., 2021; de Jong & Borg, 2015). On the other hand, sexual dysfunction, such as erectile dysfunction or premature ejaculation, can elicit sexual self-directed disgust due to a failed sexual performance (de Jong & Borg, 2015). Analogously, unfulfilled, or negative sexual experiences might evoke disgust aimed at one's sexual behavior (de Jong & Borg, 2015). Lastly, certain religions or cultures view sex-related interactions as immoral, generating potential for the development of shame and evoking sexual self-directed disgust towards one's sexual behavior (de Jong & Borg, 2015; Powell et al., 2015). The outcome of sexual self-directed disgust can briefly be summarized as a decline in sexual desire and satisfaction, the emergence of sexual dysfunctions, an avoidance of sexual activity, and psychological distress (de Jong & Borg, 2015).

Moral self-directed disgust is defined as feeling disgusted by one's thoughts and behavior after transgressing one's social norms (Powell et al., 2015; Tybur et al., 2009). In a sex-related context, moral self-directed disgust is observable after engaging in infidelity, forcefully engaging in sexual relations with another, or fantasizing about sexual relations with a minor (de Jong & Borg, 2015). Stated forthrightly, moral self-directed disgust arises, when

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one believes that they have violated their own social norms, engaged in behavior which goes against their personal beliefs or is reminded of such behavior or thoughts in the past (Powell et al., 2015). In line with other-directed moral disgust, self-directed moral disgust serves as a form of self-punishment with the aim to avoid future transgressions (Rozin et al., 2005). Following, the ideal outcome of moral self-directed disgust includes an improved moral decision-making, less engagement in risk behavior, greater empathy, and improved interpersonal relationships (Schnall et al., 2008; Tybur et al., 2009). These outcomes, however, are more likely to occur, when one utilizes moral self-directed disgust as a tool for self-reflection and personal growth (Rozin et al., 2005). Therefore, if one experiences self-hatred or feels overwhelmed by moral self-directed disgust, it can have maladaptive outcomes (McKay & Presti, 2015; Rozin et al., 2005). Concretely, one might develop a decline in sexual desire, experience anxiety towards their sexual behavior out of fear that they might transgress their norms again and interfere with sexual satisfaction (de Jong & Borg, 2015). Consequently, the individual might be inclined to avoid sexual encounters or experience sexual dysfunction due to feelings of shame, guilt, or regret (de Jong & Borg, 2015; Powell et al., 2015).

A previous study by Brouwer et al. (2023) investigated these theoretical considerations by testing the link between sex-related scenarios and self-directed disgust within women. Concretely, women were asked to imagine themselves and others in sex-related scenarios which each pertained to elicit one of the three types of disgust (pathogen, sexual and moral). For instance, a scenario which describes (1) sexual assault for pathogen disgust, (2) sexual rejection for sexual disgust, and (3) cheating for moral disgust. After each scenario, participants were asked to indicate their level of self-directed disgust and their level of mental contamination via the urge to wash themselves. The findings of this study indicate that both the self- and the other-perspective of different sex-related scenarios elicit self-directed disgust

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and the urge to wash. However, the self-perspective prevails significantly. Further, moral disgust appears to be most predictive of evoking subjective feelings of self-directed disgust and urges to wash. Pathogen disgust was found to be the least predictive of self-directed disgust and sexual disgust appears to be the least predictive of the urge to wash.

Furthermore, previous research indicates that values may influence the elicitation of disgust (pathogen, sexual, and moral; de Jong et al., 2013; Leary & Baumeister, 2000; Schwartz, 2003; Tybur et al., 2009). Values, defined as a set of beliefs and guidelines, assist individuals to navigate their lives in a goal-oriented, societally acceptable manner (Schwartz, 2012). While the concept is universal, individuals differ on what they value, and the emphasis placed on certain values (Leary & Baumeister, 2000; Schwartz, 2012). Supporting this notion, Schwartz' theory of basic values encompasses four facets of values which interact on a continuum: (1) openness to change, (2) self-transcendence, (3) conservation, and (4) self-enhancement (Schwartz, 2012). These facets are composed of ten universal values, including (1) self-direction, (2) stimulation, (3) hedonism, (4) achievement, (5) power, (6) security, (7) conformity, (8) tradition, (9) benevolence, and (10) universalism, which each correspond to certain motivations or goals (Schwartz, 2012). While some of the values closely align, others might contrast each other (Schwartz, 2012). For instance, an individual with a high regard for self-direction might be less inclined to value conformity (Schwartz, 2012).

Nevertheless, some similarities in values are observable (Leary & Baumeister, 2000), as most individuals frown upon certain sexual acts, such as incest. Described by sexual activities between blood-related individuals, incest was found to elicit both sexual and moral disgust (Tybur et al., 2009). Moreover, disgust was observed even when the act is consensual (Mooijman & van Dijk, 2014). Similarly, pedophilia, defined as the sexual attraction towards

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pre-pubescent children, was found to evoke moral disgust (Russell & Giner-Sorolla, 2013).

Notably, this disgust is directed at individuals committing the transgression of social norms.

The violation of norms has further been found to evoke negative, self-directed feelings within individuals (Moojiman & van Dijk, 2014). Similar to the violation of the ‘self’ described in the sections above (e.g., de Jong & Borg, 2015), these self-directed feelings may arise in relation to a violation of one’s self-integrity (Moojiman & van Dijk, 2014).

Self-integrity can be described as an internal moral compass and is influenced by one’s cultural beliefs and norms (Leary & Baumeister, 2000; Moojiman & van Dijk, 2014; Sherman & Cohen, 2006). In the context of sex-related experiences and values, this may entail more leniency towards certain sexual acts by those with higher openness values and less acceptance by those with higher conservation values based on the surrounding social norms (de Jong et al., 2013; Schwartz, 2012). Conservation values, as described by Schwartz (2012), consist of tradition, security, and conformity. This entails restricting oneself, resisting change and preserving the past (Schwartz, 2012). As previous research indicates a close link between one’s belief based judgements and disgust (Giner-Sorolla et al., 2012), this may translate into self-directed disgust (pathogen, sexual, and moral) upon violating one’s own sex-related social norm (e.g., de Jong et al., 2013).

The current study aims to replicate the findings of Brouwer et al. (2023) and increase its generalizability by using a mixed-gender sample of the general and student population in the Netherlands as well as neighboring countries. These include but are not limited to Germany, and the United Kingdom. Contrastingly, Brouwer et al. (2023) solely investigated the female student population in the Netherlands. Implementing Brouwer et al.’s (2023) study design into a different sample may highlight whether their findings were solely bound to their sample characteristics. The current study will further investigate the influence of conservation values on self-directed disgust (pathogen, sexual, and moral) in the context of sex-related

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experiences, as the assessment of conservation values in this context could provide essential insight into influential factors of self-directed disgust elicitors. As previous research indicates sex differences in the sensitivity and function of disgust (Olatunji et al., 2019), adding males to the investigative sample could provide new insights into the mechanisms of self-directed disgust. To accurately account for these differences, the current study not only adopted and added to Brouwer et al.'s (2023) sex-related scenarios but further created male and female versions for each scenario. Additionally, the current study will function as a pilot study for these scenarios and will include three disgust-related cognitions after each scenario to assess whether they validly measure the intended type of (self-directed) disgust and whether cognitions pertaining to an additional type of (self-directed) disgust are elicited.

It is of great importance to conduct the current study for numerous reasons. While many studies have investigated the link between disgust and sexual experiences, few have placed an elaborate focus on the relationship between sex-related experiences and self-directed disgust. Self-directed disgust has been shown to have detrimental effects on men's mental health, as it affects their perception of themselves and poses an increased risk for suicide (Mason et al., 2022). Further, it is arguable that self-directed disgust affects the quality of life of both men and women in co-occurrence with mental contamination (Brake et al., 2021) and due to the adverse outcomes of sexual dysfunction (de Jong & Borg, 2015). Investigating the contexts in which self-directed disgust is elicited may aid the development of future treatment and intervention methods for victims of sexual violence as well as the general population. Moreover, a greater understanding of the potential effects of self-directed disgust might enable individuals to recognize when they experience adverse outcomes and aid them to seek assistance.

Considering the findings of previous studies and Brouwer et al. (2023), the current study hypothesizes that the three sex-related pathways (pathogen, sexual, and moral disgust)

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will elicit self-directed disgust for both men and women (H1). Additionally, it is anticipated that a higher regard for conservation values is associated with an increased level of self-directed pathogen, sexual, and moral disgust for both men and women (H2).

Methods

Participants

The original sample of the current study consisted of 229 participants. Participants were recruited through convenience sampling from the student and general population of the Netherlands and neighboring countries via SONA and social media platforms, such as Instagram. Further, participants who completed the study outside of SONA were able to participate in a lottery for one of three 20€ Amazon vouchers, while SONA participants were rewarded with 1.5 mandatory course credits. While all users who were invited via social media and SONA were allowed to participate in the study, solely men and women who fit the inclusion criteria of heterosexuality, an age above 18, and English-speakers, were included into the current study. Additionally, their demographic information was recorded independently from these inclusion criteria to obtain an overview of the distribution of the nationality and gender within the sample. To ensure valid measurements, participants were excluded, if they (1) failed to complete at least one of the questionnaires ($n = 24$), (2) withdrew from the study at any time point ($n = 70$), (3) completed the study in less than 20 minutes ($n = 34$), (4) had a sexual orientation other than heterosexuality ($n = 21$), or (5) indicated to experience repetitive washing behavior outside of the study's setting, and/or had previously been diagnosed with obsessive-compulsive disorder or obsessive-compulsive personality disorder ($n = 8$). The reason for the exclusion of participants below 20 minutes is due to the fact that the study duration was estimated at around one hour.

After the application of the inclusion and exclusion criteria, the current sample consists of 72 participants ($M_{age} = 27.74$, $SD = 12.53$) with 36 men ($M_{age} = 27.39$, $SD =$

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11.91) and 36 women ($M_{age} = 28.08$, $SD = 13.28$). Most of the sample consisted of Germans (40.3%), while the remainder of the sample was made up of 25% Dutch, and 34.7% of other nationalities including Bulgarian, Croatian, Cypriot, Indian, Irish, Romanian, Russian, and Taiwanese. Overall, the final sample size is in accordance with the desired number of minimum 54 participants, based on an a-priori power analysis ($f^2 = 0.25$, power = 0.95), to adequately answer the research questions (Faul et al., 2009).

Measures

Experimental Manipulation

Sex-Related Scenarios. To elicit self-directed disgust within participants in a sex-related context, a total of twenty-two scenarios, related to the three types of disgust (pathogen, sexual, and moral), were utilized. Concretely, eleven experimental scenarios and eleven matching control scenarios were presented to the participants in a randomized order. The scenarios were designed for the three types of (self-directed) disgust. While the experimental scenarios pertained to participants imagining themselves in a certain, sex-related situation, the control scenarios entailed participants imagining others in the same situation. Hereby, the control scenarios functioned as a baseline for the elicitation of disgust in participants and enabled an examination of whether a scenario itself accurately evokes (self-directed) disgust. Additionally, each of the scenarios was adjusted to the male or female perspective, based on the participants' gender.

Elaborately, four scenarios were aimed at eliciting sex-related pathogen (self-directed) disgust via (1) imagining bodily impairment, such as the contraction of a sexually transmitted disease, (2) the experience of sexual assault and (3) surgical interventions (breast/testicle amputation or colostomy). Further, four scenarios of rejection by a sexual partner based on (1) the individual's body weight, (2) an unknown reason, (3) due to vaginismus/erectile dysfunction, or (4) due to parts of their body, were utilized to evoke sexual (self-directed)

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disgust. Lastly, the following three scenarios were intended to induce moral (self-directed) disgust in participants: (1) cheating on a significant other, (2) engaging in sexual activities with a minor, and (3) learning that one has engaged in sexual actions against the other person's wish.

Manipulation Check. The extent to which participants were able to accurately imagine themselves in the provided scenarios was inspected via the statement: "I was able to put myself in the situation well" and their subsequent rating on a Visual Analogue Scale (VAS) ranging from 0 (*Not at all*) to 100 (*Very much*). Equally, the extent to which participants associated themselves with the presented scenarios was examined via their rating on a VAS scale 0 (*Not at all*) to 100 (*Very much*) as a response to: "I can relate to the experience described in the scenario".

Self-directed Disgust and Mental Contamination. The elicitation of self-directed disgust due to the different sex-related scenarios was recorded via two measures. Firstly, participants' subjective self-directed disgust was recorded via their ratings of two statements ("I feel revolting" and "I feel self-disgust"). Secondly, following Brouwer et al. (2023) and Herba and Rachman's (2007) approach, the participants' level of mental contamination was assessed via their rating of the statement "I feel the urge to wash" and the extent to which they felt dirty. All ratings were collected on a VAS scale from 0 (*Not at all*) to 100 (*Very much*).

The two subjective self-directed disgust questions showed to have an excellent internal consistency between the eleven experimental scenarios for the female ($\alpha = .94$) and male ($\alpha = .94$) version in the current sample. Equally, an excellent internal consistency was observed for the two subjective self-directed disgust questions between the eleven control scenarios for women ($\alpha = .94$) and men ($\alpha = .94$) in the current sample.

Cognitions

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To measure and differentiate between the self-directed disgust (pathogen, sexual, and moral) cognitions elicited by the different sex-related scenarios, three pre-formulated cognitions were utilized. Concretely, (1) “This scenario makes me feel filthy” for pathogen self-directed disgust, (2) “This scenario makes me feel that I am not appreciated by other people as a sexual partner” for sexual self-directed disgust, and (3) “This scenario went against my moral values” for moral self-directed disgust. Participants rated each statement on a VAS scale ranging from 1 (*Does not match my thought at all*) to 5 (*Totally matches my thought*). The extent to which each scenario elicited pathogen, sexual, or moral self-directed disgust was assessed via a mean score for each of the cognitions. The items showed to have an excellent internal consistency between all cognitions for the female ($\alpha = .92$) and male ($\alpha = .92$) version in the current sample.

Evaluation Questions

To validate whether the eleven sex-related experimental scenarios each elicited the intended type of disgust (pathogen, sexual and moral), four statements were utilized. Sexual (self-directed) disgust was measured via the statement “Please rate how strong you feel that this situation signals that you are (generally) low in attraction as a sexual partner.”. Similarly, pathogen (self-directed) disgust was assessed via “Please rate how much the person in this scenario transgressed/violated your personal boundaries.”. The statement “Please rate how much you transgressed/violated your own social/moral norms in this scenario.” was utilized to measure moral (self-directed) disgust. Lastly, the impact of the elicited (self-directed) disgust was assessed via “To what extent do you consider your condition, as described in the scenario, stands in the way for being your preferred self (i.e., How you normally see yourself outside of this scenario)?”. The ratings occurred on a VAS scale from 0 (*Not at all*) to 100 (*Very much*). Further, an excellent internal consistency was found between the eleven evaluation questions for the female ($\alpha = .95$) and male ($\alpha = .93$) in the current sample.

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Conservation Values

The regard for conservation values was measured via the Schwartz Portrait Values Short-Form Questionnaire (PVQ-21; Schwartz et al., 2003). The PVQ-21 comprises 21 items pertaining to ten basic values, with two to three items per value, and four facets: conservation, openness to change, self-enhancement, and self-transcendence. Each item contains two statements regarding a hypothetical, third person's goals, ambitions, or desires. The first statement describes the importance of a certain value to this person, while the second statement expresses the person's yearning to fulfill this value. Following, participants were asked to indicate how similar they were to this person, via a 6-point Likert scale ranging from 1 (*Not like me at all*) to 6 (*Very much like me*).

Within the current research, only the conservation facet, which includes tradition, security, and conformity values with two items each, was considered. For instance, "It is important to him/her to be humble and modest. He/she tries to not draw attention to him-/herself." (tradition), "It is important to him/her to live in secure surroundings. He/she avoids anything that might endanger his/her safety." (security), and "He/she believes that people should do what they are told. He/she thinks people should follow the rules at all times, even when no one is watching." (conformity). To ensure that participants are fully able to emerge themselves into the items, a female and a male version of PVQ-21 was utilized. In the current sample, the internal consistency for the male conservation facet was found to be acceptable ($\alpha = .72$), while the female conservation facet showed poor internal consistency ($\alpha = .38$).

Data Merge

The current dataset was obtained by merging three datasets according to cases. This occurred via merging two Qualtrics datasets which included the responses of social

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media-recruited participants. Subsequently, the newly obtained dataset was merged with the SONA dataset.

Procedure

Prior to the conductance of this research, ethical approval was attained by the Ethical Committee of Psychology of the University of Groningen (ECP-code: PSY-2223-S-0396). Equivalent to the procedure of the previous study by Brouwer et al. (2023), participants were informed about the purpose of the study, the fact that no personal markers would be collected and that they could withdraw at any time point throughout the study. Moreover, it was clarified that the collected data would partially be utilized for educational purposes in form of three master theses. Following, informed consent was obtained, and demographic information was inquired. Afterwards, participants were asked to fill out the Self-Disgust Scale prior to imagining the twenty-two, randomized, sex-related scenarios. After each scenario, the participants rated (1) their level of self-disgust, (2) the urge to wash themselves, (3) the impact of the manipulation, and (4) their disgust-related cognitions. Subsequently, participants completed the (1) Disgust Propensity and Disgust Sensitivity Scale-Revised, (2) the Three Domains of Disgust Scale, (3) the Schwartz Portrait Values Short-Form Questionnaire, and (4) the Self-Report Psychopathy Short-Form Questionnaire. Lastly, participants were presented with the eleven experimental scenarios again and asked to indicate to what extent each scenario elicited the three types of disgust (pathogen, sexual, and moral) as well as the level of impact of this disgust on their self. A detailed visual overview of the procedure can be found in Figure 1.

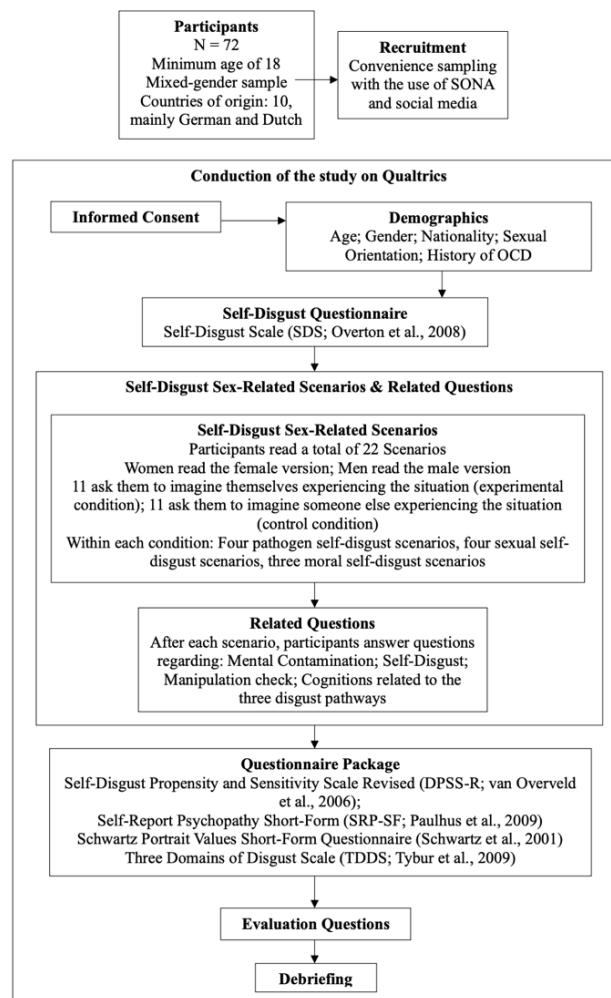
As the current study solely focused on mental contamination via the urge to wash, disgust and values, only these measures were elaborated on in the ‘measures’ section. While this elaboration includes the disgust-related cognitions and evaluation questions, they were not considered in subsequent analyses as they do not pertain to the current study’s research

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questions and were only described due to their novel implementation in the context of disgust. The overall time for the questionnaires was estimated at around 60 minutes. Finally, participants were debriefed upon the completion of the questionnaire package and asked to provide their email address, if they wanted to participate in the lottery.

Figure 1

Detailed Overview of the Study Procedure



Data Reduction

The measure of self-directed disgust was comprised by two measures: a subjective self-directed disgust score and an indirect measure of washing behavior elicited by disgust. For further analyses, twelve variables were computed based on the mean self-disgust and the mean washing behavior scores for each of the three types of disgust from both the self and

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other perspective for each gender. The self-directed disgust questions for each type of disgust were found to have acceptable to good internal consistency for the female ($\alpha_{EPD} = .70$, $\alpha_{ESD} = .83$, and $\alpha_{EMD} = .81$) and insufficient to good for the male version ($\alpha_{EPD} = .68$, $\alpha_{ESD} = .86$, and $\alpha_{EMD} = .81$) of the experimental scenarios. Similarly, the self-directed disgust questions for each type of disgust of the control scenarios were found to have an acceptable to good internal consistency for the female ($\alpha_{CPD} = .77$, $\alpha_{CSD} = .90$, and $\alpha_{CMD} = .80$) and insufficient to good for the male version ($\alpha_{CPD} = .72$, $\alpha_{CSD} = .86$ and $\alpha_{CMD} = .59$).

Meanwhile, the utilized questions for the washing behavior were found to have poor to acceptable internal consistency for each type of disgust for the female version ($\alpha_{EPD} = .48$, $\alpha_{ESD} = .69$, and $\alpha_{EMD} = .73$) and insufficient to good for the male version ($\alpha_{EPD} = .64$, $\alpha_{ESD} = .87$, and $\alpha_{EMD} = .78$) of the experimental scenarios. Contrary, these washing behavior questions were found to have acceptable to good internal consistency for each type of disgust for the female ($\alpha_{CPD} = .76$, $\alpha_{CSD} = .81$, and $\alpha_{CMD} = .76$) and male version ($\alpha_{CPD} = .85$, $\alpha_{CSD} = .92$, and $\alpha_{CMD} = .80$) of the control scenarios.

Overall, an acceptable to good internal consistency was revealed between the experimental scenarios' subjective self-directed disgust and washing behavior questions for each type of disgust for women ($\alpha_{EPD} = .77$, $\alpha_{ESD} = .84$, and $\alpha_{EMD} = .83$) and men ($\alpha_{EPD} = .81$, $\alpha_{ESD} = .87$, and $\alpha_{EMD} = .86$). Meanwhile, a good to excellent internal consistency was found between the control scenarios' subjective self-directed disgust and washing behavior questions for each type of disgust for women ($\alpha_{CPD} = .88$, $\alpha_{CSD} = .91$, and $\alpha_{CMD} = .85$) and men ($\alpha_{CPD} = .88$, $\alpha_{CSD} = .94$, and $\alpha_{CMD} = .81$).

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In terms of values, three values (i.e., tradition, security, and conformity) were combined to obtain the sub-facet of ‘conservation’. In line with Schwartz’ (2015) guidelines, these were previously centered via calculating the overall mean for all twenty-one items and then subtracting this overall mean from each of the three values. Additionally, a mean self-directed disgust score for each of the three types of disgust (pathogen, sexual, and moral) was created for the subsequent correlational analysis.

Statistical Analyses

The current study has a within-subject, cross-sectional design. To answer how sex-related experiences elicit self-directed disgust, related to each of the three types of disgust (H1), one two-way repeated measures analysis of variance (RM-ANOVA) was conducted via SPSS Version 28.0 for each gender. Both analyses will include the dependent variable ‘overall self-directed disgust’, and the within-subject-factors ‘type of disgust’ (with 3 levels: pathogen, sexual, and moral self-directed disgust) and the ‘perspective of self and others’ (with 2 levels). To reduce the statistical risk of a false positive result due to multiple comparisons, a Bonferroni correction was applied. Prior to conducting the RM-ANOVAs, the following assumptions were tested: independent observations across subjects, no outliers, normality, and sphericity.

Due to the sample size, a correlational analysis was conducted to assess the relationship between conservation values and self-directed disgust in the context of sex-related experiences (H2). Within this analysis, the centered mean conservation values and the mean self-directed disgust scores for pathogen, sexual, and moral disgust were included.

Results

Preliminary analyses

The descriptive statistics of the current study’s manipulation check are depicted in Table 1 and 2 (see Appendix). In relation to the scenarios, the manipulation check revealed

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that female participants ($n = 36$) were only moderately able to imagine themselves or others in the sex-related scenarios ($M_{FImagine}$ between 23.56 and 47.17). Similarly, the ‘relate’ mean scores ($M_{FRelate}$ between 10.28 and 34.64) suggest that female participants were only low to moderately able to associate themselves with the sex-related scenarios in the self and other perspective. In the male proportion of the sample ($n = 36$), participants were shown to have low to moderate ability to relate to the sex-related scenarios in both perspectives ($M_{MRelate}$ between 14.81 and 35.06). Contrary, male participants were found to be able to imagine themselves moderately to quite well in the sex-related scenarios in the self and the other perspective ($M_{MImagine}$ between 43.47 and 61.36).

Assumptions

RM-ANOVA

Female Proportion. Independent observations across subjects were given due to the study design. The outliers were assessed via the studentized residuals, and the assumption of normality was inspected via a normal Q-Q plot. Meanwhile, the assumption of sphericity was examined with Mauchly’s test of sphericity. All assumptions were found to be met.

Male Proportion. Independent observations across subjects were given due to the study design. Three outliers were determined for the overall self-directed disgust score in men across the combination of the six levels. As neither of them scored above one on Cook’s distance test (Cook, 1977) and therefore did not significantly impact the data, all three outliers were included in the subsequent analyses. The assumption of normality was inspected via a normal Q-Q plot. Meanwhile, the assumption of sphericity was examined with Mauchly’s test of sphericity. Both assumptions were found to be met.

Sex-related experiences and self-directed disgust

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Female Proportion of the Sample. A significant interaction for the type of disgust and the self-vs-other perspective [$F(2, 70) = 10.07, p < .001, \eta^2 = .22$] was found for the two-way RM-ANOVA assessing the ‘overall self-directed disgust’. The post-hoc analyses of the main effects revealed a significantly greater elicitation of self-directed disgust for all types of disgust in the ‘self’ compared to the ‘other’ perspective (see Appendix, Table 5). Further, significant differences were found between the types of elicited disgust for the self-perspective (see Appendix, Table 5), with the highest elicitation of moral disgust, followed by pathogen disgust, and the lowest elicitation for sexual disgust (see Appendix, Table 3). No significant differences in the type of elicited disgust were observed for the other perspective (see Appendix, Table 3).

Male Proportion of the Sample. The two-way RM-ANOVA with the dependent variable ‘overall self-directed disgust’ revealed a significant interaction effect for the type of disgust and self-vs-other perspective [$F(2, 70) = 3.50, p = .036, \eta^2 = .09$]. The post-hoc analyses of the main effects indicated that the elicited self-directed disgust was significantly greater in the ‘self’ compared to the ‘other’ perspective for all three types of disgust (see Appendix, Table 6). Further, significant differences were observed for the elicitation of the types of disgust for both the ‘self’ and the ‘other’ perspective (see Appendix, Table 6). For both, moral disgust was found to be elicited the most, followed by pathogen disgust, and lastly sexual disgust (see Appendix, Table 4).

Conservation values and self-directed disgust

To assess the second hypothesis of the current study, a Pearson correlation analysis between the centered conservation values and each of the mean self-directed disgust scores (pathogen, sexual, and moral) was conducted for each gender. A significant positive correlation was found between conservation values and pathogen ($r = .47, p = .004$) as well as sexual ($r = .51, p = .002$) self-directed disgust in men. No significant correlation was

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found for conservation values and moral self-directed disgust in men (see Appendix, Table 8). Similarly, no significant correlations were observed between conservation and self-directed disgust (pathogen, sexual, and moral) in women (see Appendix, Table 7).

Discussion

The current study aimed to replicate Brouwer et al.'s (2023) findings and investigate the impact of sex-related experiences, based on sex-related scenarios, on the elicitation of (self-directed) pathogen, sexual, and moral disgust (H1). In addition to this, it was inspected whether a higher regard for conservation values is associated with an increased level of (self-directed) pathogen, sexual, and moral disgust (H2). In line with Brouwer et al. (2023) and as suggested by de Jong and Borg (2015), all sex-related scenarios were successfully found to elicit the pertaining self-directed pathogen, sexual, and moral disgust in the current sample (H1). Against the initial expectations, conservation values were only found to be positively associated with pathogen and sexual self-directed disgust, but not with moral self-directed disgust in men. Further, no correlations were found for conservation values and self-directed disgust (pathogen, sexual, and moral) in women (H2). A moderately successful manipulation was found in the current sample, as participants were able to imagine themselves and others moderately to rather well in the sex-related scenarios but indicated a low to moderate ability to relate to the scenarios. This partially contradicts Brouwer et al. (2023), as their manipulation check was deemed to be highly successful.

As previously mentioned, the findings of the first hypothesis align with the current study's expectations and further corroborate previous literature. As proposed by Tybur et al. (2009), disgust can be distinguished into three types (pathogen, sexual, and moral) and further be directed towards oneself in a sex-related context (Brouwer et al., 2023; de Jong & Borg, 2015; Powell et al., 2015). The current study's findings appear to be in line with this notion as an increase of participants' urge to wash and subjective self-directed disgust

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(pathogen, sexual, and moral) was observed in the context of sex-related scenarios. This matches with the proposed co-occurrence of mental contamination and self-directed disgust in response to sexually adverse experiences (Badour et al., 2013; Brake et al., 2021; de Jong & Borg, 2015).

Accordingly, heightened pathogen self-directed disgust was evoked in participants in response to imagining themselves in sexual acts without consent, sexual situations after bodily impairment due to surgical interventions, and contracting chlamydia after a one night stand. This aligns with previous research on sexual abuse, sexually transmitted disease contraction and bodily alterations in the context of self-directed disgust (Al-Shawaf et al., 2018; Azlan et al., 2017; Badour et al., 2013; Brake et al., 2021; Burden et al., 2018; Powell et al., 2015; Steil et al., 2011). Further, the current study's findings on sexual self-directed disgust corroborate previous studies that indicate an increase of this emotion in response to lower value mate, experiencing infidelity by a romantic partner, and sexual dysfunctions (de Jong & Borg, 2015; Major et al., 2012; Powell et al., 2015; Smith et al., 2014; Tybur et al., 2009). The current study further corroborates the elicitation of self-directed moral disgust in response to cheating on a significant other, sexual activities with a minor, and transgressing by forcefully kissing another, as proposed by de Jong and Borg (2015). Overall, the findings of the current study corroborate Coughtrey et al.'s (2012) indication that mental contamination and self-directed disgust can occur after physical and psychological transgressions.

Within the current study, sexual self-directed disgust was found to be elicited the least intensely out of the three types of disgust for both men and women. This differs from Brouwer et al. (2023) who identified pathogen self-disgust as the least intensely elicited type of disgust in their sample. As the current study slightly adjusted the scenarios applied by Brouwer et al. (2023), it is possible that this discrepancy is rooted in the different validities of

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the scenarios or due to the individual differences between the samples. Another reason for this might be rooted in the manipulation of each study, which appears to have been more effective in Brouwer et al.'s (2023) sample. Concretely, participants in Brouwer et al.'s (2023) study indicated a better ability to both imagine and relate to the scenarios compared to participants in the current study, evident in their higher manipulation check mean scores.

Meanwhile, the second hypothesis was only partially found to be supported in the current sample. Both pathogen and sexual self-directed disgust were positively associated with conservation values (tradition, security, and conformity) for men, while no correlations were observed between these constructs for women. Similarly, no correlations were found for moral self-directed disgust and conservation values in both men and women. This was unexpected for two reasons, as it contradicts previous literature (1) that indicates higher levels of disgust in women compared to men (Al-Shawaf et al., 2017), and (2) that indicates a positive association between conservation values and disgust (e.g., de Jong et al., 2013). Nevertheless, certain findings of the current study align with previous literature.

The positive association between self-directed pathogen disgust and conservation values for men could be explained by the desire to protect oneself and one's offspring from harm (Curtis et al., 2011; Schaller, 2011). Conservation values, characterized by tradition, security, and conformity, may lead men to adopt behaviors that minimize the risk of pathogen exposure and transmission, including sexual behaviors, such as lower risky sexual behaviors (Schaller & Murray, 2008). This desire for protection may be a motivational factor driving their adherence to conservative values. In the context of risky sexual behaviors, those who hold high conservation values, may therefore project this form of disgust on themselves due to the violation of their beliefs (Giner-Sorolla et al., 2012). This connection too, may explain the association between self-directed pathogen disgust and conservation values for men.

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Additionally, previous literature supports the positive association for sexual self-directed disgust and conservation values for men which was observed in the current findings. For instance, Stefanczyk et al. (2023) found that men who scored higher on measures of sexual disgust sensitivity, defined as a heightened negative reaction to disgust stimuli (van Overveld et al., 2006), were more likely to endorse conservation values. Further, previous research has indicated a connection between risk avoidance, disgust, and collectivistic cultures (Terrizi et al., 2023), which tend to hold strong conservation values (Boer & Fischer, 2013). This may be explained by the idea that men with higher conservation values aim to avoid situations where they could transgress sexual social norms to ensure conformity to their social group, avoid social rejection and stigmatization (Oaten et al., 2011; Schwartz, 2012; Terrizi et al., 2023).

The lack of association for moral self-directed disgust and conservation values in men, as well as the three types of self-directed disgust and conservation values in women were highly unexpected. For one, previous literature (e.g., de Jong et al., 2013) clearly suggests a positive correlation between conservation values and disgust in women. One possible explanation might be that, as the current study's sample mostly consists of Dutch and German participants, it is likely that participants held stronger liberal rather than conservative cultural values (van Oers, 2020). This could explain the lack of associations, aligning with de Jong et al.'s (2013) indication of reduced self-directed disgust elicitation after transgressing societal values for those with strong liberal values.

Another possible explanation might lie with previous studies that have indicated a poor internal consistency for the PVQ-21, which entails that statements corresponding to conservational values may evaluate them from various angles without considering their interrelatedness (Schwartz, 2003). This was further observed in the current sample, as the female PVQ-21 was found to have poor internal consistency. Following, the lack of

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associations for self-directed disgust and conservation values in women may be attributable to a potential measurement error.

Strengths

The current study has several strengths. Firstly, it successfully replicated Brouwer et al.'s (2023) findings, validating and expanding on previous literature by systematically investigating each type of (self-directed) disgust in the context of sex-related experiences. This was investigated in a sample of both male and female participants, making the current study the first to investigate (self-directed) disgust via sex-related scenarios in men. Similarly, the current study is seemingly the first study to assess the relationship between Schwartz' conservation values and the three types of self-directed disgust in a systematic manner. Additionally, the current study has a greater variability in the participants' age compared to Brouwer et al.'s (2023) female University student sample, which may have been beneficial for a more accurate picture of disgust-elicitation of some scenarios. For instance, a thirty-year-old individual may feel more moral self-directed disgust after imagining to engage in sexual relations with a minor, compared to someone who is much closer in age.

The within-subject, cross-sectional design of the study may have reduced biased data due to individual differences among participants. By imagining themselves and others in the same situations, an arguably more accurate picture of self-directed disgust elicitation can be obtained. This may have increased the internal validity and the statistical power of the current study. Similarly, the exclusion of participants with obsessive-compulsive tendencies and diagnoses ensured that (self-directed) disgust was validly and reliably elicited due to the sex-related scenarios instead of personal confounding factors.

Limitations

The current study has several limitations that should be noted. Firstly, the current study utilized convenience sampling which may not be as representative of the true

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population. For instance, individuals that are easily accessible may possess characteristics that differ from the population, limiting external validity.

Further, the current study took approximately one hour to complete, which might have reduced participants' concentration during the study, impacting the data in a negative way. As the current study was initially intended to be conducted in a paid participant pool with hourly compensation incentives, the study's length was initially not deemed a major issue. However, due to some uncertainties regarding the scenarios, the study was converted into a pilot study with the purpose to assess the validity of the sex-related scenarios in addition to replicating Brouwer et al.'s (2023) study. This resulted in a different participant pool and compensation incentive than anticipated, without reducing the length of the study. Resultantly, the motivation to participate accurately and in a focused manner might have been reduced. In line with this, several participants finished the study rather quickly, warranting caution when interpreting the findings.

Several participants had to be excluded due to a technical failure that resulted in an incomplete display of the questionnaires and scenarios for some participants. Although the issue was discovered and accounted for quickly, it may have led to the exclusion of participants who attentively completed the study and could therefore have provided valuable insight. However, it was essential to exclude them to avoid measurement biases and impaired validity.

While the current study used adjusted versions of Brouwer et al.'s (2023) and new scenarios, neither have been validated outside of the current study. Although the current study may be viewed as a validation for Brouwer et al.'s (2023) core scenarios, this still leaves four scenarios without a proper validation. Further, the study included both control and experimental scenarios which is highly beneficial from a research standpoint but may have been confusing for some participants. For instance, one participant noted that he was unsure

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how to differentiate his feelings for the control and experimental version of the scenario.

Although the current findings indicate clear differences between the perspectives, it is unclear how many participants may have had similar thoughts and how this may have influenced the data. Nevertheless, the similarities between the current and Brouwer et al.'s (2023) findings highlight the relatively novel notion that sex-related scenarios can effectively elicit self-directed moral, sexual, and pathogen disgust in men and women.

Lastly, poor internal consistency was observed for the conservation values scale in the female portion of the sample. This may be explained by the small sample size, and as mentioned, might explain the lack of support for the second hypothesis in the female proportion of the sample.

Implications

The current study serves several implications in the realm of self-directed disgust and sex-related experiences. As self-directed disgust has been observed to have detrimental effects on individuals, for instance, sexual dysfunction, lowered self-esteem, distorted self-perception, and adverse mental health outcomes (e.g., Brake et al., 2021; de Jong & Borg, 2015; Mason et al., 2012; Ypsilanti et al., 2020), it is of great importance to investigate the construct and its triggers intensively. This notion is supported by both previous literature and the current study.

The findings of the study corroborate that sex-related scenarios elicit all types of self-directed disgust, as suggested by Brouwer et al. (2023). Following, it may be useful to utilize the scenario approach to determine further triggers of self-directed disgust and aid the development of corresponding treatment interventions. For instance, patients could identify situations in which they experience self-directed disgust in a sex-related context and then continuously imagine them under supervision until the exact personal triggers are identified. Subsequently, the underlying mechanisms could be discussed, and progressive desensitization

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may occur via the exposure. The current study further found that increased levels of conservation values were associated with increased levels of pathogen and sexual self-directed disgust in men but not women. This suggests different effects on disgust response based on gender and adopted values, warranting increased caution for clinicians in treatment interventions.

Given these implications, future research should aim to replicate the current study and improve it by addressing its limitations. For instance, it could be beneficial to obtain a randomized sample via platforms such as the LISS Panel, instead of a convenience sample. A pre-screen should further be conducted prior to conducting the actual study to avoid data loss due to technical difficulties. In line with this, it may be beneficial to reduce the duration of the study to create more transparency for the potential discovery of measurement bias inducing factors. Additionally, it may be beneficial to reduce the duration to increase the chance of attentive responses. If the study is chosen to not be shortened for methodological reasons, future research should consider creating more proportionate compensatory incentives for their participants and include attention check questions to ensure reliable and valid data.

Lastly, the current study functioned as a pilot study and implemented cognitions and evaluation questions to assess whether the scenarios validly induced the intended type of (self-directed) disgust. Although this is not a current focus, the collected data can aid in the refinement to high quality measurement scenarios. Future researchers should therefore analyze this data to determine whether the three types of disgust were validly elicited by their corresponding sex-related scenarios. If the analysis corroborates a high validity for the scenarios, they should be tested in a new sample. However, if issues with the validity are observed, these should be accounted for prior to conducting a new study.

Overall, the current study successfully replicated Brouwer et al. (2023) and corroborated the effect of sex-related experiences on the elicitation of moral, sexual, and

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pathogen self-directed disgust in men and women (H1). Contrary to this, only pathogen and sexual but not moral self-directed disgust were found to positively correlate with conservation values in men. No correlations were observed for conservation values and the three types of disgust in women (H2). The current study therefore both corroborates and adds to the existing body of literature by further identifying potential triggers of and influential factors for the elicitation of self-directed disgust. These implications should be considered in future treatment implementations for sexual dysfunction.

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Appendix

Table 1*Descriptive Statistics of the Manipulation Check for Women*

		Self		Other	
		Mean	<i>SD</i>	Mean	<i>SD</i>
Pathogen disgust	Imagine	37.09	24.34	34.09	25.27
	Relate	21.11	19.05	20.88	18.47
Sexual disgust	Imagine	43.00	25.10	37.90	24.55
	Relate	27.15	20.48	23.04	18.25
Moral disgust	Imagine	31.19	25.98	31.91	26.97
	Relate	17.38	20.84	19.27	20.22

Note. $n = 36$. Imagine = ability to imagine the scenario (mean score of the combined imagine items for each of the three types of disgust); Relate = ability to relate to the scenario (mean score of the combined relate items for each of the three types of disgust).

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Table 2*Descriptive Statistics of the Manipulation Check for Men*

		Self		Other	
		Mean	SD	Mean	SD
Pathogen disgust	Imagine	51.24	30.44	52.22	32.37
	Relate	24.83	22.95	28.04	29.21
Sexual disgust	Imagine	52.98	30.17	51.42	30.58
	Relate	28.45	24.88	28.14	25.59
Moral disgust	Imagine	50.54	34.04	48.21	33.52
	Relate	21.09	26.29	23.30	24.94

Note. $n = 36$. Imagine = ability to imagine the scenario (mean score of the combined imagine items for each of the three types of disgust); Relate = ability to relate to the scenario (mean score of the combined relate items for each of the three types of disgust).

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Table 3*Descriptive Statistics and Mean Differences of the Female Proportion*

	Self		Other		Mean Difference	95% CI Mean Difference	
	Mean	SD	Mean	SD		LL	UL
	Pathogen disgust	88.34	36.04	40.24		34.44	48.10***
Sexual disgust	74.34	42.38	38.50	34.57	35.84***	25.15	46.53
Moral disgust	100.84	48.45	42.23	35.92	58.59***	43.55	73.63

Note. $n = 36$.*** $p < .001$ **Table 4***Descriptive Statistics and Mean Differences of the Male Proportion*

	Self		Other		Mean Difference	95% CI Mean Difference	
	Mean	SD	Mean	SD		LL	UL
	Pathogen disgust	86.68	42.48	44.38		40.77	42.31***
Sexual disgust	72.74	43.13	39.02	42.80	33.72***	22.82	44.61
Moral disgust	112.90	50.45	62.00	43.83	50.90***	35.97	65.84

Note. $n = 36$.*** $p < .001$

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Table 5*Main Effects of Perspective and Type of Disgust for Women*

Factor: Perspective	F (1, 35)	<i>p</i>
Pathogen disgust	65.93	< .001
Sexual disgust	46.34	< .001
Moral disgust	62.54	< .001
Factor: Type of Disgust	F (2, 70)	<i>p</i>
Self	13.17	< .001
Other	.50	.611

*Note. n = 36.***Table 6***Main Effects of Perspective and Type of Disgust for Men*

Factor: Perspective	F (1, 35)	<i>p</i>
Pathogen disgust	42.13	< .001
Sexual disgust	39.44	< .001
Moral disgust	47.89	< .001
Factor: Type of disgust	F (2, 70)	<i>p</i>
Self	24.99	< .001
Other	13.84	< .001

Note. n = 36.

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Table 7*Correlations of the Variables in the Female Proportion of the Sample*

Variables	Conservation	Pathogen SSD	Sexual SSD	Moral SSD
Conservation	-	-	-	-
Pathogen SSD	-.01	-	-	-
Sexual SSD	.16	.75**	-	-
Moral SSD	.17	.73**	.77**	-

Note. Results for female proportion of the sample ($n = 36$). Pearson's correlation coefficient, due to normality. Conservation = schwartz' portrait values short-form questionnaire (mean score of female conservation sub-facet score); Pathogen SSD = pathogen self-directed disgust (sum score of male mean subjective pathogen self-directed disgust and mean male pathogen-induced mental contamination); Sexual SSD = sexual self-directed disgust (sum score of mean female subjective sexual self-directed disgust and mean female sexual-induced mental contamination); Moral SSD = moral self-directed disgust (sum score of mean female subjective moral self-directed disgust and mean male moral-induced mental contamination).

** $p < .01$ (2-tailed)

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Table 8*Correlations of the Variables in the Male Proportion of the Sample*

Variables	Conservation	Pathogen SSD	Sexual SSD	Moral SSD
Conservation	-	-	-	-
Pathogen SSD	.47**	-	-	-
Sexual SSD	.51**	.85**	-	-
Moral SSD	.29	.73**	.59**	-

Note. Results for male proportion of the sample ($n = 36$). Pearson's correlation coefficient, due to normality. Conservation = schwartz' portrait values short-form questionnaire (mean score of male conservation sub-facet score); Pathogen SSD = pathogen self-directed disgust (sum score of mean male subjective pathogen self-directed disgust and mean male pathogen-induced mental contamination); Sexual SSD = sexual self-directed disgust (sum score of mean male subjective sexual self-directed disgust and mean male sexual-induced mental contamination); Moral SSD = moral self-directed disgust (sum score of mean male subjective moral self-directed disgust and mean male moral-induced mental contamination).

** $p < .01$ (2-tailed)