What to Expect from Sex? Contamination and Harm relevant UCS-Expectancy Bias in Individuals with High and Low Sexual Complaints.

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Abstract
Sexual dysfunctions are often characterized by high levels of pain and fear. Yet, other emotions may be involved in sexual dysfunctions as well, such as disgust (cf., de Jong, van Overveld & Borg, 2013). While pain and fear-related appraisals are relevant factors in various psychopathological complaints, investigations on disgust-related cognitive biases are scarce, particularly in the context of sexual dysfunctions. Therefore, the present study examined whether sexual stimuli were associated with UCS expectancies (i.e., the tendency to over-estimate the occurrence of a specific situation with a particular outcome) for disgust-related and harm-related outcomes, and whether these UCS-expectancies could fuel sexual dysfunctioning.

Hereto, a large sample of students (n = 283) completed a hypothetical thought experiment which assessed UCS-expectancies, trait disgust and sexual functioning. Based on individual scores, a high (n = 89) and low sexual problem group (n = 81) were comprised. Overall, all participants associated sexual stimuli with disgust-related UCS expectancies. Yet, while both groups did not differ significantly in expectations of harm- and disgust-related outcomes for sexual stimuli, harm-related UCS expectancies were the single best predictor of the presence of sexual complaints. Yet, the high sexual problems group did demonstrate significantly higher levels of disgust sensitivity compared to the low sexual problems group, indicating that participants with high sexual problems evaluate disgust as a highly negative experience. Future research should investigate whether such relatively negative disgust appraisals are involved in the genesis and maintenance of sexual dysfunctioning.

Keywords: sexual disorders, pain, disgust, contamination, UCS-expectancy bias.

1. Introduction
Generally, sexual dysfunctions refer to a variety of disorders which are characterized by marked disruptions or impairments in the ‘normal’ phases of the human sexual response cycle (i.e., problems in either desire, arousal, or orgasm phases) (Wincze & Weisberg, 2005). Yet, their exact etiological processes are often poorly understood and in-depth evaluations are required to reach a proper diagnosis.
For example, while vaginismus and dyspareunia are often classified as pain-related disorders (e.g., DSM IV; APA, 2000), several researches showed that this explanation does not suffice. While research mainly focused on the role of fear and pain for some sexual dysfunctions (e.g., Binik et al., 2002; Reissing et al., 2004), recent research indicates that another emotion could be involved in sexual dysfunctioning, namely, disgust (de Jong, van Overveld & Borg, 2013).

Disgust is one of the universal basic emotions (Ekman, 1972; 1992) and functions to shield the individual from contamination with hazardous pathogens (Matchett & Davey, 1991). Consequently, the origin of disgust is usually centered around several bodily orifices such as the mouth, or genitalia (Rozin, Haidt, & McCauley, 2009). Upon potential confrontation with a threat (e.g., to the individual’s health or at the prospect of unwanted physical contact with a contaminant in sensitive areas like genitalia), disgust may cause a highly defensive reflex. Such a disgust-induced defensive reflex could be associated with the involuntary constriction of pelvis musculature (i.e., van der Velde & Everaerd, 2001) which could render sexual intercourse impossible, could increase various negative complaints like pain, shame or fear, and could trigger sexual avoidance behavior. As this defensive reflex would be associated with various negative effects, de Jong, van Overveld & Borg, (2013) proposed that disgust could disrupt normal sexual functioning, most notably, by disrupting the generation of sexual arousal. According to their model, sexual intercourse depends on a proper balance between disgust and sexual arousal.

Indeed, prior research already showed a clear association between the emotion of disgust and sexual functioning. For example, when processing either sexual stimuli or disgusting stimuli, similar networks in the brain appear to be activated (Borg, de Jong, Georgiades, 2012). Further, low levels of sexual disgust predicted individual motivations to use online platforms like Tinder, which allow individuals to engage in casual sex (Sevi, Aral, & Eskenazi, in press). Additionally, compared to participants without sexual problems, patients with primary (lifelong) vaginismus demonstrated significantly higher levels of sexual disgust (de Jong, van Overveld, Weijmar Schultz, Peters, & Buwalda, 2009; van Overveld, de Jong, Peters, van Lankveld, Melles, & ter Kuile, 2013).

According to de Jong, van Overveld & Borg (2013), disgust and sex are intertwined phenomena, where elevated disgust-related appraisals could interfere with the successful generation of sexual arousal. Such appraisals could be directly related to the current experience of disgust, but may also be rooted in information processing due to prior experiences. More specifically, prior research already showed that cognitive biases are involved in the maintenance and strengthening of several forms of psychopathology, such as spider fear (e.g., Jones & Menzies, 2000; Whittal & Goetsch, 1997). In a similar vein, cognitive biases may contribute to sexual complaints by strengthening avoidance behavior (i.e., avoiding sexual intercourse). One type of cognitive bias which could be involved is UCS-expectancy bias, which refers to the tendency to over-associate specific conditioned stimuli (CS) with the occurrence of certain stimuli (UCS) (e.g., Tomarken, Mineka, & Cook, 1989). In other words, expectations of a highly aversive outcome (e.g., disgust or fear of harm) to occur following the confrontation with a specific situation (e.g., sexual intercourse), could trigger avoidance behavior for that situation.
Davey, 1997). While generally, differential UCS-expectancies are observed for separate animal types (Davey, Cavanagh, & Lamb, 2003; van Overveld et al., 2006), spider fearful individuals only showed significantly enhanced levels of UCS-expectancies for phobia-relevant animals, namely, spiders (van Overveld et al., 2006). In high blood fearful individuals, higher levels of both harm- and disgust-related UCS expectancies were found compared to low blood fearful individuals (van Overveld, de Jong, & Peters, 2010). Thus, harm- and disgust-related UCS-expectancies are already associated with various psychopathological behaviors.

Thus, in accordance with de Jong, van Overveld & Borg (2013), sexual dysfunctions may occur when sexual stimulation generates negative, aversive emotional experiences. Prior research already identified that indeed, appraisals of harm are involved in sexual dysfunctions (Reissing et al., 2004). Yet, investigations on appraisals of disgust in relation to sexual functioning are scarce in the literature. Therefore, in the present study, we will explore whether disgust-UCS expectancies are observed following the presentation of sexual stimuli and thus, whether sexual stimuli are associated with disgust-UCS expectancies. Further, we will compare whether individuals scoring high on sexual dysfunctions will demonstrate higher levels of disgust-UCS expectancies compared to individuals who score low on sexual dysfunctions.

2. Method

2.1 Participants

A large sample of students (n = 283) were recruited for the present study. Students could sign up via an online internal sign-up system where they could select a suitable timeslot. In line with the gender distribution at our school, the group consisted of 144 males (50.9 %) and 139 females (49.1 %) and were all Business School students. Of the males, 95.1 % were attracted to women (n = 137), 2.8 % to men (n = 4) and 2.1 % (n = 3) to both genders. Further, 52.1 % indicated to be in a relationship (n = 75). Of the women, 89.9 % were mainly attracted to men (n = 125), 3.6 % to women (n = 5) and 6.5 % to both genders (n = 9). 59.7 % indicated to be in a relationship (n = 83). The mean age of the participants was 20.52 years (SD = .51; range 18 – 32 years).

2.2 Materials

2.2.1 UCS-expectancy questionnaire (UCS-Q; van Overveld et al., 2006). The UCS-Q is based on the procedure which was originally designed by McNally and Heatherton (1993) and investigates whether participants expect aversive consequences to occur when they would be hypothetically confronted with a certain stimulus.

First, participants read a written introduction which asks them to imagine as vividly as possible that they are about to participate in an experiment. In this experiment, a series of slides will be shown. Participants are informed that after a slide is presented, they receive one of three possible outcomes: an electrical shock via an electrode attached to their body, a sip of a disgusting juice via a tube in your mouth, or nothing happens. To replicate prior findings (van Overveld et al., 2006), the first stimuli were a shark (i.e., fear-related stimulus), a maggot (i.e., disgust-related stimulus), and a rabbit (i.e., neutral stimulus). For the present study purposes, three other stimuli were added: genitals from the participant, genitals from a partner, intercourse with their partner. All stimuli were hypothetical, no (exemplary) slides were shown at all.

Next, participants indicate on a 100-mm VAS from 0 (= ‘none at all’) to 100 (= ‘all’) how many of the slides depicting a specific stimulus they believe will be followed by
each of the three outcomes. Hence, participants make 9 UCS-expectancy judgments for the animals (3 animals x 3 consequences) and 9 for the sexual stimuli (3 sexual sources x 3 consequences). All participants first receive the animal stimuli in a fixed order (sharks, maggots, rabbits1) and then the sexual stimuli (genitals from the participant, partner’s genitals, sexual intercourse). In line with prior research (van Overveld et al., 2006), UCS-expectancies were calculated by subtracting the expectancy of a neutral outcome from the outcome of interest (e.g., disgust UCS-expectancy for intercourse = UCS-expectancy of the disgusting juice to follow after the presentation of intercourse slides - UCS-expectancy of the neutral consequence after the presentation of intercourse slides).

2.2.2. Disgust Propensity and Sensitivity Scale (DPSS-R; van Overveld et al., 2006). The DPSS-R measures individual trait disgust on two factors: disgust propensity (i.e., the tendency to experience disgust) and disgust sensitivity (i.e., the tendency to evaluate the emotion of disgust as a strongly negative experience). On 12 items, participants rate their agreement to a series of statements which reflect on their level of disgust propensity or sensitivity. Prior research showed that the DPSS-R showed good internal consistency (α = .78 for disgust propensity and α = .79 for sensitivity; Fergus & Valentine, 2009).

2.2.3. Golombok Rust Inventory of Sexual Satisfaction (GRISS; Rust & Golombok, 1986). On the GRISS, participants rate their sexual satisfaction. The GRISS is generally used as an index to indicate the occurrence of sexual problems. A separate version is available for males and females. In the present study, depending on participant’s gender, either the male of female version was administered. To be able to distinguish between high and low sexual functioning groups, based on their GRISS scores, two groups were made who scored either amongst the lowest 30 % (low sexual functioning problems – the control group) or in the highest 30 % (high sexual functioning problems). The 30% benchmark was adopted as this should result in distinguishably different groups in terms of sexual functioning, whilst still retaining a sizeable number of participants per group to allow for meaningful statistical comparisons. In the present study, this meant that the control group all scored lower than 56 on the GRISS, and the high group all scored higher than 64 on the GRISS. The GRISS is one the most widely used surveys to identify sexual problems in sex research with satisfactory validity as well as reliability (ter Kuile, van Lankveld, Kalkhoven, & van Egmond, 1999).

2.3. Procedure

Participants were recruited at the Rotterdam School of Management at Erasmus University Rotterdam. Via an internal online platform where students can learn about experiments which are recruiting participants, students could sign up for the study and choose a timeslot at their convenience. At the selected timeslot, students were expected to turn up at the lab, where the researcher guided them to the location of the study. Students were taken to our labs which have one-person cubicles. In each cubicle, a PC, chair and table were present. On the PC, a link to the online survey was already active on the screen. After briefing the student on the survey, the door of the cubicle was closed so the student would have optimal privacy when completing the surveys. Participants were informed that the survey data would be processed strictly anonymously. After

1 Whilst in prior research (van Overveld et al., 2006), dogs were used as fear-relevant UCS stimuli, we used sharks as dogs could be associated with disgust as well (e.g., drool, smell). In prior research, sharks demonstrated to be effective fear-relevant UCS stimuli (Davey et al., 2003), hence, we selected sharks here as well.
completing all the surveys, the participant would receive course credit for participating in the study.

3. Results

3.1. Descriptive statistics

Table 1 depicts the mean scores and standard deviations on all indices. A series of ANOVAs were conducted between the high and low sexual problem groups to determine whether differences were noted between the two groups. As expected, the high sexual problems groups scored consistently and significantly higher on the GRISS for males \( (F (1, 83) = 293.10; p < .01; \eta^2 = .78) \) and for females \( (F (1, 85) = 311.51; p < .01; \eta^2 = .79) \). On DPSS-R Sensitivity, the high sexual problems group scored significantly higher than the low sexual problems group \( (F (1, 170) = 9.57; p < .01; \eta^2 = .05) \), indicating that participants with sexual problems evaluated the emotion of disgust significantly more negatively than participants scoring low on sexual problems. For disgust propensity, no significant differences were found \( (F (2, 176) = .25, p = .61, \eta^2 = .06) \).

<table>
<thead>
<tr>
<th>Survey</th>
<th>Total group</th>
<th>Low group</th>
<th>High group</th>
<th>Range</th>
</tr>
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<tr>
<td><strong>General indices</strong></td>
<td></td>
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<tr>
<td>DPSS-RP (( \alpha = .63 ))</td>
<td>2.74 (.51)</td>
<td>2.72 (.49)</td>
<td>2.77 (.53)</td>
<td>1 – 4</td>
</tr>
<tr>
<td>DPSS-RS (( \alpha = .71 ))</td>
<td>2.24 (.65)</td>
<td>2.07 (.66)</td>
<td>2.39 (.66)</td>
<td>1 – 4</td>
</tr>
<tr>
<td>GRISS male (( \alpha = .53 ))</td>
<td>1.99 (.74)</td>
<td>1.00 (.01)</td>
<td>2.87 (.34)</td>
<td>1 – 5</td>
</tr>
<tr>
<td>GRISS female (( \alpha = .67 ))</td>
<td>2.00 (.77)</td>
<td>1.00 (.01)</td>
<td>2.93 (.25)</td>
<td>1 – 5</td>
</tr>
<tr>
<td><strong>Animal UCS Expectancies</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>UCS Shark Shock</td>
<td>-.15 (51.16)</td>
<td>3.38 (.49)</td>
<td>-2.21 (52.67)</td>
<td>0 – 100</td>
</tr>
<tr>
<td>UCS Shark Sip</td>
<td>-.18.03 (38.28)</td>
<td>-13.90 (38.71)</td>
<td>-19.32 (38.41)</td>
<td>0 – 93</td>
</tr>
<tr>
<td>UCS Maggot Shock</td>
<td>5.94 (39.59)</td>
<td>3.86 (40.32)</td>
<td>4.29 (42.45)</td>
<td>0 – 82</td>
</tr>
<tr>
<td>UCS Maggot Sip</td>
<td>14.07 (46.93)</td>
<td>12.74 (48.96)</td>
<td>9.18 (46.98)</td>
<td>0 – 100</td>
</tr>
<tr>
<td>UCS Rabbit Shock</td>
<td>-35.24 (43.51)</td>
<td>-33.68 (45.47)</td>
<td>-31.35 (42.06)</td>
<td>0 – 100</td>
</tr>
<tr>
<td>UCS Rabbit Sip</td>
<td>-33/97 (44.01)</td>
<td>-33.70 (43.79)</td>
<td>-27.60 (46.08)</td>
<td>0 – 100</td>
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<tr>
<td><strong>Sexual UCS Expectancies</strong></td>
<td></td>
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</tr>
<tr>
<td>UCS Self Shock</td>
<td>-1.72 (41.12)</td>
<td>-6.09 (45.55)</td>
<td>-1.44 (38.80)</td>
<td>0 – 100</td>
</tr>
<tr>
<td>UCS Self Sip</td>
<td>4.32 (44.05)</td>
<td>.78 (50.58)</td>
<td>4.91 (40.50)</td>
<td>0 – 100</td>
</tr>
<tr>
<td>UCS Partner Shock</td>
<td>-1.92 (41.81)</td>
<td>-4.83 (48.72)</td>
<td>2.32 (39.50)</td>
<td>0 – 100</td>
</tr>
<tr>
<td>UCS Partner Sip</td>
<td>5.48 (44.25)</td>
<td>5.41 (48.89)</td>
<td>7.74 (42.91)</td>
<td>0 – 100</td>
</tr>
<tr>
<td>UCS Intercourse Shock</td>
<td>4.92 (45.29)</td>
<td>.93 (50.73)</td>
<td>9.33 (42.94)</td>
<td>0 – 100</td>
</tr>
<tr>
<td>UCS Intercourse Sip</td>
<td>5.48 (43.35)</td>
<td>4.77 (49.70)</td>
<td>3.84 (40.36)</td>
<td>0 – 100</td>
</tr>
</tbody>
</table>

Table 1. Mean scores and standard deviations for all questionnaires.

Valid N | 283 | 81 | 89 |

Note: Standards deviations are presented in parentheses.
Abbreviations: DPSS-RP = Disgust Propensity and Sensitivity Scale – Revised Propensity; DPSS-RS = Disgust Propensity and Sensitivity Scale – Revised Sensitivity; GRISS = Golombok Rust Inventory of Sexual Satisfaction; UCS = Un Conditioned Stimuli.

3.2. UCS-expectations for all animal types

First, a 3 (Animals: rabbits, sharks, and maggots) x 2 (Outcome: shock minus nothing, juice minus nothing) ANOVA was performed to replicate prior findings on how individuals associate stimuli with UCS-expectancies. All participants were included in the present analyses. The interaction term Animals x Outcome was significant.
indicating that participants associated different outcomes with the various animal types.

Next, to determine which animals were specifically associated with each outcome, a series of ANOVAs examined whether the three outcomes (Outcome: neutral, shock, juice) differed for each Animal. Sharks were equally strongly associated with either nothing or the shock (nothing compared to shock: $F(1, 282) = 0.02, p < .001, \eta^2 < .01$). Yet, the juice outcome was expected significantly less compared to either shock (shock compared to juice: $F(1, 282) = 83.33, p < .001, \eta^2 = .23$) or nothing (nothing compared to juice: $F(1, 282) = 62.82, p < .001, \eta^2 = .18$). In line with prior findings (van Overveld et al., 2006), participants expected either nothing or a shock following a shark. For maggots, participants expected that these slides would be followed significantly more often by any of the aversive outcomes, both shock ($F(1, 282) = 6.38, p = .01, \eta^2 = .02$) and juice ($F(1, 282) = 25.45, p < .001, \eta^2 = .08$) compared to nothing happening. Yet, in line with our expectations, the juice was expected significantly more strongly than the shock ($F(1, 282) = 14.95, p < .001, \eta^2 = .05$). Rabbits were significantly most strongly associated with nothing compared to either the shock ($F(1, 277) = 181.46, p < .001, \eta^2 = .40$) or the juice ($F(1, 277) = 165.61, p < .001, \eta^2 = .37$). Figure 1 presents a visual summary. This showed that sharks were most strongly associated with a harm-relevant UCS or with nothing, maggots most strongly with a disgusting UCS, and rabbits with a neutral UCS.

![Figure 1. UCS expectancies (juice, shock, nothing) for each animal type (shark, maggot, rabbit).](image)

### 3.3. UCS-expectancies for sexual stimuli

For the following two analyses, only the groups with High and Low Sexual Complaints were selected as we expected the level of aversive expectancies for sexual stimuli to be higher in individuals scoring high on sexual complaints. As the high and low groups may have more difficulty with sexual intercourse and not per se with the presentation of the separate bodily components (genitalia), we ran separate analyses for the genitalia stimuli and for the sexual intercourse item.
First, a 2 (Genitals: Own genitals, partner’s genitals) x 2 (Outcome: shock minus nothing, juice minus nothing) x 2 (Group: High, Low Sexual Complaints Group) ANOVA was performed. The results revealed no significant interaction term Genitals x Outcome x Group (F (1, 167) = 1.49, p = .22, $\eta^2 < .01$), indicating no differences between the groups in their expectancies following the two sexual stimuli. None of the interaction terms were significant (all p’s > .52). All participants demonstrated similar expectancies following the two sexual stimuli (either their own genitals or their partner’s genitals) (F (1, 167) = 1.64, p = .20, $\eta^2 = .01$). No significant differences were observed between groups (F (1, 167) = .72, p = .40, $\eta^2 < .01$). Main effect Outcome (F (1, 167) = 10.96, p < .001, $\eta^2 = .06$) showed that the juice and shock were expected differently following the presentation of genitals. A series of post-hoc independent t-tests showed that generally, participants expected the disgusting juice more strongly compared to the shock for both their own genitalia (t (169) = -2.93; p < .01) or those of their partner (t (169) = -3.10; p < .01). Bonferroni corrections were applied for all post-hoc t-tests. Figures 2a and 2b present a visual summary and indicate that overall, while no differences between groups were observed in their UCS-expectancies following the presentation of sexual stimuli (i.e. genitalia), all participants did associate these stimuli most strongly with disgust-related UCS expectancies.

**Figure 2a.** UCS expectancies (shock minus nothing, juice minus nothing) for the low and high sexual complaints groups for their personal genitalia.
Next, the analyses were conducted between the high and low sexual complaints group for sexual intercourse. Now, a 2 (Outcome: shock minus nothing, juice minus nothing) x 2 (Group: High Sexual Complaints, Low Sexual Complaints) ANOVA was performed. The interaction term fell just outside the range of statistical significance ($F(1, 168) = 3.66, p = .06, \eta^2 = .02$), which indicates that the two groups may have different UCS-expectancies for sexual intercourse. To examine this more closely, a series of post-hoc independent t-tests were performed which revealed that the high sexual complaints group nevertheless did not score significantly higher on shock expectancies compared to the low complaints group ($t(168) = -1.41; p = .16$), nor for the expectation of juice ($t(168) = .64; p = .52$). Figure 3 presents a visual summary.

Finally, to examine whether either juice or shock would be most strongly associated with sexual complaints, a logistic regression was performed with both shock (minus nothing) and juice (minus nothing) as predictors, and group membership as dependent variable. The model explained 9% of the variance. While shock was significantly positively associated with group membership of the high sexual complaints group ($B = .01; p = .06$), juice was not associated with being in the high sexual complaints group ($B = -.01; p = .12$). So, overall, the analyses revealed that while both groups associated sexual intercourse with disgust-related and harm-related UCSs, the strongest predictor for sexual complaints was the harm-related UCS (shock).
4. Discussion

The main findings of the present study are: 1) in all participants, specific sexual stimuli (genitalia) were associated most strongly with disgust compared to nothing or harm-related UCSs, 2) participants scoring high on sexual complaints as well as participants in the low sexual complaints group associated sexual intercourse with both disgust and harm-related outcomes, 3) yet, in the high sexual complaints group, harm-related outcomes proved the single best predictor of the presence of sexual complaints, 4) higher levels of disgust sensitivity were observed between high and low sexual problem groups.

The results of the present data supported prior findings on UCS-expectancies, which showed that participants generally expected a harm-related outcome or nothing following a predatory animal (i.e., shark) (Davey et al., 2003; van Overveld et al., 2006), contamination-related outcomes following the confrontation with an animal which is closely associated with dirt, decay and contamination (maggots), and expecting nothing to happen after exposure to a neutral animal (rabbit).

Next, the present study confirmed earlier findings that particular body orifices are strongly associated with disgust (Rozin, Haidt, McCauley, 2009). In both the high and low sexual problem participants, genitalia were associated with disgust-related UCS-expectancies. Further, in all participants, explicitly sexual stimuli (in this case: hypothetical confrontation with pictures of sexual intercourse) were also most strongly associated with disgust-related outcomes (juice expectancies) in the present study. This replicates prior work which already revealed that similar sexual stimuli have the potential to evoke disgust in individuals (e.g. erotic film clips; Koukounas & McCabe, 1997).

Additionally, no differences emerged between the high and low sexual problems groups in their associations of sexual intercourse with disgust-related outcomes or harm-related outcomes. This indicates that high sexual problems participants do not necessarily hold different expectations from...
sexual intercourse compared to low sexual problem participants and shows that disgust is relevant in the context of sex. This could support earlier suggestions that generally, a functional relationship between sexual arousal and disgust exists to ensure the completion of sexual response cycles (de Jong, van Overveld & Borg, 2013).

While UCS expectancies did not differ between the high and low sexual problem groups, harm-related UCS expectancies did prove the single best predictor of the presence of sexual complaints. Thus, individuals who associated sexual intercourse significantly stronger with pain or harm-related outcomes were generally the ones who were also experiencing difficulty with sexual intercourse. This supports prior observations that sexual disorders can be characterized by high levels of pain and fear of penetration (Reissing et al., 2004). The question which remains to be established is whether these harm-related outcomes are the only factor involved in the genesis and maintenance of sexual complaints, or whether disgust could play an important part here as well.

Previously, de Jong, van Overveld & Borg (2013) suggested that disgust could be a major contributing factor in sexual psychopathological behavior and could operate in tandem with harm-related outcomes. For example, upon the prospect of undesirable sexual activity (e.g., penetration), disgust-related UCS expectancies could fuel a defensive reflex in individuals, which could then render successful sexual activity painful and difficult. In turn, such highly aversive, negative experiences may contribute to the occurrence of a vicious cycle as they could inflate disgust-related expectancies upon the next confrontation after this horrid experience. In support of this view, the present study also showed that the high sexual complaints group demonstrated higher levels of disgust sensitivity (i.e., tendency to evaluate the emotion of disgust as a highly negative experience). This shows that individuals with sexual complaints are wary of experiencing aversive experiences (such as unpleasant sexual experiences). Prior research showed that higher levels of disgust sensitivity can indeed be associated with strong avoidance tendencies for experiencing disgust (van Overveld et al., 2008).

Some critical comments remain regarding the current study. First, while the sample was carefully divided into two groups with either high or low levels of sexual complaints, it cannot be excluded that a treatment-seeking patient sample would respond differently compared to our student sample, who are not actively seeking treatment. While high scoring individuals may experience pain, disgust and/or discomfort during sexual intercourse, these levels may not be as pronounced as in actual treatment seeking individuals. Given that highly aversive experiences can be responsible for potent behavioral avoidance tendencies (e.g., Davey, 1997), our high scoring individuals may have not yet been conditioned to respond to the CS (i.e., sexual intercourse) with an expectation of disrupting levels of fear or disgust. Therefore, it would be recommendable to repeat the current study in an actual patient sample. Given that prior research frequently identified vaginismus as a disorder where disgust could be particularly involved (e.g., de Jong et al., 2009), this could be an important next step.

Second, the UCS-experiment is a hypothetical thought experiment. Thus, we cannot exclude the extent to which social desirability influenced our findings. This is particularly noteworthy since the questions tap into a very private domain, i.e., having sex with one’s partner or evaluating individual genitalia. Thus, similar to other experiments (e.g., Parkinson & Manstead, 1993), there could be incongruity between
the answers on a hypothetical test versus how participants respond in real-life settings. One indication that this could be the case, is that the findings are not in line with prior research which observed that the contamination potency of own genitalia was greater than the contamination potency of partner’s genitalia (de Jong et al., 2007), indicating that individuals may reflect more mildly on the partner whilst being more harsh on themselves. Yet, in the present study, no differences were found in UCS-expectancies for partner’s and own genitalia and both were generally associated most strongly with disgust-related associations (juice). With regard to socially desirable answers, it remains to be established whether thus perhaps most participants in the current study may have been relatively honest or whether other explanations could explain these findings. Therefore, it could be valuable to repeat the current study in a lab setting to measure actual expectancies via other methodologies (e.g., measuring implicit associations between sex and disgust via the Implicit Association Test; Greenwald, McGhee, & Schwartz, 1998).

Third, the current study used the Golombok Rust Inventory of Sexual Satisfaction to identify individuals with potentially high and low levels of sexual complaints. While this is a widely used survey to identify patients in sex research, it could be argued that disgust would be most relevant for disorders which involve disruptions of the sexual arousal cycle at an early stage. Disgust may hinder the generation of sexual arousal, after which several complaints occur. The GRISS, however, focuses mostly on questions related to functionality rather than the emotional impact on the individual (examples: ‘do you have sexual intercourse as often as you would like?’, or ‘are there weeks in which you don’t have sex at all?’). If sexual intercourse is often paired with painful experiences, it is not surprising that harm-related UCS expectancies are most strongly associated in the group scoring high on sexual complaints. Thus, further research should determine whether disgust-related expectancies could be involved as well, and whether disgust could potentially have a more predominant role in either only specific disorders (e.g., sexual aversion disorder, vaginismus) or more generally in underlying processes (e.g., generation of sexual arousal).

In conclusion, the present data replicated prior research and showed that individuals demonstrate differential UCS-expectancies for various stimuli. Most important for the present context, disgust-related expectancies were most strongly associated with sexual stimuli (hypothetical confrontation with both own or partner’s genitalia). Further, whilst both individuals scoring high and low on sexual complaints demonstrated disgust-related associations for having sexual intercourse with their partner, only the high sexual complaints group appeared characterized by higher levels of harm-related UCS expectancies. Moreover, the high sexual complaints group also appeared more sensitive to the experience of disgust, which could highlight a tendency to be relatively prone to avoiding situations in which disgust would be evoked (e.g., at the prospect of sexual intercourse). Future research should establish whether disgust is indeed a major factor in the generation and maintenance of sexual problems.

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**5. References**


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