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RESEARCH ARTICLE

Types of Disgust Sensitivity are Differently Associated with Sexual Strategies, Mate Preference, and Perceived Sexual Norms

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Abstract

The types of disgust guide individuals to seek healthier mates and avoid risky sexual behaviors. However, research integrating the relationships between the types of disgust and mating is still lacking. Through the three studies either measuring types of disgust together (study 1, $N_1 = 335$, China) or separately (study 2, $N_2 = 233$, China; study 3, $N_3 = 267$, the Netherlands), we found that after controlling for shared variances, higher pathogen disgust was associated with a stronger preference for physical attractiveness. Higher sexual disgust was associated with lower short-term but higher long-term mating orientation. Higher moral disgust was associated with higher long-term mating orientation and a stronger preference for mate commitment. In study 3, we also measured perceived norms surrounding short-term and long-term mating. Results showed that though both types of mating behavior were considered approved by their social groups, participants perceived long-term mating as more so. Moreover, sexual disgust was negatively associated with perceived approval of short-term mating. Finally, we performed mega-analyses collapsing the data from the three studies. Current research provides evidence that different types of disgust play a role in specific aspects of mating psychology.

Keywords Disgust sensitivity · Mating strategies · Mate preference · Sociosexuality · Sexual norms

Introduction

The emotion of disgust has been proposed as a behavioral avoidance mechanism (Tybur et al., 2013). According to this framework, recent research has distinguished three types of disgust based on their elicitors as well as motivational and behavioral consequences: pathogen, sexual, and moral disgust. It has been proposed that different types of disgust have evolved to solve specific adaptive problems, for example, pathogen disgust for successful pathogen avoidance, sexual disgust for avoiding costly sexual encounters, and moral disgust for coordinating social interactions (Tybur et al., 2009, 2013). Human mating is a complex behavior that involves identifying valuable mates, and avoiding pathogenic risks, and is embedded in societies with various norms surrounding sexuality. We argue that the types of disgust could all play a role in different aspects of mating psychology.

In humans, mating psychology includes but is not limited to sexual strategies and mate preference (for a detailed review, see Buss & Schmitt, 2019; Gangestad & Simpson, 2000; Haidt & Hersh, 2001). Sexual strategies include short-term and long-term strategies. These two are negatively correlated but not the opposite ends of a single dimension; that is, pursuing short-term mating does not mean no or low interest in long-term mating (Jackson & Kirkpatrick, 2007). Mate preference refers to the decision-making of choosing (a) mate(s) with certain characteristics that are assumed to have been valuable to our ancestors' reproductive success, such as physical health and commitment (Buss & Schmitt, 2019). Previous research has shown that mate preferences and sexual strategies are both related to one or more types of disgust (e.g., short-term mating and sexual disgust, Al-Shawaf et al., 2015a, b; facial dimorphism and pathogen disgust, DeBruine et al., 2010b).

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However, previous work has often focused on the relationship between one single aspect of mating and disgust sensitivity at a time. The present research intended to examine the relationships between different types of disgust and aspects of mating psychology including both short-term and long-term strategies and mate choices regarding physical attractiveness and commitment with the hope of providing a more holistic picture of the functional specificity of disgust in human mating.

In the following subsections, we briefly introduce the theoretical background and empirical evidence regarding the associations between the types of disgust sensitivity and aspects of mating.

Pathogen Disgust, Pathogen Avoidance, and Mate Preference

Pathogen disgust, elicited by infectious agents, has been proposed to function to lower infection risk by initiating pathogen avoidance behaviors (Tybur et al., 2009). As a social species, we face the risk of pathogens not only from food, fomites, and animals but from our conspecifics as well. For example, an atypical physical appearance and signs of infections in other people can elicit disgust (Curtis & De Barra, 2018). Pathogen disgust thus also plays a role in mate preference, when deciding with whom to have intimate social interactions.

Sexually dimorphic features have been argued to be honest signals of good health (Folstad & Karter, 1992; but see Scott et al., 2013 for a different view) and are deemed as attractive by the opposite sex (Rhodes, 2005). Interestingly, DeBruine et al. (2010a) found that in regions with more overall health problems, women's preference for masculine faces was stronger compared to regions with fewer such problems. Also, high pathogen disgust sensitivity has been found to be associated with preferences for more sexually dimorphic physical features, such as masculine male (feminine female) faces (DeBruine et al., 2010a; Jones et al, 2013b), lower waist-to-hip ratio (WHR) in women, and higher shoulder-to-hip ratio (SHR) in men (Jones et al., 2013a). These results suggest that pathogen disgust sensitivity may be positively associated with a greater preference for attractiveness.

Other research offers more direct evidence for the pathogen disgust-physical attractiveness link. For example, people in high pathogen load regions value physical attractiveness when choosing mates more than their low pathogen load region counterparts (Gangestad & Buss, 1993). Though high and low pathogen disgust individuals do not differ in rating the attractiveness of highly attractive targets, high pathogen disgust individuals perceive unattractive targets as more unattractive compared with their low pathogen disgust counterparts, showing greater sensitivity to physical features signaling a poorer health status (Park et al., 2012). Another study (Lee et al., 2013) using online dating profiles also found similar results in that the association between target facial attractiveness (rated by independent raters) and participant-rated attractiveness and the association between sexual dimorphism and participant-rated attractiveness were stronger in high pathogen disgust individuals. Therefore, we predicted that pathogen disgust would be positively associated with a preference for physical attractiveness (H1).

Sexual Disgust and Short-term Mating

Sexual disgust has been conceptualized as disgust elicited by low mate value sexual partners or sexual activities risking one's reproductive fitness, such as incest (Tybur et al., 2009). In addition to incest, which directly reduces reproductive fitness, sexual disgust can direct individuals to avoid other sexual behaviors, for example, short-term mating, that may increase the risk of infectious diseases through a greater number of sexual partners with limited information on their health status (Al-Shawaf et al., 2015a, b, 2019a, b; O'Shea et al., 2019). Further research conducted by Al-Shawaf et al., (2019a, b) supports a bidirectional relationship between short-term mating and sexual disgust. They found that temporarily activating sexual disgust reduced current intentions for short-term mating the most compared with other types of disgust and a control condition. Therefore, we predicted that sexual disgust would have a negative relationship with short-term mating (H2).

Moral Disgust and Sexual Norms

Moral disgust is disgust elicited by social transgressions including nonnormative behaviors and even antisocial conduct, such as lying and cheating (Tybur et al., 2009, 2013). Under this framework, one can expect that people would have stronger disgust reactions to norm violations than norm compliance and that individuals who have a higher moral disgust sensitivity could be more compliant with social norms. Consistent with this conceptualization, moral disgust sensitivity is positively related to justice sensitivity. Individuals who are high on moral disgust sensitivity are not only more sensitive to others but also their own social transgressions (Bondü & Richter, 2016).

In addition to these general rules of social interactions, societies have specific norms surrounding sexuality which could impact mating behaviors (Buss & Schmitt, 2019). In terms of mating strategies, to the best of our knowledge, there is no direct evidence examining normative judgments surrounding short-term and long-term mating. However, these could be inferred from the mean ratings of long-term vs. short-term mating orientations reported in previous studies. Jackson and Kirkpatrick (2007) reported that both men and women score higher on long-term mating orientation than short-term mating orientation. Also, Murray et al.

(2013) have reported that people on average score higher on long-term than short-term mating orientation. Although it is still unknown what the exact normative attitudes toward short-term and long-term mating are, we could reasonably assume that compared with short-term mating, long-term mating is more socially approved. Moreover, current evidence for the association between moral disgust and short-term mating is mixed. While several studies reported that moral disgust is negatively related to short-term mating in correlation analyses (Al-Shawaf et al., 2015a, b; O'Shea et al., 2019; Pavela Banai et al., 2021), one recent study reported small positive correlations between moral disgust and the sociosexual desire subscale (βs = 0.05–0.07) after controlling for sexual and pathogen disgust (Hlay et al., 2022). Therefore, we made no clear prediction regarding the association between moral disgust and short-term mating and only predicted that moral disgust would be positively associated with long-term mating (H3).

Although within a society, there is evidence that long-term mating is more approved than short-term mating (e.g., Jackson & Kirkpatrick, 2007), social norms regarding sexuality can differ across societies (e.g., virginity, Buss, 1989a, b; monogamy, Henrich et al., 2012, Kanazawa & Still, 1999; and homosexuality, Elad-Strenger & Kessler, 2020, Haidt & Hersh, 2001). In addition, the looseness vs. tightness of social norms, that is, the strength of social norms and the severity of sanctions for norm violation, can also vary across societies (Gelfand et al., 2011; Uz, 2015). Therefore, the relationship between moral disgust and mating may be moderated by culture (Tybur et al., 2013). Thus, we collected data from similar populations (in terms of age and education) from two countries (China and the Netherlands) with different attitudes regarding sexuality (e.g., mating preference, Buss, 1989a, b; attitude toward sexual minorities, Van Leeuwen et al., 2022) to explore potential cultural differences.

In addition to the hypotheses elaborated above, given the evolutionary rationale that women face a greater risk of communicable diseases and obligatory parental investment (Al-Shawaf et al., 2015a, b; Trivers, 1972; Tybur et al., 2009) and empirical evidence that women report higher levels of sexual disgust and lower short-term mating orientation (e.g., Al-Shawaf et al., 2015a, b; Hlay et al., 2022; Pavela Banai et al., 2021; Sevi et al., 2018), we also expected that women on average would score higher on sexual disgust sensitivity and lower on short-term mating.

Overview of the Current Research

To examine the above hypotheses, the current research measured the relationships between short-term and long-term mating, preference for mate physical attractiveness and commitment, and disgust sensitivity in the three samples from two different cultural settings. Study 1 examined the hypothesized relationships between disgust sensitivity and aspects of mating in a Chinese sample. Study 2 re-examined the associations found in study 1 by measuring the types of disgust sensitivity separately using another Chinese sample. Study 3 tested the above associations in a Dutch university student population, which has a very different culture of sexuality from China, with additional measures gauging perceived norms regarding short-term and long-term mating. All data and analyses scripts as well as study materials are available at https://osf.io/z65kq/.

Table 1 Descriptive statistics of the study 1 sample

	Men (n = 155)	Women (n = 180)
Age	M = 23.4, SD = 4.7	M = 22.4, SD = 3.3
Sexual orientation	Same sex: 25 Opposite sex: 115 Both: 15	Same sex: 19 Opposite sex: 125 Both: 36
In a long-term relationship	78 (50.3%)	73 (40.6%)
Employment status	Student: 118 Employed: 34 Unemployed: 3	Student: 156 Employed: 23 Unemployed: 1

The employed category includes full-time employed and part-time employed. The unemployed category includes unemployed and stay-home husband/wife

Study 1

Method

Participants

Three hundred and thirty-six Chinese participants from several university participant pools completed study 1 online. Data collection commenced in January 2021. Participants on average received 1.5 CNY[1] (randomly ranging from 1 to 3 CNY) as compensation for participation. Both studies 1 and 2 were approved by the Institutional Review Board of East China Normal University (HR1-0001–2021). After examining the scatter plots, one outlier was removed from the analyses, leaving a total sample of 335. Sensitivity analysis showed that with α = 0.05 and $1-\beta$ = 0.80, a sample of 335 could reliably detect a correlation of at least r = 0.15 (two-sided test). Detailed descriptive statistics can be found in Table 1.

[1] CNY refers to Chinese yuan, the official currency in People's Republic of China.

Table 2 Correlations between mating strategies, mating preference, and disgust in study 1

	M_{men}	SD_{men}	M_{women}	SD_{women}	1	2	3	4	5	6	7
1. SOI-R	0.8	2.84	−0.77 ***	2.01	1						
2. LTMO	5.64	0.98	5.79	1.04	−0.35***	1					
3. Attractiveness	4.49	0.86	4.32 +	0.82	0.24***	−0.09+	1				
4. Commitment	4.93	0.77	5.24***	0.68	−0.38***	0.50***	0.03	1			
5. Sexual disgust	4.48	1.33	4.92**	1.15	−0.65***	0.17**	−0.08	0.30***	1		
6. Pathogen disgust	4.90	1.05	4.90	0.95	−0.05	0.05	0.20***	0.15**	0.30***	1	
7. Moral disgust	5.66	1.02	5.50	0.90	−0.37***	0.18***	0.07	0.26***	0.44***	0.29***	
8. Subjective status	5.88	1.57	5.94	1.54	0.01	0.06	0.20***	0.03	0.04	0.06	0.12*

SOI-R and LTMO refer to sociosexual orientation and long-term mating orientation respectively, with a higher value indicating a more unrestricted sociosexual orientation or greater long-term mating orientation

Attractiveness and commitment refer to a preference for mate physical attractiveness and mate commitment respectively, with a higher value indicating a stronger preference

Asterisk in the M_{women} column means there was a significant mean difference between men and women

$^{***}p<0.001$, $^{**}p<0.01$, $^{*}p<0.05$, $^{+}p<0.10$

Materials

Short-term Mating Strategy Short-term mating strategy was operationalized by a modified version of the SOI-R (Penke & Asendorpf, 2008). To reduce situational constraints of sexual availability and better capture individuals' sociosexual orientation, we modified the SOI-R behavior subscale so that it measured future sociosexual intention (e.g., "If given the opportunity, with how many different partners do you wish to have sex in the following 12 months?"), sociosexual attitude (e.g., "Sex without love is OK."), and sociosexual desire (e.g., "How often do you have fantasies about having sex with someone you are not in a committed romantic relationship with?"). All the SOI-R subscales showed good reliability (Cronbach's αs = 0.93, 0.80, and 0.89, respectively). A higher score indicated a more unrestricted sociosexual orientation.

Long-term Mating Strategy Long-term mating orientation (LTMO) was measured by 6 items by Jackson and Kirkpatrick (2007), with a higher score indicating a greater desire to be in a long-term relationship. Items from LTMO were modified by removing the word "special" from the items (e.g., "interested in maintaining a long-term romantic relationship with someone special") to separate the willingness of being in a long-term relationship from the preference for someone special. Participants responded to the items on a 7-point Likert scale from *1* (*highly disagree*) to *7* (*highly agree*) (Cronbach's α = 0.87).

Preference in Mate Choice Preferences in mate choice were construed ad hoc and measured by asking "when you choose your next potential sexual partner, how important are the factors below?" Three items measuring physical attractiveness were good looking, good body shape, and overall physical attractiveness (Cronbach's α = 0.84). Three items measuring partner commitment were being committed to the relationship, dependable and conscientious, and willing to invest in this relationship (Cronbach's α = 0.69). Participants rated how important these factors were to them on a 6-point Likert scale from *1* (*not important at all*) to *6* (*highly important*). A higher score indicates a higher tendency of physical attractiveness/partner commitment.

Disgust Sensitivity The Three-Domain Disgust Scale (TDDS) was used to measure the types of disgust sensitivity, with a higher value indicating greater sensitivity to relevant stimuli (Tybur et al., 2009). A minor adjustment was made to item 20 ("having anal sex with someone of the opposite sex" to "having anal sex with a sexual partner") to be sexual orientation neutral. Participants rated how disgusted they would feel if they were in those situations on a 7-point Likert scale from *1* (*not at all disgusted*) to *7* (*highly disgusted*) (Cronbach's α = 0.91).

Demographic Questions At the end of the questionnaire, participants reported their sexual orientation, relationship status, age, and employment status. Sexual orientation was measured by asking participants which sex they were sexually attracted to with the response options men, women, or both sexes. Employment status was measured using five categories: student, full-time employed, part-time employed, unemployed, and stay-home husband/wife.

All constructs measured by multiple items were operationalized by taking the arithmetic mean of the items after establishing acceptable internal reliability (see Tables 2, 4, and 6). To calculate the total score of the SOI-R, SOI-R subscale

scores were first standardized and then aggregated to form a total score so that each subscale would have equal weight.

Procedures

After giving informed consent, participants completed the study in an online survey. They first reported their sex, and then, they finished a measure of social status using MacArthur Ladder (Anderson et al., 2012). When measuring status, participants were directed to make an upward or downward social comparison, for example, comparing themselves with the most (least) respected members within their groups. After the status measurement, participants finished the measurements in the above-reported order. One attention check question ("This is an attention check, please select 'not disgusting at all' for this question") was embedded in the TDDS. No participants failed to choose the specified option. However, the social comparison manipulation was not successful with no significant difference between the upward comparison condition ($M = 5.93$, $SD = 1.60$) and the downward comparison condition ($M = 5.90$, $SD = 1.51$, $t\,(329.14) = -0.22$, $p = 0.83$). Therefore, we will only report the correlations between subjective status measured by the MacArthur Ladder and other measures.

Statistical Analyses

All studies in the current research employed pairwise correlations and linear regressions to explore the relationships between mating strategies, mate preferences, and disgust sensitivity. Specifically, we first reported the Pearson correlations between the constructs. Then, we performed linear regressions to examine how different types of disgust sensitivities predict mating strategies/mate preferences while controlling for the shared variances by including all three disgust sensitivities in the models simultaneously. Finally, we collapsed the data of the three studies and run linear mixed models with study numbers as the random intercept to get more reliable estimates of the relationships between mating and disgust.

Results and Discussion

As all the data were collected using a self-report questionnaire, we did Harman's one-factor test for common method bias using confirmatory factor analysis (Podsakoff et al., 2003). Results showed that a single-factor model did not fit the data well (χ^2 (819, $N = 335$) = 4573.31, $p < 0.001$, CFI = 0.44, TLI = 0.41, SRMR = 0.121, and RMSEA = 0.117), which did not support the presence of a strong common method bias.

Correlations Between Disgust, Mating Strategies, and Mate Preferences

The mean differences in SOI-R score, preference for mate commitment, and sexual disgust were significant between sexes (see Table 2). Men on average had a more unrestricted sociosexual orientation, a lower preference for mate commitment, and a lower sexual disgust sensitivity. Consistent with the previous research (Jackson & Kirkpatrick, 2007), men and women differed much more in short-term mating orientation than long-term mating orientation.

Subjective status only had positive correlations with a greater preference for attractiveness and pathogen disgust. Sexual disgust was negatively associated with short-term mating orientation and weakly positively correlated with long-term mating orientation (see Table 2). Following the approach of Al-Shawaf et al. (2015a, b), the relationship between sexual disgust and short-term mating held after removing 3 items directly associated with short-term mating from the sexual disgust scale ($r\,(335) = -0.53$, $p < 0.001$). Pathogen disgust had no significant correlations with neither short-term nor long-term mating. Moral disgust was negatively associated with short-term mating orientation but positively associated with long-term mating orientation. In terms of mate preferences, higher pathogen disgust but not sexual or moral disgust was associated with a stronger preference for mate physical attractiveness. Preference for mate commitment was positively associated with all three types of disgust.

We also found that there was a correspondence between mating strategies and mate preferences. A more unrestricted sociosexual orientation was associated with a greater preference for attractiveness and less preference for commitment. On the other hand, long-term mating orientation was associated with a greater preference for commitment but had no significant correlation with a preference for attractiveness. That is, people who pursue a short-term mating goal tend to pay more emphasis on potential partners' physical attractiveness and less emphasis on their commitment.

To examine whether the correlation pattern observed was caused by the shared variance between the types of disgust, we ran linear models with sexual disgust, pathogen disgust, and moral disgust being entered simultaneously to predict sexual strategies and mate preferences.[2] Results showed that both sexual disgust ($B = -0.44$, $SE = 0.03$, $p < 0.001$) and moral disgust ($B = -0.12$, $SE = 0.04$, $p = 0.003$) were significant negative predictors of short-term mating orientation, while pathogen disgust was a significant positive

[2] Variance inflation factor (VIF) analyses showed that for all three studies, VIF for all the variables in the regressions was smaller than 2, indicating no multicollinearity.

predictor ($B = 0.16$, $SE = 0.04$, $p < 0.001$). The negative association between sexual disgust and short-term mating thus supported H1. For long-term mating orientation, only moral disgust was a significant positive predictor ($B = 0.15$, $SE = 0.06$, $p = 0.024$), supporting H3. Neither sexual disgust ($B = 0.09$, $SE = 0.05$, $p = 0.063$) nor pathogen disgust ($B = -0.02$, $SE = 0.06$, $p = 0.674$) was a significant predictor.

As for mate preferences, neither moral disgust ($B = -0.08$, $SE = 0.05$, $p = 0.115$) nor sexual disgust ($B = -0.08$, $SE = 0.04$, $p = 0.066$) significantly predicted the preference for attractiveness. Higher pathogen disgust, on the other hand, was associated with a greater preference for attractiveness ($B = 0.22$, $SE = 0.05$, $p < 0.001$), supporting H2. The pattern was reversed for the preference for commitment with both moral disgust ($B = 0.11$, $SE = 0.05$, $p = 0.012$) and sexual disgust ($B = 0.13$, $SE = 0.03$, $p < 0.001$) being significant predictors while pathogen disgust being nonsignificant ($B = 0.03$, $SE = 0.04$, $p = 0.456$).

The above results suggested that the types of disgust predict different aspects of mating psychology. However, the associative patterns could be a result of measuring all aspects of disgust sensitivities together. More specifically, participants answering items measuring different disgust sensitivities could inflate the shared variance among disgust sensitivity, thus influencing their individual correlations with aspects of mating. Study 2 addressed this issue by measuring disgust sensitivities separately.

Study 2

Study 1 provided evidence that different types of disgust play different roles in mating. Compared with the previous studies, moral disgust appeared to have a stronger relationship with short-term mating orientation in the Chinese sample of study 1. Whether this difference is dependent on the cultural setting or is an artifact of measuring three types of disgust together demanded further investigation. Study 2 employed a different measurement design, measuring the types of disgust separately.

Method

Participants

A total of 234 Chinese participants from several university participant pools completed the questionnaire online. Data collection commenced in February 2021. Participants on average received 1.5 CNY (randomly ranging from 1 to 3 CNY) as compensation for participation. After examining the scatter plots, one outlier was removed from the analyses, leaving a total sample of 233. Sensitivity analysis showed that with $\alpha = 0.05$ and $1 - \beta = 0.80$, a sample of 233 could reliably detect a correlation of at least $r = 0.18$ (two-sided test). Detailed descriptive statistics can be found in Table 3.

Table 3 Descriptive statistic of the study 2 sample

	Men ($n = 112$)	Women ($n = 121$)
Age	$M = 22.0$, $SD = 2.7$	$M = 21.5$, $SD = 2.6$
Sexual orientation	Same sex: 23 Opposite sex: 87 Both: 2	Same sex: 10 Opposite sex: 86 Both: 25
In a long-term relationship	69 (61.6%)	51 (42.2%)
Employment status	Student: 77 Employed: 34 Unemployed: 1	Student: 104 Employed: 17 Unemployed: 0

The employed category includes full-time employed and part-time employed. The unemployed category includes unemployed and stay-home husband/wife

Materials and Procedures

To test whether the correlational pattern reported in study 1 was influenced by the measuring procedures, study 2 measured the types of disgust sensitivities separately (i.e., in different subscales). Two attention check questions (e.g., "This is an attention check, please select 'not at all' for this question") were embedded in the above scales. No participants failed one or both attention checks. All materials were otherwise the same as those in study 1.

At the end of the questionnaire, participants reported their sex, sexual orientation, relationship status, age, and employment status same as in study 1.

Results and Discussion

Similar to study 1, a one-factor CFA model was run to examine common method bias. Results showed that a single-factor model fitted the data poorly (χ^2 (819, $N = 233$) = 4188.67, $p < 0.001$, CFI = 0.31, TLI = 0.27, SRMR = 0.152, and RMSEA = 0.133), which did not support the presence of a strong common method bias.

Correlations Between Disgust, Mating Strategies, and Mate Preferences

Consistent with study 1, compared with women, men on average had a more unrestricted sociosexual orientation, lower mate commitment, and lower sexual disgust. No significant difference was found in relation to LTMO, preference for mate physical attractiveness, pathogen disgust, and moral disgust (see Table 4).

In study 2, the associations among the types of disgust appeared to be smaller compared to study 1. Sexual disgust was negatively correlated with short-term mating but

Table 4 Correlations between mating strategies, mating preference, and disgust in study 2

	M_{men}	SD_{men}	M_{women}	SD_{women}	1	2	3	4	5	6	
1. SOI-R	0.87	2.66	−0.81 ***	2.18	0.90						
2. LTMO	5.73	1.14	5.73	1.03	−0.27***	0.88					
3. Attractiveness	4.57	0.80	4.44	0.83	0.25***	−0.07	0.86				
4. Commitment	4.89	0.80	5.21 ***	0.55	−0.17*	0.29***	0.16*	0.63			
5. Sexual disgust	4.70	1.24	5.26***	1.13	−0.52***	0.11+	−0.07	0.10	0.82		
6. Pathogen disgust	5.14	1.05	5.16	0.94	−0.06	0.06	0.29***	0.17**	0.28***	0.78	
7. Moral disgust	5.94	1.07	6.01	0.89	−0.13*	0.23***	0.05	0.31***	0.16*	0.20**	0.90

SOI-R and LTMO refer to sociosexual orientation and long-term mating orientation respectively, with a higher value indicating a more unrestricted sociosexual orientation or greater long-term mating orientation

Asterisk in the M_{women} column means there was a significant mean difference between men and women

Values on the diagonal are Cronbach's α of the scales in the sample

$^{***}p<0.001$; $^{**}p<0.01$; $^{*}p<0.05$; $^{+}p<0.10$

not long-term mating orientation. Pathogen disgust had no significant correlations with mating strategies but positive correlations with both preferences for attractiveness and commitment. Moral disgust was weakly negatively correlated with short-term mating and moderately positively correlated with long-term mating orientation. Moreover, moral disgust was positively associated with a preference for commitment. Replicating the findings in study 1, people who pursue a short-term mating strategy emphasize more potential mates' attractiveness and less on their commitment. People who emphasize long-term mating place more value on the potential mates' commitment.

Same as study 1, linear models with sexual disgust, pathogen disgust, and moral disgust being entered simultaneously were run to predict sexual strategies and mate preferences. Results showed that in study 2, only sexual disgust ($B=-0.38$, $SE=0.04$, $p<0.001$) was a significant negative predictor of short-term mating orientation, supporting H1. Neither moral disgust ($B=-0.05$, $SE=0.05$, $p=0.292$) nor pathogen disgust was a significant predictor ($B=0.09$, $SE=0.05$, $p=0.065$) for short-term mating. For long-term mating orientation, only moral disgust was a significant positive predictor ($B=0.24$, $SE=0.07$, $p=0.001$), supporting H3, but not sexual disgust ($B=0.07$, $SE=0.06$, $p=0.232$) or pathogen disgust ($B=-0.00$, $SE=0.07$, $p=0.967$).

As for mate preferences, moral disgust ($B=-0.08$, $SE=0.05$, $p=0.115$) did not significantly predict the preference for attractiveness, consistent with study 1. Lower sexual disgust ($B=-0.11$, $SE=0.45$, $p=0.012$) and higher pathogen disgust ($B=0.27$, $SE=0.05$, $p<0.001$) were associated with greater preference for attractiveness, supporting H2. Again, the pattern was reversed for the preference for commitment with only moral disgust ($B=0.20$, $SE=0.05$, $p<0.001$) positively predicting the preference for commitment. Neither sexual disgust ($B=0.01$, $SE=0.04$, $p=0.726$) nor pathogen disgust ($B=0.07$, $SE=0.05$, $p=0.110$) had a significant effect on preference for commitment.

Results from study 2 showed that when measured separately, the associations between the types of disgust were weaker and their correlational patterns with mating strategies and preferences were more differentiated. Sexual disgust had a robust negative relationship with short-term mating strategy, while moral disgust had a robust positive relationship with long-term mating strategy. In addition, higher moral disgust also predicted a greater preference for commitment. Finally, higher pathogen disgust consistently predicted a greater preference for attractiveness.

The results from both studies 1 and 2 supported our argument that different types of disgust play different roles in human mating. However, as stated in the Introduction, human sexuality is affected by normative influences, and the norms surrounding sexual practice vary across cultures; it is thus important to examine the relationships in different populations. Study 3 addressed this issue by testing the associations using a student sample from a Dutch university.

Study 3

Study 3 tested the hypotheses using a university student sample in the Netherlands. In addition, we added four questions probing perceived norms as well as personal attitudes regarding short-term and long-term mating and examined their associations with mating strategies and preferences.

Participants

A total of 267 undergraduate participants ($n_{female}=214$, $n_{non\text{-}disclosure}=1$, $M_{age}=20.9$, $SD_{age}=2.38$) from Maastricht University were recruited from the SONA system and completed the questionnaire online. Data collection

Table 5 Mean differences in mating strategies, mate preferences, and disgust sensitivity

	Study 1		Study 2		Study 3		*F* statistics	*p*	η^2
	M	*SD*	*M*	*SD*	*M*	*SD*			
SOI-behavior	2.04	1.51	2.13	1.60	3.11	1.74	$F(2, 832) = 37.48$	< 0.001	0.08
SOI-attitude	3.51	2.00	3.28	1.79	5.73	2.14	$F(2, 832) = 123.5$	< 0.001	0.23
SOI-desire	4.00	2.28	3.86	2.34	3.94	1.88	$F(2, 832) = 0.31$	= 0.732	0.001
LMTO	5.73	0.99	5.73	1.08	5.97	0.99	$F(2, 832) = 5.29$	= 0.005	0.01
Attractiveness	4.39	0.86	4.50	0.82	4.91	1.06	$F(2, 832) = 24.69$	< 0.001	0.06
Commitment	5.11	0.71	5.06	0.70	5.44	1.44	$F(2, 832) = 11.51$	< 0.001	0.03
Moral disgust	5.57	0.96	6.00	0.93	4.98	0.91	$F(2, 832) = 74.61$	< 0.001	0.15
Sexual disgust	4.72	1.25	4.99	1.22	3.30	1.04	$F(2, 832) = 156.60$	< 0.001	0.27
Pathogen disgust	4.90	1.00	5.15	1.00	4.55	0.93	$F(2, 832) = 24.15$	< 0.001	0.05

commenced in March 2022. The study was approved by the Institutional Review Board of the Maastricht University (ERCPN-250_33_03_2022). Forty-nine percent of the participants ($n = 132$) were in a stable relationship. Participants received 0.5 credits as compensation for participation. Sensitivity analysis showed that with $\alpha = 0.05$ and $1 - \beta = 0.80$, a sample of 267 could reliably detect a correlation of at least $r = 0.17$ (two-sided test).

Materials and Procedures

Study 3 measured the types of disgust sensitivities separately similar to study 2 (https://osf.io/2qsx3). All materials were the same as those in studies 1 and 2 except that we added four questions probing participants' normative perceptions and personal attitudes toward sexual strategies. Specifically, the four questions were "To what extent do you think people in your social groups approve or disapprove of casual dating/long-term relationships" and "To what extent do you approve or disapprove of casual dating/long-term relationships" (from 1 = *very disapproval* to 7 = *very approval*).

Participants completed the scales and questions in the following order: SOI-R, LTMO, mate preferences regarding physical attractiveness and commitment, perceived norms and attitudes toward mating, and disgust sensitivity subscales. Two attention check questions (e.g., "This is an attention check, please select 3 for this question") were embedded in the above scales. One additional attentional check asking participants to select the topics of the study was also employed at the end of the survey. However, we discovered that the third question was inadequate as an attention check in hindsight as the participants did not have a consensus of what were the topics included in the study. Therefore, the exclusion criterion for the current analyses was that participants who did not select the specified option in at least one of the first two attention checks were excluded.

At the end of the questionnaire, participants also reported their sex, relationship status, and age.

Results and Discussion

The one-factor CFA model showed that the single-factor model fitted the data poorly (χ^2 (819, $N = 267$) = 3876.64, $p < 0.001$, CFI = 0.34, TLI = 0.31, SRMR = 0.119, and RMSEA = 0.118), which did not support the presence of a strong common method bias.

Mean Differences Across the Three Samples

Since all three studies employed identical measures of mating strategies, preferences, and disgust sensitivity, and the samples were all mainly university students, we examined the mean differences of these variables across the three samples. Results showed that there were significant differences among the three samples in all the main variables except the SOI-desire subscale (see Table 5). Study 3 sample on average scored higher on the behavior and attitude subscales of sociosexuality and preferences for both attractiveness and commitment than the samples from studies 1 and 2. For disgust sensitivity, study 3 sample scored lower on all three dimensions than the samples from studies 1 and 2 (see https://osf.io/fjdru for details of post hoc comparisons). Taking into consideration the skewed sex ratio (80% women) in study 3 and the fact that women on average have lower short-term mating orientation and higher sexual disgust, we would expect an even greater cultural difference if study 3 sample had a balanced sex ratio. These results support the notion that the samples from the Netherlands and the two Chinese samples are culturally different.

Correlations Between Disgust, Mating Strategies, and Mate Preferences

In the study 3 sample, sexual disgust was negatively correlated with short-term but not long-term mating orientation (see Table 6). Pathogen disgust did not have significant correlations with either short-term or long-term mating orientation. Moral disgust was weakly negatively correlated with

Table 6 Correlations between mating strategies, mating preference, and disgust in study 3

	M_{men}	SD_{men}	M_{women}	SD_{women}	1	2	3	4	5	6	7	8	9	10
1. SOI-R	0.42	0.83	−0.10***	0.78	0.87									
2. LTMO	6.10	1.02	5.95	0.99	−0.30***	0.88								
3. Attractiveness	5.52	0.93	4.75***	1.04	0.22***	−0.01	0.86							
4. Commitment	5.11	1.45	5.52+	1.46	−0.48***	0.31***	0.10	0.86						
5. Sexual disgust	2.59	0.89	3.48***	0.99	−0.54***	−0.11+	−0.21***	0.36***	0.73					
6. Pathogen disgust	4.48	1.03	4.56	0.91	−0.04	0.09	0.21***	0.12*	0.13*	0.70				
7. Moral disgust	5.05	0.97	4.89	1.03	−0.18**	0.29***	−0.06	0.23***	0.26***	0.17***	0.72			
8. Norm-short	5.60	1.26	5.35	1.29	0.26***	−0.03	0.08	−0.20***	−0.25***	0.04	−0.11+	-		
9. Norm-long	5.92	1.06	6.11	0.90	−0.03	0.17**	−0.07	0.02	0.05	0.04	0.10	0.03	-	
10. Attitude-short	5.34	1.43	5.65	1.44	0.42***	−0.20**	0.02	−0.29***	−0.28***	−0.05	−0.13*	0.47***	0.16**	-
11. Attitude-long	6.21	1.04	6.49+	0.70	0.16**	0.45***	−0.08	0.19***	0.06	0.07	0.16**	0.07	0.44***	0.10

SOI-R and LTMO refer to sociosexual orientation and long-term mating orientation respectively, with a higher value indicating a more unrestricted sociosexual orientation or greater long-term mating orientation

Asterisk in the M_{women} column means there was a significant mean difference between men and women

Values on the diagonal are Cronbach's α of the scales in the sample

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{+}p < 0.10$

Table 7 Linear mixed model examining the associations between mating and disgust

	SOI		LTMO		Attractiveness		Commitment	
Fixed effects	B	SE	B	SE	B	SE	B	SE
Intercept	1.75**	0.29	4.34***	0.30	4.18***	0.24	3.27***	0.35
Moral disgust	−0.08**	0.03	0.23***	0.04	−0.04	0.04	0.19***	0.04
Sexual disgust	−0.41***	0.02	0.05+	0.03	−0.14***	0.03	0.16***	0.03
Pathogen disgust	0.10***	0.03	0.00	0.04	0.26***	0.03	0.05	0.04
Random effects	SD	ICC	SD	ICC	SD	ICC	SD	ICC
Study	0.38	0.24	0.29	0.08	0.19	0.05	0.45	0.19
Pseudo-R2 (fixed/total)	0.36/0.52		0.06/0.14		0.08/0.13		0.11/0.28	

ICC refers to intra-class correlation. p values were calculated using Satterthwaite d.f.

$^{***}p<0.001$; $^{**}p<0.01$; $^{+}p<0.10$

SOI-R and moderately positively correlated with long-term mating orientation. As for mate preferences, sexual disgust was negatively associated with preference for attractiveness and positively associated with preference for commitment. Pathogen disgust had positive correlations with both a preference for attractiveness and commitment. Moral disgust only had a significant positive correlation with a preference for commitment. Replicating studies 1 and 2, the correlations between mating strategies and mate preference showed that people with a more unrestricted sociosexual orientation place more emphasis on mate attractiveness and less on their commitment.

As for the added measures of perceived norms surrounding short-term and long-term dating, results showed that perceived approval of long-term mating ($M_{\text{norm-long}}=6.07$, $SD_{\text{norm-long}}=0.93$) was higher than that of short-term mating ($M_{\text{norm-short}}=5.40$, $SD_{\text{norm-short}}=1.28$, $t\ (266)=7.02$, $p<0.001$). Personal attitudes surrounding short-term and long-term mating also differed significantly. On average, people approved long-term mating ($M_{\text{attitude-long}}=6.43$, $SD_{\text{attitude-long}}=0.78$) more than short-term mating ($M_{\text{attitude-short}}=5.60$, $SD_{\text{attitude -short}}=1.43$, $t\ (266)=8.73$, $p<0.001$). Perceived norms and personal normative attitudes toward short-term and long-term mating were moderately correlated. We also found that people who had lower sexual disgust sensitivity perceived short-term mating as more approved by their social groups and approved short-term mating more than their lower sexual disgust peers. The perceived approval for short-term dating was positively associated with sociosexual orientation and negatively associated with a preference for mate commitment (see Table 6).

Same as studies 1 and 2, linear models with sexual disgust, pathogen disgust, and moral disgust being entered simultaneously were run to predict sexual strategies and mate preferences. Results showed that in study 3, only sexual disgust ($B=-0.42$, $SE=0.04$, $p<0.001$) was a significant negative predictor of short-term mating orientation, supporting H1. Neither moral disgust ($B=-0.04$, $SE=0.05$, $p=0.419$) nor pathogen disgust was a significant predictor ($B=0.04$, $SE=0.05$, $p=0.433$) for short-term mating. For long-term mating orientation, only moral disgust was a significant positive predictor ($B=0.29$, $SE=0.07$, $p<0.001$), supporting H3, but not sexual disgust ($B=-0.03$, $SE=0.06$, $p=0.569$) or pathogen disgust ($B=0.04$, $SE=0.06$, $p=0.533$).

As for mate preferences, moral disgust ($B=-0.04$, $SE=0.07$, $p=0.546$) did not significantly predict the preference for attractiveness, consistent with studies 1 and 2. Lower sexual disgust ($B=-0.23$, $SE=0.06$, $p<0.001$) and higher pathogen disgust ($B=0.28$, $SE=0.07$, $p<0.001$) were associated with greater preference for attractiveness, supporting H2. Same as study 1, moral disgust ($B=0.22$, $SE=0.09$, $p=0.020$) and sexual disgust ($B=0.44$, $SE=0.08$, $p<0.001$) were both a significant predictor of the preference for commitment in study 3. Pathogen disgust had no significant effect on preference for commitment ($B=0.08$, $SE=0.08$, $p=0.354$).

Taken together, results suggest that in two different cultures, the types of disgust were associated with different aspects of mating similarly. Therefore, in the following section, we run linear mixed models with data from the three studies combined to provide more robust estimates of the associations.

Mega-Analyses of Studies 1–3

First, we ran linear mixed models for short-term mating and long-term mating, preference for attractiveness, and preference for commitment with three types of disgust as fixed effects and study as a random intercept. Results showed that higher sexual disgust was associated with more unrestricted sociosexual orientation (supporting H1), less preference for attractiveness, and greater preference for commitment (see Table 7). When the SOI-R score was added to the models predicting preference for attractiveness and preference for commitment as a fixed effect, the coefficients of sexual disgust became nonsignificant (attractiveness, $B=-0.04$, $SE=0.03$, $p=0.22$; commit, $B=-0.00$, $SE=0.03$, $p=0.94$),

suggesting that the associations were indirect via the negative association between short-term mating and preference for commitment and the positive association between short-term mating and preference for attractiveness.

Pathogen disgust had a positive relationship with short-term mating, consistent with recent findings reported in Hlay et al. (2022). To further examine the association between pathogen disgust and short-term mating and rule out the possibility that preference for attractiveness is a confounding variable, we added the preference for attractiveness in the model. Results showed that pathogen disgust still positively predicted short-term mating ($B = 0.06$, $SE = 0.03$, $p = 0.02$) even after controlling for preference for attractiveness ($B = 0.15$, $SE = 0.03$, $p < 0.001$). However, taking into consideration that we did not find a significant correlation between pathogen disgust and short-term mating in studies 2 and 3, where disgust sensitivities were measured separately, we caution against overinterpreting this result as evidence for the "bet-hedging" hypothesis (Hlay et al., 2022; Simons, 2011).

More importantly, we found that high pathogen disgust sensitivity was associated with a greater preference for physical attractiveness (supporting H2), which is consistent with the idea that pathogen disgust is a part of the behavioral immune system. High moral disgust was associated with less unrestricted sociosexual orientation and a greater preference for long-term mating orientation in both oneself and the potential mates (supporting H3).

Additional models were run for the three facets of sociosexuality, and the results were similar to that of the composite score. Details of the analyses can be accessed at https://osf.io/fjdru.

In additional two models, we also aggregated the data to re-examine the associations between mating strategies and mate preferences. Results showed that short-term mating orientation had a robust positive association with preference for attractiveness ($B = 0.26$, $SE = 0.04$, $p < 0.001$) and a negative association with preference for commitment ($B = -0.34$, $SE = 0.04$, $p < 0.001$). Long-term mating orientation, on the other hand, only positively predicted a greater preference for commitment ($B = 0.24$, $SE = 0.03$, $p < 0.001$) but not preference for attractiveness ($B = 0.02$, $SE = 0.03$, $p = 0.48$).

General Discussion

The current study employed three samples from two culturally different societies to study the relationship between disgust sensitivity and mating strategies as well as mate preference. In addition, we also added measures of perceived norms regarding mating and explored their associations with mating strategies and preferences. Across the three studies, we replicated previously found sex differences in sexual disgust and short-terming mating, with women scoring higher on sexual disgust and having a more restricted sociosexual orientation. More importantly, we found consistent support for our claim that the types of disgust were related to specific aspects of mating. Moreover, we explored the associations between disgust sensitivity, perceived sexual norm, and sexual strategies. Although we also performed bivariate correlation analyses in line with the previous research, we mainly discuss the results of linear regressions where the shared variances of the types of disgust were controlled for.

Sexual Disgust and Short-Term Mating Orientation

Sexual disgust had a robust negative relationship with a short-term mating strategy across the three samples while controlling for pathogen and moral disgust. Our results provided further support that sexual disgust functions as a behavioral avoidance mechanism that inhibits more risky sexual behavior such as short-term mating (Al-Shawaf et al., 2015a, b, 2019a, b). In the meantime, the current study also showed that sexual disgust was not correlated with a long-term mating orientation. Though long-term pair bonding also entails sexual interactions, sexual disgust does not hinder the willingness to engage in long-term relationships. Moreover, similar to the previous findings that sexual disgust does not predict facial feature preferences (DeBruine et al., 2010b), sexual disgust was not associated with preference for mate physical attractiveness after controlling for the possible confounding of short-term mating orientation. This pattern is consistent with the hypothesis that sexual disgust functions in sex-specific contexts but does not impact other types of social interactions. This would be adaptive in maintaining social relationships with individuals who are suitable for coalitions and friends but not sexual partners (Tybur et al., 2009). Overall, our results support the functional specificity of sexual disgust.

Pathogen Disgust, Pathogen Avoidance, and the Emphasis on Physical Attractiveness

Across the three studies, pathogen disgust showed no significant correlation with long-term mating and only had a positive association with short-term mating in study 1. Although the association with short-term mating was significant in the mega-analysis, the association was weak. This result provides very limited support (if any) to the hypothesis that short-term mating can also be seen as a mechanism to fight against immune risks by bet-hedging (Hlay et al., 2022) and should be interpreted with caution. More importantly, central to our main argument, pathogen disgust was positively associated with preference for mate physical attractiveness consistently even after controlling for moral and sexual disgust. As physical attractiveness has been argued to be an

observable indicator of health (Fink et al., 2006; Weeden & Sabini, 2005), our results are consistent with the pathogen avoidance function of disgust (Tybur et al., 2009, 2013) in that people who are more sensitive to pathogens on average have a greater preference for physical attractiveness. Again, the associational pattern of pathogen disgust also lends support to the idea that within the behavioral immune system of disgust, different dimensions of disgust solve different problems people encounter.

Moral Disgust and a Preference for Long-Term Mating for Both the Self and Mates

To further examine the role moral disgust plays in human mating, we added measures of perceived norms and personal normative attitudes regarding short-term and long-term mating. Results showed that even though both types of mating behaviors are socially approved (at least in the Netherlands), people on average perceive long-term mating as more approved.

In all three samples, moral disgust was positively associated with long-term mating and a greater preference for mate commitment. Mega-analyzing the three studies also showed that moral disgust positively predicted a greater preference for long-term mating for both oneself and the potential partner. Thus, individuals who score higher on moral disgust sensitivity not only prefer a more culturally approved mating strategy (i.e., long-term mating) themselves but also place more value on mate commitment; that is, they also prefer potential mates that are pursuing a long-term mating strategy.

However, the associations between moral disgust and short-term mating were less clear. In study 1, moral disgust was negatively associated with facets of sociosexuality (in regressions). In studies 2 and 3, the coefficients did not reach conventional statistical significance. Mega-analyses showed that moral disgust had a weak negative association with short-term mating. One possible reason could be that short-term dating is also a socially sanctioned practice (at least in some regions) instead of a disapproved practice, leading to a weak association between moral disgust and short-term mating. Study 3 also showed that moral disgust was positively associated with personal approval of long-term mating and negatively associated with personal approval of short-term dating. However, it did not have a significant negative relationship with perceived social approval of short-term mating, supporting the above reasoning.

Moreover, exploratory analysis showed that moral disgust and perceived norm of short-term mating interacted to predict personal attitude toward short-term mating ($B = 0.17$, $SE = 0.06$, $p = 0.006$), indicating that among people with higher moral disgust sensitivities, the association between perceived norm and personal attitude toward short-term mating is stronger. Taking together, our results provide some evidence that moral disgust influences mating strategy via compliance with culture and norms. It has been argued that moral disgust sensitivity could reflect sensitivity to social transgressions, promoting internalized compliance to social norms and moral rules (Bondü & Richter, 2016; Clark & Fessler, 2015). Sexuality is often a subject of moral judgment (Elad-Strenger et al., 2020; Zheng et al., 2011) or social norms (Buss & Schmitt, 2019) and can be an input of moral condemnations (Tybur et al., 2013). Individuals who are high on moral disgust may be more likely to make judgments about their own and others' behaviors based on social norms.

The Correspondence Between Mating Strategy and Mate Preference

People who have a more unrestricted sociosexuality emphasize more potential mates' attractiveness and less their commitment, compared with people who are more sociosexually restricted. On the other hand, people who pursue a long-term mating strategy pay more attention to the commitment of their potential mates, compared to people who are less concerned with long-term mating. These results, although only preliminary, offer important insight into human mating. Previous studies speculated that people differing in aspects of mating psychology (e.g., sexual disgust) could perceive the mating pools differently because they have different selection criteria for potential mates (Crosby et al., 2021). These kinds of associations could introduce confounding variables, especially in nonexperimental research like ours. In our studies, we have shown evidence that the negative associations between sexual disgust and preference for attractiveness could be confounded due to the sexual disgust-sociosexuality relationship.

Limitations and Future Directions

There are several limitations in the current research that need to be communicated. First, the measures of mate preferences were rather simple and created ad hoc for the current study. Although across the three samples, the items showed acceptable reliability and criterion validity, they may not be a comprehensive measure of mate preferences. In addition, the commitment measure included one item that measures two characteristics simultaneously (dependable and conscientious), which may explain the lower reliability of that measure. A similar limitation extends to the measures of perceived norms and personal normative attitudes. In addition, we only had perceived sexual norms in our study to test the proposition that moral disgust is related to norm compliance. However, a more stringent test of this hypothesis would be to examine the associations between moral

disgust and perceived norms surrounding many aspects of social life such as prosocial behavior (e.g., norms of reciprocity, Perugini et al., 2003; Whatley et al., 1999). Future work could employ diverse and more accurate measures than self-report mating intentions and preferences in mate choice to examine the relationships between disgust and mating strategies. Moreover, the field will also benefit from comprehensive cross-cultural research on normative perceptions regarding mating and how norms (interact with individual differences to) influence individual's mating behaviors.

As the current research is only correlational, it is silent about the causal patterns in human mating and disgust sensitivity. It was first proposed that a short-term mating strategy downregulates sexual disgust, but the opposite causal relationship cannot be ruled out (Al-Shawaf et al., 2015a, b). Later research temporarily manipulated sexual disgust in participants and found that higher sexual disgust reduced participants' short-term mating intentions (Al-Shawaf et al., 2019a, b). Past sociosexual experience may downregulate sexual disgust sensitivity which in turn may promote future short-term mating behaviors. Future studies can also improve this area of research greatly by employing longitudinal design to examine the effect of sociosexual experiences on trait disgust sensitivity.

Conclusion

The current study offers an integrated view of the important role that disgust plays in human mating. Sexual disgust negatively affects short-term mating but does not hinder long-term mating. Pathogen disgust, though does not correlate with mating strategies robustly, is positively related to mating preference for attractiveness. Moral disgust is negatively related to short-term mating, positively related to long-term mating, and preference for mate commitment. Overall, the types of disgust function in different aspects of human mating psychology.

Author Contribution Yikang Zhang contributed to the study conceptualization, data collection, data preparation, and data analysis. All authors contributed to report writing including the first draft and revisions.

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Data Availability All data and analysis scripts as well as study materials are available at https://osf.io/z65kq/.

Declarations

Ethics Approval All studies in the current research were approved by relevant research ethics committees at East China Normal University or Maastricht University.

Consent to Participate Informed consent was obtained from all individual participants included in the studies.

Consent for Publication The authors affirm that participants provided informed consent for the use of the data for scientific publication.

Conflict of Interest The authors declare no competing interests.

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