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In obsessive-compulsive disorder, autogenous and reactive obsessions are differentiated by disgust and mating strategies

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ABSTRACT

Obsessive-compulsive disorder (OCD) has been conceptualized as the product of dysfunctional harm prevention systems accompanied by heightened negative emotions like disgust. However, models have not fully accounted for functional heterogeneity in OCD, such as the distinction between OCD subtypes (autogenous vs. reactive) and their differing profiles of relationships with other psychological constructs. The current investigation tested hypotheses about different expected associations between OCD subtypes, disgust, and mating strategies. In Study 1 (patients with self-reported diagnoses of OCD; $n = 70$), reactive obsessions were associated with higher pathogen disgust but had no associations with mating strategy. Autogenous obsessions had no associations with disgust domains but were associated with higher short-term (and lower long-term) mating orientation. In Study 2 (undergraduate sample; $n = 458$), reactive obsessions, again, were associated with heightened pathogen disgust but again had no association to mating strategy. Autogenous obsessions were associated with *lower* pathogen, moral, and sexual disgust, and again, higher short-term (and lower long-term) mating orientation. In both studies, we tested sexual disgust as a mediator of the relationship between autogenous obsessions and short-term mating. Significant mediation was found in Study 2, but not Study 1. Results demonstrate that reactive and autogenous forms of OCD are differentiated by disgust and mating strategy and have implications for evolutionary models of OCD.

1. Introduction

Psychiatric conditions disrupt people's everyday function, and yet they persist in the population at burdensome rates. This poses an evolutionary puzzle (Nesse, 2022). If psychiatric dysfunction is deleterious to an organism's capacity to pass on its genetic material to future generations, one would expect natural selection to eliminate the genetic variants that underlie it. However, psychopathology persists—and may even be on the rise in some cases (e.g., adolescents in the U.S.; Much & Swanson, 2010). Evolutionary psychological models of psychopathology aim to understand why such disorders persist, and why we are vulnerable to them in the first place (e.g., Nesse, 2019).

One rare and debilitating psychiatric disorder whose persistence exemplifies this challenge is obsessive-compulsive disorder (OCD). OCD is characterized by intrusive, unwanted, and persistent thoughts (obsessions) and repetitive, ritualized acts (compulsions) that are highly distressing, time consuming, and cause significant disruptions in daily functioning. Although OCD is a relatively rare psychiatric disorder with a lifetime prevalence ranging from 1 % to 3 % of the population (Ruscio et al., 2010), the underlying concerns (e.g., contamination concerns), emotions (e.g., anxiety, disgust), and behaviors (e.g., cleaning, checking, ordering, etc.) characteristic of OCD are generally adaptive, evolutionarily conserved features of human and even non-human animal populations, especially at lower levels (Fiske & Haslam, 1997; Rapoport, 1991; Rapoport & Fiske, 1998; Szechtman & Woody, 2004). Thus, while genetic propensities for OCD-related traits may be adaptive at average levels of expression, they can leave individuals vulnerable to psychopathology when expressed at the extremes (Nesse, 2004). For example, checking behaviors serve an adaptive harm prevention function at typical levels of engagement, but dysfunctional levels of compulsive checking may be the result of excessive or inappropriate activation of these same systems (Marks & Nesse, 1994). How OCD is

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simultaneously maladaptive and associated with traits that could increase fitness has garnered markedly limited research attention. Hence, the current investigation sought to investigate two factors that influence functional heterogeneity in OCD, and which have direct relevance to survival and reproduction: disgust and mating strategies.

1.1. Obsessive-compulsive disorder (OCD)

As noted, OCD consists of recurrent intrusive thoughts that are typically followed by an urge to engage in a compulsive behavioral or cognitive act (APA, 2022). The obsessions and acts are often functionally related, such that the compulsions serve to neutralize the preceding thoughts and their associated discomfort, and/or prevent a feared outcome from occurring. However, OCD is highly heterogeneous in its presentation, with the obsessions and compulsions taking several forms. Decades of research have sought to characterize the different dimensions of OCD, with most research converging on at least 4 symptom dimensions that include (1) contamination fears (with urges to wash), (2) fears about responsibility for harm (with checking compulsions), (3) obsessions about order/symmetry (with urges to arrange/order), and (4) "unacceptable thoughts" related to sex, violence and religion (with covert mental rituals, like prayer; Abramowitz et al., 2010; McKay et al., 2004).

Although much of the research on OCD's heterogeneity has focused on *content*, other research has taken a more functional approach. Lee and Kwon (2003) proposed a two-dimensional model of OCD consisting of reactive and autogenous obsession, with the dimensions differing on factors such as the *identifiability of obsession-evoking stimuli* (e.g., triggered by clear external stimulus vs. internally generated), the *subjective experiences of the obsessions* (e.g., ego-dystonic vs. ego-syntonic), the *obsessional content*, the *control strategies*, and *underlying cognitive processes*.

Autogenous obsessions typically consist of "taboo" thoughts related to sex, violent urges, and religion. These obsessions are typically internally generated rather than triggered by identifiable external stimuli in the environment. The thoughts are experienced as highly ego-dystonic (i.e., inconsistent with the individual's preferred identity, values or morals and therefore distressing), and the individual tends to view them as threatening, dangerous, blasphemous, and unacceptable. Autogenous obsessions also tend to be associated with covert and avoidant control strategies such as mental rituals. By contrast, reactive obsessions are typically viewed as (relatively) more realistic, are usually focused on threats and dangerous outcomes (e.g., contamination), and are usually triggered by identifiable external stimuli in the environment (e.g., the sight of dirt triggers obsessions about contamination and contracting an illness). Furthermore, reactive obsessions tend to be associated with more active/behavioral control strategies, such as washing, arranging, and checking, that serve to prevent a feared outcome (e.g., washing to prevent illness; Lee & Kwon, 2003; Lee et al., 2005).

Further research has discovered additional important distinctions between autogenous and reactive obsessions. Autogenous obsessions are distinguished from reactive obsessions by their associations with positive schizotypal traits and thought dysfunction (Lee, Kim, & Kwon, 2005; Lee & Telch, 2005), reduced inhibitory control (Fan et al., 2016; Lee & Telch, 2010), low conscientiousness (Nestadt et al., 2009), and increased hostility and substance abuse (Brakoulias et al., 2013), all of which resemble a more disinhibited phenotype. In stark opposition, reactive obsessions are associated with higher perfectionistic traits (Lee et al., 2005), worry (Lee et al., 2005), higher conscientiousness, associations with contamination fears and washing compulsions, and comorbidity with panic disorder and grooming disorders (e.g., skin picking; Nestadt et al., 2009). Autogenous and reactive obsessions are thus distinguishable and marked by different profiles of relationships with other psychological constructs and behavior patterns.

1.2. Evolutionary models of OCD

There are several evolutionary hypotheses for the etiology of OCD, but scholars have largely converged on a model proposing that OCD symptoms are the result of an overactive or dysfunctional *harm prevention system* (e.g., Marks & Nesse, 1994; Szechtman & Woody, 2004; Woody & Szechtman, 2011). For example, Abed and de Pauw (1998) proposed that obsessions in OCD arise from an overly sensitive "risk scenario" module which, at normal levels of functioning, allows individuals to anticipate possible future threats and develop behavioral strategies to prevent them from occurring—in contrast to responding to immediate threats in vivo. Although this system is thought to be adaptive on average, extreme expressions of this system function analogously to an auto-immune disease (Abed & de Pauw, 1998; Brüne, 2006). Like an auto-immune disease in which the immune system is chronically responding to false pathogen threats (e.g., mistaking the body's own cells for foreign cells), people with OCD engage in compulsive behaviors to prevent highly unlikely, and often implausible, feared outcomes.

This concept of a dysfunctional harm prevention system is consistent with the fact that most OCD-related symptoms are characterized by high levels of negative emotions, such as anxiety/fear and disgust (Bergin et al., 2014; Knowles et al., 2018), whose evolved functions are to motivate adaptive responses to threats (Oaten et al., 2009; Ohman & Mineka, 2001). However, most existing approaches do little to address the heterogeneity in OCD's presentation—particularly differences between the autogenous versus reactive OCD subtypes. As summarized above, autogenous obsessions are associated with more disinhibited tendencies compared to reactive obsessions, which drive more overcontrolled behavior (Lee et al., 2009; Lee & Telch, 2010). Based on reasoning from life history theory, Del Guidice (2018) proposed that disinhibited phenotypic presentations of psychopathology (e.g., impulsivity, low inhibitory control) are more likely to develop as part of a generally adaptive response to early environmental cues of unpredictability and harshness (e.g., unsafe environments; Chang et al., 2019) which orient individuals toward investing resources in the present instead of the uncertain future (Nettle, 2010; Rickard et al., 2014), and that autogenous-type OCD may differ from reactive-type OCD in this manner (Del Giudice, 2014; Han & Chen, 2020). If this perspective is correct, autogenous obsessions might be further differentiated from reactive obsessions on dimensions of mating psychology, as disinhibited-phenotype developmental trajectories tend to be associated with more precocious sexuality (Lammers et al., 2000), including higher sociosexuality (e.g., preference for multiple, uncommitted sexual relationships; Belsky et al., 1991; Del Giudice, 2009). Although this account has promise, very little is known about the effects of OCD-related traits on indices of reproductive fitness (e.g., survival, mating; Del Guidice, 2018), and currently no research has investigated how OCD-related traits are related to mating psychology—an important factor related to inclusive fitness (Buss & Schmitt, 1993).

1.3. OCD, mating, and disgust

In addition to arising out of dysfunctional harm avoidance systems, one route by which OCD-related traits might persist in the population is via their influence on mating strategies and behaviors. This raises the question of how sociosexuality (an individual's propensity for short-term versus long-term mating) relates to OCD. To our knowledge, no existing research has investigated OCD in relation to mating psychology, but a large body of research has shown a relationship between OCD symptoms and disgust propensity—an individual's proneness to disgust in response to pathogenic stimuli (Berle et al., 2012; Olatunji et al., 2011). Much of this research has focused on reactive obsessions—particularly those with contamination concerns and compulsions—as one of disgust's primary functions is to motivate pathogen avoidance (Curtis et al., 2004; Oaten et al., 2009). However, current models of disgust suggest that the emotion has three relatively

distinct, but related, domains: pathogen, sexual, and moral disgust (Tybur et al., 2009). Sexual disgust is thought to regulate sexual behavior by steering people away from potentially costly mates (e.g., genetic relatives), whereas moral disgust is thought to motivate avoidance and ostracism of individuals who violate social norms (e.g., lying, cheating, stealing; Tybur et al., 2009; Tybur et al., 2013). If there is a connection between OCD and mating psychology, it is likely via its association with sexual disgust.

Prima facie, the content evoked in autogenous obsessions (bizarre, sexual, violent, and religious) may be associated with heightened disgust, particularly sexual and moral disgust oriented toward the self, as the thoughts are experienced as unacceptable and aversive. However, only one investigation has examined the relationship between the autogenous and reactive OCD subtypes and the three domains of disgust propensity. This study found that reactive obsessions were (unsurprisingly) positively associated with pathogen disgust, but autogenous obsessions were unexpectedly found to be associated with *lower* reported sexual and moral disgust (Del Giudice, 2014). It is possible that low levels of the propensity for sexual and moral disgust may disinhibit the systems generating intrusive taboo thoughts about sex, religion, and violence (Del Guidice, 2018). This suggests that instead of a defensive emotion like disgust triggering autogenous obsessions, it is possible that the obsessions come first, and may then trigger self-conscious negative emotional responses after the fact. Indeed, the experimental induction of autogenous obsessions has been shown to be associated with reactions of guilt, shame, and embarrassment, but *not* disgust (Berman et al., 2020). This suggests that the aversive nature of experiences of autogenous obsessions is unlikely to be due to heightened disgust, but rather to other negative emotions such as shame and guilt.

The function of sexual disgust is to inhibit sexual activity with potentially costly mates, and thus this emotion facilitates caution and reduces risk taking in the realm of mating (Tybur et al., 2013), and has a strong negative association with short-term mating strategies (Al-Shawaf, Lewis, & Buss, 2015; Al-Shawaf, Lewis, Alley, & Buss, 2015; Al-Shawaf et al., 2018). For example, individuals with high sexual disgust are less likely to engage in risky sexual behavior (Sparks et al., 2018) or pursue casual mating opportunities (e.g., via hookup apps; Sevi, 2019). Given sexual disgust's inhibitory function and given that people with heightened autogenous obsessions tend to have lower levels of sexual disgust, this suggests that autogenous obsessions may be associated with short-term mating strategies. However, the relationship between autogenous obsessions and mating strategy has never been tested, and to date, the relationship between autogenous obsessions and low sexual disgust has only been demonstrated once (Del Giudice et al., 2014).

On the other hand, it is less clear how reactive obsessions would relate to mating strategy, as they are primarily known to be associated with pathogen disgust, which is related to mating strategy but not as strongly or as directly as sexual disgust (Al-Shawaf, Lewis, Alley, & Buss, 2015). Moreover, little is known about the relationship between disgust, OCD, and long-term mating strategies, as existing disgust research has focused primarily on the link between heightened disgust and reduced inclination toward short-term mating (Al-Shawaf, Lewis, Alley, & Buss, 2015). Investigating the roles of both short-term and long-term mating strategies in OCD might contribute to a better understanding of underlying motivational systems that distinguish autogenous and reactive obsessions. This may help paint a clearer picture of the differences between these two subtypes of OCD.

1.4. The current investigation

We conducted two cross-sectional studies to investigate the associations between OCD symptoms, the three domains of disgust, and mating strategies. We included two samples: 1) patients reporting a diagnosis of OCD, $n = 70$, and 2) undergraduate students, $n = 458$. Based on prior research, we hypothesized that higher autogenous obsessions would predict lower levels of sexual and moral disgust, whereas reactive obsessions would predict higher pathogen disgust. Building on these relationships, we also expected autogenous obsessions to predict higher short-term mating orientation. We did not develop any a priori hypotheses regarding the association between reactive obsessions and mating strategy, as there is no empirical precedent, nor are there any obvious mechanisms to link them a priori. Lastly, we predicted that the relationship between autogenous obsessions and short-term mating would be mediated by sexual disgust. See Table S1 of the supplemental material for a list of a priori hypotheses.

In our analyses, we considered two important covariates: sex and trait anxiety. Sex differences are well-established for measures of disgust propensity (e.g., females tend to report higher disgust propensity, with the largest difference applying to sexual disgust; Al-Shawaf et al., 2018; Tybur et al., 2011) and mating strategy (e.g., females tend to have a more restricted and selective sociosexual orientation; Petersen & Hyde, 2010), and sex differences have been reported in OCD symptoms, such that autogenous obsessions tend to be more prevalent in males (Brakoulias et al., 2013; Mathis et al., 2011), whereas reactive obsessions (e.g., contamination-related) are more common in females (Mathis et al., 2011). We also controlled for trait anxiety as a measure of negative affectivity (Shackman et al., 2016), as it has been shown to be a common factor underlying all dimensions of OCD symptoms (Bergin et al., 2014). Importantly, disgust is often conflated with anxiety (Consedine, 2021), and measures of negative affectivity tend to overlap with measures of disgust propensity (Tybur et al., 2018). Thus, we controlled for trait anxiety to better examine the unique relationships between OCD symptoms and the three domains of disgust.

2. Study 1: patients diagnosed with OCD

2.1. Methodology

2.1.1. Participants

U.S. adult patients with a self-reported OCD diagnosis ($n = 204$) were recruited online via the following procedures. First, we compiled a list of clinics, private practitioners, and support groups located across the United States specializing in treating patients with OCD. To acquire this list, we used the "Find Help" tool hosted on the International OCD Foundation website (https://iocdf.org). This tool allows website visitors to search for OCD-related resources by geographic location. We compiled a list for each U.S. state, focusing on resources for adult patients. Our team sent an email to each contact detailing an opportunity for adult patients with OCD to participate in an anonymous survey investigating "risk factors for OCD". The email requested clinicians/clinic administrators/support group leaders to forward the email to any adult patients with a known OCD diagnosis. The email contained a flyer with details about study activities, as well as the survey link (via Qualtrics) that would direct respondents to the online survey. Additionally, an advertisement and link to the study survey was listed on the International OCD Foundation website's research page. Of the 204 participants who responded to the survey, $n = 61$ (29.9 %) completed all aspects of the survey, with 66.8 % of participants completing less than 50 % of the survey procedures. Preliminary analyses (e.g., correlations, *t*-tests) were conducted with pair-wise deletion, with the sample-sizes ranging from $n = 62$ to $n = 70$. The primary analysis (linear ordinary least squares regression) was conducted with listwise deletion, which included $n = 63$ participants who completed all measures within the model (see data analytic plan section).

The mean age was 34.90 ($SD = 6.54$) with 70 % identifying as female ($n = 49$). Most participants identified as white (97.1 %), with two identifying as "other" (2.9 %), and 10 % ($n = 7$) identifying as Hispanic or Latino. The sample had relatively high levels of education, with $n = 23$ (32.9 %) indicating that they have a graduate degree, $n = 21$ (30 %) having a bachelor's degree, and the remainder ($n = 16$; 22.86 %) having less than a bachelor's degree (e.g., high school diploma).

2.1.2. Procedures

Prospective participants who accessed the survey link first provided online informed consent, followed by a response to a screener question: "*Do you have obsessive-compulsive disorder (OCD), based on either a formal diagnosis, or a discussion of your symptoms with a clinician/therapist?*" Participants responded either "Yes", "No", or "Unsure". In addition, participant reported any co-occurring disorders "*…based on a formal diagnosis… or based on the symptoms you have discussed with your clinician/therapist.*" The most common reported co-occurring disorders were generalized anxiety disorder ($n = 31$, 49.2 %), major depressive disorder ($n = 30$, 47.6 %), and obsessive-compulsive personality disorder ($n = 20$, 31.7 %). The mean number of co-occurring self-reported diagnoses was 2.68 ($SD = 1.79$), consistent with high rates of comorbid psychopathology seen in epidemiological research (Kessler et al., 2005). See Supplemental Table S1 for frequencies of self-reported co-occurring disorders. Participants then completed several questionnaire measures of disgust propensity, trait anxiety, views on long-term and short-term romantic/sexual relationships, and experiences with autogenous and reactive obsessions. After completing all study activities, participants were invited to contact the lab with any questions and were offered a downloadable list of mental health resources. All recruitment and study procedures were approved by the university's Institutional Review Board. Participants were not provided any compensation.

2.2. Materials

Three Domains of Disgust Scale (TDDS; Tybur et al., 2009): The TDDS is a 21-item self-report questionnaire measuring individual differences in disgust propensity in three domains: *pathogen* disgust (e.g., Seeing some mold on old leftovers in your refrigerator), *sexual* disgust (e.g., Hearing two strangers have sex), and *moral* disgust (e.g., Stealing from a neighbor). Items are rated on a 7-point Likert Scale from 0 (*not at all disgusting*) to 6 (*extremely disgusting*). Internal consistency was good for the moral ($\alpha = 0.85$), sexual ($\alpha = 0.86$), and pathogen disgust ($\alpha = 0.76$) subscales of the TDDS. Mean disgust propensity (Pathogen: $M = 3.54$, $SD = 1.19$; Moral: $M = 4.04$, $SD = 1.19$; Sexual: $M = 2.91$, $SD = 1.65$) was comparable to other OCD samples (Poli et al., 2019).

Trait Anxiety (Spielberger et al., 1983): The trait items of the State-Trait Anxiety Inventory were administered as an index of negative affectivity. Items were rated on a 4-point Likert scale from 1 (*almost never*) to 4 (*almost always*). Internal consistency was excellent ($\alpha = 0.94$). Mean trait anxiety ($M = 2.91$, $SD = 0.58$) was consistent with prior research with OCD samples (Segalàs et al., 2021).

Short-Term and Long-Term Mating Orientation (STMO and LTMO; Jackson & Kirkpatrick, 2007): Mating strategy—or the tendency to prefer restrictive vs. non-restrictive sexual activity—was measured on two dimensions: STMO and LTMO. 10 items indexed STMO (e.g., "I can easily imagine myself being comfortable and enjoying 'casual' sex with different partners"), and 10 items indexed LTMO (e.g., "I hope to have a romantic relationship that lasts the rest of my life"). Items were rated on a 7-point Likert scale from 1 (Strongly disagree) to 7 (Strongly agree). Internal consistency was excellent for short-term mating orientation (STMO; $\alpha = 0.95$) and for long-term mating orientation (LTMO; $\alpha = 0.95$). Although no prior research has evaluated mating strategies in OCD samples, mean ratings for mating strategies reported in the current sample (STMO: $M = 3.33$, $SD = 1.82$; LTMO: $M = 6.23$, $SD = 1.40$) were comparable to prior research with non-clinical samples (Jackson & Kirkpatrick, 2007).

Revised Obsessional Intrusions Inventory (ROII): The ROII is a 52-item self-report measure developed by Purdon and Clark (1993) to assess intrusive thoughts, images, and impulses in adults. Exploratory and confirmatory factor analyses revealed two broad dimensions of obsessions: autogenous and reactive (Lee & Kwon, 2003). Autogenous obsessions consist of abrupt, intrusive thoughts that enter the mind without any identifiable environmental trigger and are characterized by sexual, immoral, impulsive, and aggressive content. By contrast, reactive obsessions tend to be triggered by identifiable external cues (e.g., dirt) and are characterized by concerns for various perceived threats or outcomes (e.g., contamination, accidents, asymmetry, etc.). Participants rated the frequency of various intrusive thoughts that occur in specific contexts (e.g., "When driving, I have had intrusive thoughts of: Driving into a storefront window"), from 0 (Never) to 6 (Always (I have this thought frequently during the day)). Internal consistency was excellent for the autogenous obsessions sub-scale ($\alpha = 0.96$) and for the reactive obsessions sub-scale ($\alpha = 0.89$). Mean autogenous ($M = 53.17$, SD = 41.61) and reactive obsessions ($M = 19.67$, $SD = 13.74$) were comparable to other OCD samples (He et al., 2014; Lee & Telch, 2010).

2.3. Data analytic plan

For preliminary analyses, we ran zero-order correlations between all key variables, and then re-ran them as partial correlations controlling for trait anxiety. Independent samples *t*-tests were conducted to examine sex differences in all key variables. Finally, the primary analyses consisted of two multiple ordinary least squares (OLS) regression models with Short-Term Mating Orientation (STMO), and then Long-Term Mating Orientation (LTMO), as the outcome variables. For the first model (Short-Tern Mating Orientation as the outcome variable), the primary predictors were autogenous obsessions and sexual disgust. In step 1, we added sex, trait anxiety, and reactive obsessions. We added autogenous obsessions in step 2, followed by sexual disgust in step 3. Lastly, we tested for mediation using Hayes (2013) PROCESS macro in SPSS (version 29), with autogenous obsessions as the x variable, sexual disgust as the mediator, and STMO as the outcome.

For the second OLS regression model, we tested the associations between autogenous and reactive obsessions (primary predictor variables) and LTMO (outcome variable) while controlling for sex and trait anxiety. Because the association between the three domains of disgust and LTMO have scarcely been explored (Al-Shawaf, Lewis, Alley, & Buss, 2015), and disgust has primarily been shown to influence short-term mating strategies (Al-Shawaf et al., 2019), we only included disgust variables as covariates in the model if they showed significant zero-order correlations with LTMO.

As an a priori power estimation for the analysis with the greatest power requirement (the mediation analysis), we relied on simulations from Fritz and Mackinnon (2007) based on 80 % power. For an overall medium effect size, with a small a-path effect (autogenous obsessions to sexual disgust) and a large b-path effect (sexual disgust to STMO), we found that our analyses would require an estimated sample size of 403. Thus, the mediation analysis for this study was very likely underpowered. Data can be accessed via Open Science Framework (https://osf.io/3wgs8/).

2.4. Results

Zero-order correlations showed that autogenous and reactive obsessions were not significantly correlated ($r = 0.18$, $p = .135$). Autogenous obsessions were associated with trait anxiety ($r = 0.55$, $p < .001$), but reactive obsessions (surprisingly) were not ($r = 0.14$, $p = .291$). As expected, autogenous obsessions were positively associated with STMO ($r = 0.31$, $p = .012$) and negatively associated with LTMO ($r = -0.26$, $p = .041$), whereas reactive obsessions were not correlated with mating strategy. Lastly, pathogen disgust was positively associated with LTMO ($r = 0.27$, $p = .030$) but was not associated with STMO ($r = -0.17$, $p = .158$) and sexual disgust was negatively associated with STMO ($r = -0.61$, $p < .001$) but not associated with LTMO ($r = 0.01$, $p = .956$). As expected, when controlling for trait anxiety, reactive obsessions were positively associated with pathogen disgust ($r = 0.41$, $p < .001$) and moral disgust ($r = 0.30$, $p = .019$), but, in contrast to our prediction, autogenous obsessions had no association with any of the three domains

of disgust propensity. See Table 1 for all zero-order and partial correlations.

Independent Samples *t*-tests showed a statistically significant sex difference in sexual disgust, such that females ($M = 3.34$, $SD = 1.55$) reported higher sexual disgust compared to males ($M = 1.94$, $SD = 1.45$), $t(70) = -3.58$, $p < .001$, $d = 0.92$. No other sex differences were observed.

Ordinary Least Squares regression indicated that higher sexual disgust ($\beta = -0.60$, $p < .001$, $sr^2 = 0.31$) was associated with lower STMO, and autogenous obsessions ($\beta = 0.27$, $p = .042$, $sr^2 = 0.04$) were associated with higher STMO. The final model accounted for approximately 42 % of the variance in STMO, $F(6,56) = 6.88$, $R^2 = 0.42$, $p < .001$. See Supplemental Table S2 for full regression details. Results from the mediation analysis showed a significant direct effect of autogenous obsessions on STMO ($\beta = 0.27$, 95 % CI [0.01, 0.54]), but the indirect effect was not significant, evidenced by a 95 % confidence interval containing zero ($\beta = 0.03$ [−0.01, 0.02]). Thus, the relationship between autogenous obsessions and STMO was not mediated by sexual disgust. See Fig. 1 for the mediation model.

Lastly, we applied OLS regression to examine the associations between autogenous and reactive obsessions and LTMO controlling for sex, trait anxiety, and pathogen disgust. Pathogen disgust was included because it showed a significant positive correlation with LTMO. The final model accounted for approximately 21 % of the variance in LTMO, $F(4,59) = 3.74$, $R^2 = 0.20$, $p = .009$. In step 1 of the model, sex was associated with higher LTMO (such that females were more likely to endorse an LTMO; $\beta = 0.26$, $p = .040$, $sr^2 = 0.06$) and trait anxiety was associated with lower LTMO ($\beta = -0.25$, $p = .046$). However, none of the variables had any unique effect in the final step of the model once reactive and autogenous obsessions were added. See Supplemental Table S3 for the full model.

2.5. Discussion

Results from Study 1, based on $n = 70$ patients diagnosed with OCD, supported some of our primary hypotheses. As predicted, autogenous obsessions were associated with higher STMO (and lower LTMO), consistent with a more disinhibited phenotype. However, there was no association between autogenous obsessions and sexual disgust (or any other disgust domain, for that matter), suggesting that disgust may not be a mechanism linking autogenous obsessions with mating strategy. Consistent with our prediction (and prior research), reactive obsessions were associated with heightened pathogen disgust.

There were some surprising correlations worth noting. Specifically, autogenous and reactive obsessions were not correlated. One possibility is that at clinical levels of OCD, these two subtypes can present as mutually exclusive. Indeed, the two subtypes have been shown to be reliably distinguished by the primary obsession endorsed (Besiroglu et al., 2007), but their lack of overlap in the current sample diverges from previous findings in clinical samples (e.g., Belloch et al., 2010). Moreover, trait anxiety was associated with autogenous obsessions, but not reactive obsessions, another finding inconsistent with previous research (Lee et al., 2005). These may be idiosyncratic features of the current sample that may not generalize to other clinical samples and thus the results presented here should be interpreted with caution. In addition, it is important to note that the analyses here may have been underpowered to detect what might be small, but still meaningful, effects.

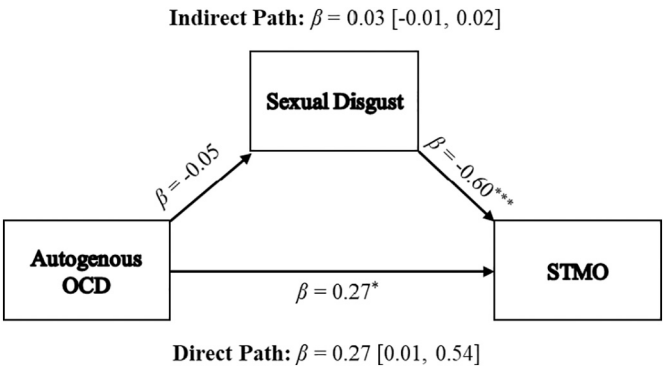

Fig. 1. Study mediation model with direct and indirect effects of autogenous OCD on short-term mating orientation (STMO). *$p < .05$, ***$p < .001$.

In summary, with caveats noted, we found that autogenous and reactive obsessions were characterized by different profiles of correlations with disgust and mating strategy, lending further credence to the notion that the two subtypes of OCD are conceptually distinct. As expected, autogenous obsessions were associated with higher STMO and lower LTMO, but surprisingly had no associations with disgust propensity. Also as expected, reactive obsessions were associated with higher pathogen disgust propensity but had no association with mating strategy.

3. Study 2: undergraduate students

Although results from Study 1 did not replicate the negative relationships between autogenous obsessions and sexual and moral disgust seen in past research, those associations have only been tested in a large undergraduate sample (Del Giudice et al., 2014). Moreover, Study 1 was likely underpowered to detect these effects, and the sample only contained a small number of male participants ($n = 14$). Given that autogenous obsessions are more common in males (Brakoulias et al., 2013) and males tend to report higher STMO (Schmitt et al., 2001), this lack of male representation might contribute to null findings. Thus, our aim for Study 2 was to test the same hypotheses within a large sample of college students, with a much wider range of variability in OCD

Table 1
Zero-order correlations and partial correlations (controlling for trait anxiety) between all key variables (Study 1).

	M	*SD*	1	2	3	4	5	6	7
1. Autogenous obsessions	53.17	41.61	1.00	**0.12**	**0.02**	**0.03**	**−0.14**	**0.28***	**−0.18**
2. Reactive obsessions	19.67	13.74	0.18	1.00	**0.41*****	**0.30***	**0.01**	**0.05**	**0.25**
3. Pathogen disgust	3.54	1.19	0.01	0.41***	1.00	**0.32***	**0.43*****	**−0.12**	**0.23***
4. Moral disgust	4.04	1.19	−0.14	0.23	0.31**	1.00	**0.24**	**−0.08**	**−0.03**
5. Sexual disgust	2.91	1.65	−0.14	0.00	0.44***	0.30*	1.00	**−0.60*****	**0.13**
6. STMO	3.33	1.82	0.31*	0.07	−0.10	−0.12	−0.61***	1.00	**−0.05**
7. LTMO	6.23	1.40	−0.26*	0.22	0.27*	−0.07	0.01	0.04	1.00
8. Trait anxiety	2.91	0.58	0.55***	0.15	−0.01	−0.31*	−0.04	0.11	−0.17

Note: Zero-order correlations are listed on the left side of the table and partial correlations (controlling for trait anxiety) are listed on the right side in boldfaced font. STMO = short-term mating orientation, LTMO = long-term mating orientation.

*** $p < .001$.
** $p < .01$.
* $p < .05$.

symptoms, and a greater number of male participants.

3.1. Methodology

3.1.1. Participants

Undergraduate participants from a large Midwestern university (n = 530) were recruited online via the university's research subjects pool and were compensated with course credit. Participants were excluded (n = 72) if they failed an attention check question embedded within the surveys (e.g., "Please Select Strongly Agree"). Mean participant age was 19.37 (SD = 2.06) and 83.6 % identified as female (n = 383). Nearly half (47.8 %) were college freshmen, 33 % were in their second and third years, and 19.30 % were in their fourth year and beyond. The sample was majority White (80.6 %, n = 369), with 13.1 % identifying as Black or African American, 2.2 % as Asian, 0.9 % as American Indian/Alaska Native, 0.2 % (n = 1) as Native Hawaiian or Other Pacific Islander, 3.1 % identifying as "other", and 5.2 % (n = 24) participants identified as Hispanic or Latino.

3.1.2. Procedure

Undergraduate students were invited to participate in a study investigating how emotions influence people's thoughts and behaviors via the psychology department subject pool. Participants first provided informed consent and then completed several questionnaire measures of disgust propensity, trait anxiety, views on long-term and short-term romantic/sexual relationships, and experiences with autogenous and reactive obsessions. Following the completion of study procedures, participants were invited to contact the study staff with any questions, and they were provided a downloadable list of campus/community mental health referrals. Study procedures were approved by the university's Institutional Review Board and participants were compensated with course credit.

3.2. Materials

Three Domains of Disgust Scale (TDDS; Tybur et al., 2009): Internal consistency for each scale was good (Pathogen, α = 0.73; sexual, α = 0.77; moral, α = 0.80). Mean disgust propensity for each domain (Pathogen: M = 4.00, SD = 0.98; Moral: M = 3.59, SD = 1.11; Sexual: M = 2.95, SD = 1.23) was comparable to prior research with undergraduate samples (Olatunji et al., 2012; Tybur et al., 2009).

Trait Anxiety (Spielberger et al., 1983): Internal consistency was excellent (α = 0.93) and mean trait anxiety (M = 2.43, SD = 0.57) was comparable to other non-clinical samples (Bieling et al., 1998).

Short-Term and Long-Term Mating Orientation (STMO and LTMO; Jackson & Kirkpatrick, 2007): Internal consistency was excellent for STMO (α = 0.93) and LTMO (α = 0.92), and the mean for each mating strategy (STMO: M = 3.85, SD = 1.59; LTMO: M = 6.38, SD = 1.03) was comparable to other undergraduate samples (Jackson & Kirkpatrick, 2007).

Revised Obsessional Intrusions Inventory (ROII): Internal consistency was good for both the autogenous (α = 0.96) and reactive (α = 0.86) sub-scales. Mean autogenous (M = 17.00, SD = 21.21) and reactive obsessions (M = 8.23, SD = 8.16) were comparable to past non-clinical samples (Lee & Kwon, 2003; Lee & Telch, 2010).

3.3. Data analytic plan

In Study 2, we took the same general data analytic approach as Study 1. For preliminary analyses, we ran zero-order correlations and then partial correlations controlling for trait anxiety. Next, we conducted independent samples t-tests to examine sex differences in all key variables. Finally, the primary analyses consisted of two hierarchical OLS regressions with STMO, and then LTMO, as outcome variables. We took the same hierarchical approach as in Study 1, and we tested whether sexual disgust mediates the relationship between autogenous obsessions and STMO. The a priori power estimation from Study 1 suggested that we would need a sample of 403 to detect mediation. Thus, the current sample (n = 458) was sufficiently powered for these analyses. Data can be accessed via Open Science Framework (https://osf.io/3wgs8/?view_only=1fc10e0b1f5d483394e3cf0744299099).

3.4. Results

Zero-order correlations indicated that autogenous and reactive obsessions were positively correlated (r = 0.37, p < .001), and that both were associated with trait anxiety (r = 0.39 and r = 0.28, respectively). Exactly as in Study 1, autogenous obsessions were positively associated with STMO (r = 0.28, p < .001) and negatively associated with LTMO (r = −0.19, p < .001), whereas reactive obsessions had no association with mating strategy. When controlling for trait anxiety, autogenous obsessions were negatively associated with pathogen (r = −0.14, p = .005), moral (r = −0.22, p < .001), and sexual disgust (r = −0.26, p < .001), whereas reactive obsessions were positively associated with pathogen (r = 0.16, p = .001), moral (r = 0.14, p = .003), and sexual disgust (r = 0.10, p = .031). As in Study 1, autogenous and reactive obsession are thus displaying markedly different profiles of correlations with other psychological constructs. See Table 2 for all zero-order and partial correlations.

Independent-samples t-tests revealed sex differences in STMO, LTMO, moral disgust, sexual disgust, trait anxiety, and reactive obsessions. Males scored significantly higher on STMO, whereas females scored higher on LTMO, moral disgust, sexual disgust, trait anxiety, and reactive obsessions. See Table S4 of the supplemental material for the full t-test results.

Results from the first OLS regression indicated that higher sexual disgust (β = −0.49, p < .001, sr^2 = 0.20) was associated with lower STMO, whereas autogenous obsessions (β = 0.16, p = .002, sr^2 = 0.02) were associated with higher STMO. The final model accounted for approximately 30 % of the variance in STMO, F(6,423) = 30.56, p < .001, R^2 = 0.30. See Supplemental Table S4 for the full regression results. Next, we tested whether sexual disgust mediates the relationship between autogenous obsessions and STMO. Results indicated both a significant direct effect of autogenous obsessions on STMO (β = 0.16 [0.05, 0.24]) and an indirect effect through sexual disgust (β = 0.17 [0.11, 0.23]), for a total effect of β = 0.32 [0.21, 0.42]. Therefore, there was evidence that sexual disgust partially mediated the relationship between autogenous obsessions and STMO (Fig. 2).

Finally, we tested the associations between autogenous obsessions, reactive obsessions, and LTMO while controlling for trait anxiety, sex, and moral and sexual disgust within an OLS regression model. The final model accounted for approximately 9 % of the variance in LTMO, F(6,422) = 6.96, p < .001, R^2 = 0.09. Results of the final model indicated that sex was positively associated with LTMO (such that females endorsed higher LTMO; β = 0.18, p < .001, sr^2 = 0.03), trait anxiety was negatively associated with LTMO (β = −0.16, p = .003, sr^2 = 0.02), and autogenous obsessions had a non-significant negative association with LTMO (β = −0.12, p = .054). See Supplemental Table S5 for full regression details.

3.5. Discussion

Results from Study 2 were mostly consistent with those found in Study 1, with the major differences being that autogenous obsessions were negatively associated with all three domains of disgust, consistent with prior research (Del Giudice et al., 2014), and sexual disgust mediated the relationship between autogenous obsessions and STMO. In summary, higher autogenous obsessions were associated with a greater preference for short-term mating, and lower interest in long-term pair-bonding, whereas reactive obsessions were not related to mating strategy. When modeled together as predictors of STMO, sexual disgust predicted lower STMO, whereas autogenous obsessions predicted

Table 2
Zero-order correlations and partial correlations (controlling for trait anxiety) between all key variables (Study 2).

	M	*SD*	1	2	3	4	5	6	7
1. Autogenous obsessions	17.00	21.21	1	**0.36*****	**−0.14****	**−0.22*****	**−0.26*****	**0.28*****	**−0.13****
2. Reactive obsessions	8.23	8.16	0.42***	1	**0.16*****	**0.14****	**0.10***	**0.02**	**0.02**
3. Pathogen disgust	4.00	0.98	−0.11*	0.17***	1	**0.38*****	**0.38*****	**−0.05**	**0.06**
4. Moral disgust	3.59	1.11	−0.26***	0.11*	0.37***	1	**0.40*****	**−0.19*****	**0.14****
5. Sexual disgust	2.95	1.23	−0.26***	0.09	0.38***	0.40***	1	**−0.53*****	**0.10***
6. STMO	3.85	1.59	0.28***	0.04	−0.05	−0.20***	−0.53***	1	**−0.21*****
7. LTMO	6.38	1.03	−0.19***	−0.03	0.04	0.16***	0.10*	−0.22***	1
8. Trait anxiety	2.43	0.57	0.39***	0.28***	0.06	−0.12**	−0.03	0.06	−0.17***

Note: Zero-order correlations are listed on the left side of the diagonal of the correlation matrix and partial correlations (controlling for trait anxiety) are listed on the right side in boldfaced font. STMO = short-term mating orientation, LTMO = long-term mating orientation.
*** $p < .001$.
** $p < .01$.
* $p < .05$.

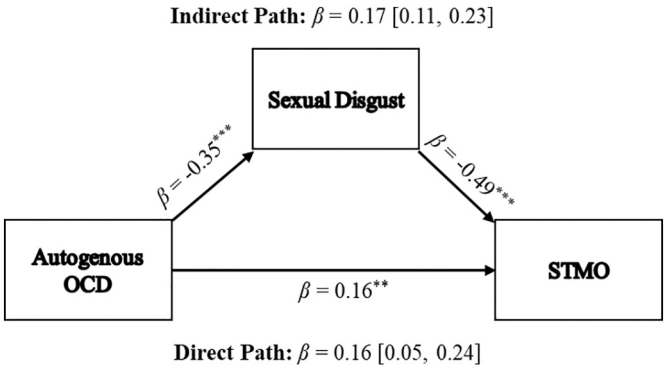

Fig. 2. Study 2 mediation model with direct and indirect effects of autogenous OCD on short-term mating orientation (STMO). $^{**}p < .01$, $^{***}p < .001$.

greater STMO, and sexual disgust partially mediated the relationship between autogenous obsessions and STMO. Results provide additional evidence that the two OCD subtypes are distinct and may have different profiles of relationships with disgust and mating strategies.

4. Discussion and implications

OCD is a rare but highly debilitating psychiatric disorder with a heterogeneous symptom profile. Although OCD's etiology has been the subject of extensive research, limited research has investigated how different dimensions of OCD symptoms relate to factors relevant to reproductive success (e.g., mating psychology). Using a well-supported two-dimensional model of OCD encompassing autogenous and reactive forms of intrusive obsessions (Lee & Kwon, 2003), we tested predictions about their unique associations with disgust and mating psychology in two samples: a clinical sample of patients diagnosed with OCD and a large undergraduate sample. Consistent with our hypotheses, in both samples, autogenous obsessions were associated with a greater preference for casual, short-term sexual relationships (e.g., short-term mating orientation; STMO), and lower interest in long-term romantic partnerships (e.g., long-term mating orientation; LTMO). Reactive obsessions, by contrast, had no associations with either STMO or LTMO. In addition, we found mixed support for our predicted associations between OCD subtype and disgust domains. Reactive obsessions had the expected association with pathogen disgust in both samples. However, autogenous obsessions were associated with lower pathogen, moral, and sexual disgust in the undergraduate sample only, and had no associations with disgust in the OCD sample. In addition, we found in Study 2 that the relationship between autogenous obsessions and STMO was partially mediated by greater sexual disgust (as expected), but this mediation was not present in Study 1.

The role of pathogen disgust in contamination-based OCD—a common form of reactive symptoms—has been the subject of increasing interest and investigation (Knowles et al., 2018), but very limited research has investigated disgust in other forms of OCD. Pathogen disgust is an important and adaptive emotion that steers individuals away from potential sources of infection (Oaten et al., 2009). However, individuals with contamination-based OCD experience extreme levels of disgust and engage in compulsive behaviors (e.g., excessive washing) to avoid getting sick—even when illness is implausible (Olatunji & McKay, 2009). Thus, the role of pathogen disgust in reactive OCD illustrates how adaptive emotions may become dysfunctional when not properly calibrated.

OCD is a heterogeneous disorder, and a growing body of evidence has demonstrated the functional distinctiveness of autogenous and reactive forms of OCD. Specifically, autogenous obsessions are associated with much more disinhibited characteristics (Del Giudice, 2014), such as reduced inhibitory control (Fan et al., 2016; Lee & Telch, 2010), low conscientiousness (Nestadt et al., 2009), and even greater thought dysfunction, including schizotypy (Lee et al., 2005; Lee & Telch, 2005). Thus, the relationship between autogenous obsessions and disgust domains was expected to differ from the role of pathogen disgust in reactive obsessions. Indeed, one previous investigation found that, in stark contrast to reactive obsessions, autogenous obsessions were associated with *lower* levels of disgust—particularly sexual and moral disgust—in a large undergraduate sample (Del Giudice et al., 2014). We replicated this finding, also in a large undergraduate sample. Thus, whereas pathogen disgust plays an inhibitory role in individuals with reactive obsessions, leading to overt compulsive safety behaviors (e.g., washing), lower levels of sexual and moral disgust might *disinhibit* cognitive systems, leading to intrusive autogenous thoughts (e.g., taboo thoughts about sex and violence). This is consistent with the original formulation of autogenous obsessions that suggested they are internally generated, rather than evoked by external stimuli (Lee & Kwon, 2003).

Importantly, in the present investigation, the negative relationship between autogenous obsessions and disgust was only present in the college sample and not the clinical sample. There are several possible explanations for the inconsistency between the two samples. First, it is possible that these associations are only evident when a wider range of symptoms is accounted for. For example, with the OCD sample, there might have been a range restriction in measurement, such that there was insufficient variability in autogenous obsessions to detect associations with other variables, like the three domains of disgust. Another (and most likely) possibility is that the clinical sample was underpowered to detect small effects or mediation, which was evident from an a priori power analysis. Indeed, the relationships observed in the college sample (which had higher power) were relatively modest. Lastly, the clinical sample had very few male participants, which could have obscured the expected associations between autogenous obsessions and sexual and moral disgust. Indeed, autogenous obsessions have previously been found to be more common in men (Hasler et al., 2005), and men tend to

report substantially lower levels of sexual disgust than women (Al-Shawaf et al., 2018; Tybur et al., 2011). Thus, if the relationship between autogenous obsession and sexual disgust is moderated by gender, the OCD sample may not have had the gender representation necessary to observe these effects.

The current investigation is among the first to test for associations between OCD, mating psychology, and the emotion of disgust. Evolutionary models have broadly conceptualized OCD as an overactive and dysfunctional harm prevention system (Marks & Nesse, 1994), which is supported by research on both cognitive (e.g., forecasting risk scenarios; Abed & de Pauw, 1998) and emotion-related (e.g., fear, anxiety, disgust) mechanisms that underlie most OCD presentations, all of which are thought to be adaptive aspects of human (and non-human) defense systems that promote survival (Tooby & Cosmides, 2008). However, most evolutionary models have failed to fully account for heterogeneity in OCD's presentation, with limited research aimed at the autogenous subtype, and even less attention aimed at factors related to reproductive fitness (e.g., mating; Del Guidice, 2018). We predicted that autogenous obsessions would be associated with greater short-term mating orientation (and possibly lower long-term mating orientation) based on the following factors: 1) the prevalence of sexual content in autogenous obsessions (Moulding et al., 2014), and 2) the past finding that autogenous obsessions were associated with *lower* sexual disgust (Del Giudice et al., 2014). Indeed, this prediction was (partially) supported in an OCD sample and fully supported in a large undergraduate sample. Moreover, the unique relationship between autogenous obsessions and STMO remained robust even when controlling for shared variance with sexual disgust—a known predictor of STMO (Al-Shawaf, Lewis, Alley, & Buss, 2015). Furthermore, in Study 2, sexual disgust partially mediated the relationship between autogenous obsessions and STMO, but a significant direct effect of autogenous obsessions remained after accounting for this mediation. Therefore, sexual disgust may be an important factor linking autogenous obsessions with STMO (at least at the sub-clinical level). Specifically, among individuals with autogenous obsessions, lower sexual disgust might lead to lower inhibitions regarding casual sex.

Results from the current investigation have important implications for evolutionary models of OCD. Evolutionary approaches to psychopathology seek to understand why individuals are vulnerable to psychiatric disorders, and why they persist despite their potential costs to survival and reproduction (e.g., fitness; Nesse, 2019). This requires an understanding of the traits and mechanisms (e.g., cognitive, emotional, biological, etc.) that give rise to psychological dysfunction. Whereas some forms of OCD are associated with largely dysfunctional mechanisms, such as extreme proneness to disgust (e.g., reactive obsessions), other presentations (e.g., autogenous obsessions) are associated with lower sexual disgust, as we showed here. This might have stimulated increased mating effort via STMO. This amplified mating effort might have resulted in the persistence of OCD-related traits in the population either directly via selection mechanisms or as a by-product (e.g., Park, 2007; Al-Shawaf et al., 2021). For example, autogenous obsessions per se might be functionless, but might nonetheless not be filtered out by natural selection because of their link with STMO (and therefore reproduction). Importantly, short-term mating is thought to have been particularly advantageous to male reproductive success historically (Buss, 2007), which might explain why autogenous obsessions tend to be more frequent in males (Hasler et al., 2005). Indeed, past research has shown that a greater number of partners across the lifespan was associated with a greater quantity of offspring for men, but not for women (Jokela et al., 2010).

The empirical patterns reported here are like those seen in research on eating disorders. Eating disorders like Anorexia Nervosa are associated with heightened disgust proneness and disgust-based learning (Olatunji, 2020), and are thought to facilitate increased intrasexual competition for mates (Abed et al., 2012). Given the common co-occurrence of eating disorders and OCD and their shared correlates with factors like disgust and mating strategies, these disorders may share etiological pathways (Rantala et al., 2019). Future research should explore this possibility within the reactive versus autogenous OCD framework.

Although individuals who experience frequent autogenous obsessions are more likely to desire short-term mating opportunities (over long-term mating commitments), it remains possible that autogenous obsessions do not correlate with greater short-term mating *behavior*. Future investigations could test this question via ecological momentary assessment. For example, daily experience sampling of OCD-related intrusive thoughts, reports of emotion (e.g., disgust), and behaviors (e.g., casual sexual encounters) could shed light on the daily dynamics of these three factors, including the sequence in which these processes occur within a person. This would help explore the potential causal direction of the factors investigated here and could help elucidate the potential impact of experiences of autogenous obsessions on reproductive fitness.

This investigation has limitations. First, this was a cross-sectional survey investigation, which has several limitations, including potential inflation of effects due to common method variance, and an inability to draw conclusions about causality. In particular, our use of cross-sectional mediation analyses is a limitation given our inability to establish temporal precedence of the variables in our models (Rohrer et al., 2022). Replication with longitudinal designs will be necessary to further establish these pathways. In addition, the OCD sample was collected online, meaning that we could not confirm the diagnostic status of participants. However, participants were primarily referred to the survey by clinicians treating OCD patients, and the study did not provide compensation, thus, it is unlikely that the survey was taken by non-OCD patients. Another limitation is the small number of male participants included in either of the studies, which might have attenuated the associations between autogenous obsessions and sexual disgust and/or STMO. This was primarily a problem for the OCD sample (Study 1), which contained a small number of male participants ($n = 14$). Although the undergraduate sample was larger and contained $n = 75$ male participants, they made up a small proportion of the sample (16.4 %), which may have influenced the results. Finally, future research should target community samples with greater gender and ethnic/racial representation to enhance the generalizability of the findings.

5. Conclusion

Evolutionary models of OCD posit that the disorder may arise out of faulty harm prevention systems. However, most existing models have not addressed how the different forms of OCD might relate to mating psychology—an important factor relevant to any evolutionary model seeking to explain the persistence of psychopathology in the population (Del Guidice, 2018). We showed that autogenous obsessions are associated with higher preference for short-term mating, and lower interest in long-term romantic relationships, whereas reactive obsessions are unrelated to mating strategy. Results related to disgust were mixed. In both studies, reactive obsessions were associated with *higher* pathogen disgust. Autogenous obsessions were associated with *lower* pathogen, moral, and sexual disgust in the large undergraduate sample (Study 2)—but not the OCD sample (Study 1). Lastly, in Study 2, we found that sexual disgust mediated the relationship between autogenous obsessions and short-term mating orientation, suggesting sexual disgust might be an important factor linking OCD and mating psychology. This is among the first investigations to find a link between mating psychology and OCD, an important step in developing evolutionary models of psychopathology, as mating strategies point to important fitness-relevant motivational systems. Taken together, we find that reactive and autogenous obsessions are differentiated by associations with disgust and mating strategy. This adds further evidence to the claim that these two subtypes of OCD are distinct (Del Giudice, 2014; Lee & Kwon, 2003). This investigation provides important preliminary evidence suggesting the relevance of evolutionary models in disentangling complex features

of burdensome psychiatric conditions. We hope this contributes in some small way to the growing literature on evolutionary approaches to psychopathology (e.g., Del Guidice, 2018; Nesse, 2019), and spurs researchers to conduct similar investigations about other psychological disorders.

CRediT authorship contribution statement

Benjamin J. Mitchell: Writing – review & editing, Writing – original draft, Visualization, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Laith Al-Shawaf:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Karin G. Coifman:** Writing – review & editing, Writing – original draft, Supervision, Software, Resources, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of competing interest

None.

Data availability

I have shared the link to the data on OSF in the manuscript.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.paid.2024.112620.

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