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Linking disgust and misophonia: the role of mental contamination

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Abstract

Objective: In the current study, the authors sought to examine whether the link between moral and sexual disgust and misophonia is mediated by mental contamination.

Method: An internationally diverse sample of 283 adults (193 females, 76 males, and 14 non-binary individuals) ranging in age from 18 to 60 years old was recruited from online social media platforms and survey recruitment sites. The sample completed an online battery of scales that consisted of the New York Misophonia Scale, State Metal Contamination Scale, and the Three-Domain Disgust Scale. The hypotheses were evaluated using a series of mediations. performed using the PROCESS add-on in SPSS.

Results: Correlations were found between emotional and aggressive-avoidant reactions in misophonia, mental contamination, pathogen disgust, and sexual disgust. Moral disgust and non-aggressive reactions in misophonia failed to correlate significantly with any of the other constructs. Sexual disgust had direct and indirect effects while pathogen disgust had only direct effects on aspects of misophonia.

Discussion: These findings partially support our hypothesis that mental contamination mediates the link between disgust propensity and misophonia while also confirming that pathogen-based disgust is not associated with mental contamination.

Conclusions: Findings imply that misophonia is distinct from obsessive-compulsive disorder. Further research into the conceptualization of moral disgust is warranted.

misophonia; moral disgust; pathogen disgust; sexual disgust; mental contamination

INTRODUCTION

Misophonia, meaning "hatred of sound" is characterized by the extreme sensitivity to selective sounds and when exposed to those sounds individuals are faced with a great deal of anger and distress [1]. These triggers may include sounds such as lip-smacking, eating, or clicking a pen. Individuals who suffer from misophonia develop avoidant or risk-taking behaviors, and they may also mimic trigger sounds as a coping strategy [2]. These individuals may not eat or may avoid certain situations due to the presence of selective sounds [3]. Deficits in emotion regulation are central to the negative emotionality and severity of misophonia [4, 5] and the negative emotions elicited by the aversive triggers can range from mild annoyance to intense distress, anger or disgust [5].

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Disgust is a basic emotion characterized by the feeling of repulsion or intense disapproval of an object, person or event considered unclean, unpleasant or offensive. Disgust can be elicited by something perceived through the sense of sight, smell, taste, or touch, or vividly imagined [6]. Although core disgust originated as a food-related emotion that served to protect against becoming polluted through actual contact with a contaminant, disgust has evolved into a cultural product and can now be elicited by a range of elicitors including socio-moral violations [7]. That is disgust can be elicited by any stimuli with the potential to contaminate or pollute physically or mentally. Tybur et al [8] proposed a model that includes three domains of disgust: 1) pathogen disgust, an aversion toward stimuli that can physically contaminate the body and cause illness or death. Pathogen disgust is protective and promotes the avoidance of disease. 2) sexual disgust, an aversion toward sexual partners, and sexual behaviors that can reduce reproductive success. Sexual disgust facilitates the avoidance of sexual partners and behaviors that can be biologically costly. 3) moral disgust, an aversion toward individuals who infringe sociomoral norms. Moral disgust serves to protect social integrity. Although disgust is an emotion evolved to play an essentially protective role, it can be experienced maladaptively and impair functioning. Individual differences in the tendency to experience disgust (disgust propensity) and the tendency to experience it as aversive (disgust sensitivity) exist, both of which can interact and predispose an individual to psychopathology [9]. Disgust sensitivity and propensity have been associated with anorexia nervosa [10], post-traumatic symptoms [11], obsessive-compulsive symptoms [12], negative body image [13] and depression [14]. Disgust proneness has also been reported to be associated with distress and behavioral reactions in misophonia [5].

Although the bulk of research on disgust proneness has focused on its role in fears related to contact contamination [15-18], several studies have also demonstrated its role in mental contamination, the feeling that something is unclean, immoral, or undesirable merely from observing or thinking about it [19-25]. Almost all these studies mainly examined pathogen disgust in the context of obsessive-compulsive symptoms without considering the roles of sexual and moral disgust. However, given that mental contamination can be triggered by thoughts, memories, and images of sociomoral transgressions [26], its role in betrayal [27], immoral behavior [28], post-traumatic stress related to sexual trauma [29, 30], and post-traumatic suicide risk [31] has been demonstrated, implying that moral and sexual disgust may be involved in manifestations of psychopathology. Mental contamination has not been studied in the context of misophonia. However, in a recent study, it was speculated as a mechanism related to emotional distress and behavioral reactions in misophonia [5].

Moral disgust has been found to elicit stronger reactions of anger compared to the other forms of disgust [32]. Misophonia often results in anger [2, 33], suggesting that moral disgust may bear a stronger relationship to misophonia than other forms of disgust. Similarly, it is also conjectured that misophonia may be associated with mental contamination-based cognition. A study by Lorona et al [34] found higher mental contamination scores following visualizations of physical and moral disgust imagery. Inoz et al [35] also reported an association between disgust sensitivity and propensity with contamination-related thought-action fusion, indicating the mediating role of mental contamination. In a series of studies designed to analyze mental contamination, imagined moral transgression [36] and cognitive appraisals [37] emerged as unique predictors of feelings of mental contamination. These studies confirm that the origins of mental contamination are rooted in the way an individual processes different images, experiences, and thoughts [26]. Misophonic cognitions have been considered in studies that focused on altering the thought process of individuals with misophonia by exposing them to trigger sounds [38, 39]. More recently, Natalini et al [40] and Stalias-Mantzikos et al. [41] identified underlying maladaptive schemas in misophonia, suggesting that understanding the thought process of misophonics can be relevant in finding an effective treatment. Contingent on this, we conjecture that disgust proneness may be related to misophonia through cognitions related to mental contamination.

All in all, this study aimed to uncover the potential connections of the three domains of dis-

gust (pathogen, sexual and moral) and mental contamination with the specific emotional and behavioral reactions in misophonia. We anticipated that the disgust experienced by people with misophonia, especially sexual and moral disgust, would stimulate feelings of mental contamination which in turn, would contribute to the emotional distress and behavioral reactions to the misophonic triggers.

METHOD

Participants

G*Power software (free download: www.gpower.hhu.de) generated a sample size estimate of 130 based on the type of statistical test, number of predictor variables, and required power of .95 to detect a medium effect size. Ethical approval was granted by the Ethics Committee of the the IRB of the City University of New York, USA and all procedures were conducted per the Declaration of Helsinki. Participant recruitment occurred between November 2021 and January 2022. Eligibility for participation was a healthy adult between the ages of 18 and 65 years, and a proficient English speaker, to ensure that survey questions were accurately addressed. Informed consent was obtained from all participants which indicated none, or minimal associated risk or discomfort, and no identifying information was collected from the participants to ensure confidentiality. Any participants either missing a question or demographic data were excluded, leaving a final sample of 283 individuals. For the participants, the ages ranged between 18 and 60 years (mean 26.7 years, *SD* = 8.94), 193 were female (68.2%), 76 were males (27 %) and 14 were non-binary (4.9%). The specific demographic characteristics collected from the sample are presented in Table 1.

Table 1. Demographic Characteristics of the Sample n = 283

Variable		Frequency	Percentage
Gender	Male	76	26.85
	Female	193	68.20
	Non-binary	14	4.95
Marital Status	Single, Never Married	182	64.31
	Married or in a Relationship	94	33.20
	Divorced or Separated	7	2.50
Education	Less than high school degree	6	2.12
	High School diploma	57	20.14
	Some college but no degree	88	31.10
	Associate degree	17	6.0
	Bachelor's degree	76	26.85
	Master's degree	35	12.37
	Doctoral degree	4	1.41
Psychological Problems	Anxiety	28	9.90
	Depression	33	11.70
	Eating disorder	3	1.06
	OCD	6	2.12
	PTSD	6	2.12
	Personality Disorder	1	.35
	Multiple	47	16.61
	Other	15	5.30
	None	144	50.88

	No medication	210	74.20
	Prescribed medication	73	25.79

Measures

State Mental Contamination Scale (SMCS; [34])

The State Mental Contamination Scale (SMCS) is derived from the Vancouver Obsessive-Compulsive Inventory-Mental Contamination Scale (VOCI-MC; [42]) and assesses state mental contamination. The 15 items are presented twice; participants are first asked how much they agree with each statement, and they are subsequently asked how often each statement is true of their experiences. Both sections are scored on a 5-point Likert scale, ranging from one (strongly disagree/never) to five (strongly agree/very often). Higher scores on the SMCS reflect greater mental contamination and the instrument has demonstrated good internal consistency with Cronbach's Alpha varying from 0.92 and 0.97 [43].

The Three Domain Disgust Scale (TDDS; [44])

The TTDS is a 21-item self-report measure of disgust. The scale consists of three domains: moral disgust *(A student cheating to get good grades),* sexual disgust *(Performing oral sex),* and pathogen disgust *(Accidentally touching a person's bloody cut).* Participants rate each item on a 7-point Likert-type scale from *not at all disgusting* (0) to *extremely disgusting* (6). Scores on each subscale are totaled and higher scores indicate greater disgust. Excellent internal consistency and test-retest reliability have been reported for all three factors [32].

The New York Misophonia Scale [45]

The NYMS is a two-part self-report scale that measures an individual's tolerance to several misophonic stimuli and their reactions to such stimuli. The first part composes of 25-item statements that are common misophonic triggers such as gum popping, pen clicking, foot-tapping, and more. The second part includes 13-items that assess an individual's behavioral reaction to the misophonic triggers (e.g. "I leave the place"). The first part of the scale utilizes a 5-point Likert scale that ranges from 0 ("doesn't bother me") to 4 ("disgusting"). Similarly, part two is based on a 5-point Likert scale with values from 0 ("never") to 4 ("always"). Part 2 assesses behavioral avoidance reactions to misophonic triggers which may be aggressive or nonaggressive. Part one of the scale has a subscore between 0 to 100 and the second part of the scale has a subscore between 0 and 42. The summation of both parts can be added to yield a range from 0 to 152. Previous studies have reported the internal consistency (Cronbach's α) for part one of the scale as .94, part two of the scale as .85, and the aggregate scale as .94. In the present study, the reliability coefficients were for part one, part two, and the entire scale .89, .85, and .91, respectively.

Data Analysis

Bivariate tests were used to examine the associations among the three types of disgust, mental contamination, misophonic distress, and aggressive and nonaggressive reactions to misophonic triggers. Pearson correlations assessed associations between continuous variables. Mediation regression models tested whether mental contamination mediated the relations between each type of disgust and misophonic distress and behavioral reactions to misophonic triggers. Indirect effects were obtained using 5000 bootstrap replications, which yielded 95% bias-corrected confidence intervals (CI). Mediation is confirmed if the confidence intervals do not contain zero. All data were analyzed using SPSS Version 25, including the PROCESS macro used for mediation (Model 4)[46].

RESULTS

Descriptive results

Table 1 presents the descriptive statistics. The sample consists predominantly of Caucasian ethnicity (41.7%) and college-educated participants (80%)

with a female majority (68.2%). Blacks, Hispanics, and Asians each constituted about 20% of the sample. About half of the sample (49.12%) reported experiencing some psychological problem but the vast majority of the sample (74.2%) reported taking no prescribed medication for their problem. The mean age in this sample was 26.8 years (*SD* = 8.92). The sample mean scores on the three types of disgust, mental contamination, and features of misophonia are presented in Table 2.

Table 2. Correlations between the Study Variables

	Age	Misophonic Distress	Aggressive Reactions	Non-Aggressive Reactions
Age		.130*	.003	.032
Pathogen-Based Disgust	-.0 50	.345***	.190**	.052
Sexual Disgust	– .176**	.275***	.198**	.079
Moral Disgust	.077	.049	– .084	-.026
Mental Contamination Intensity	-.303***	.237***	.194**	.043

*p < .05; **p < .01; ***p < .001

Bivariate correlations

Pearson correlations among continuous study variables are shown in Table 3. Age was significantly and negatively correlated with sexual disgust and mental contamination but did not associate with pathogen-based or moral disgust. Total misophonia scores correlated positively with total disgust and mental contamination scores. However, misophonic distress and aggressive reactions showed a significant positive association only with pathogen-based and sexual disgust while it failed to correlate with moral disgust. Non-aggressive behavioral reactions to misophonic triggers did not have any significant relationship with any of the variables in the study and were eliminated from further analysis.

Table 3. Results of mediation analysis and bootstrap effects for indirect effects

					Indirect Effects	
					Bias Corrected	
	To MC	To MisD	To AggR	To NonAggR	Estimate	Bootstrap 95% Confidence Interval
PD	.19 (.11)	.57 (.13)***	.15 (.06)*	.01 (.03)		
SD	.27 (.09) **	-.20 (.10)*	-.10 (.05)*	.02 (.02)		
MD	-.14 (.08)	-.12 (.09)	-.12 (.04)**	-.02 (.02)		
MC		.19 (.07) **	.07 (.03)*	.004 (.01)		
Total		.61 (.13)***	.16 (.06)*	.01 (.03)		
SD→MC→MisD					.05 (.03)	.0051, .1223
SD→MC→AggR					.02 (.01)	.0003, .0521

Note. PD = Pathogen-based Disgust; SD = Sexual Disgust; MD = Moral Disgust; MC = Mental Contamination; MisD = Misophonic Distress; AggR = Aggressive Reactions; NonAggR = Non-Aggressive Reactions.

Mediation Analyses

Mediation regression analysis results with each type of disgust as the focal independent variable, misophonic distress and aggressive reactions to misophonic triggers as the focal dependent variables, and mental contamination as the mediating variable are depicted in Fig.1. To test the mediation model, we used Model 4 of the SPSS macro PROCESS compiled by Hayes [46]. Specifically, we estimated the mediating effect of mental contamination on the relationship between each type of disgust and misophonic features, distress, and aggressive reactions. Please see Table 3 for details. As shown in Table 3, pathogen-based disgust failed to predict mental contamination (b = .19, t = 1.70, p = .09), resulting in no significant indirect effect on misophonic distress. However, a significant direct effect of pathogen-based disgust on misophonic distress was seen (b = 0.57, t = 4.39, p < .001). The bias-corrected percentile bootstrap analyses further showed that the indirect effect of pathogen-based disgust on misophonic distress via mental contamination was not significant (index = .037, Boot SE =.028 BootCI – .006, .101). Similarly, pathogen-based disgust had a direct (b = 0.15, t = 2.36, p < .05) but no indirect effect on aggressive reactions to misophonic triggers via mental contamination (index = .014, Boot SE =.012 BootCI – .003, .042).

Sexual disgust had both direct (b = 0.20, t = 1.98, p < .05) and indirect effects on misophonic distress (index = .051, Boot SE =.030 BootCI .005, .122). Significant direct (b = 0.10, t = 2.10, p < .05) and indirect effects (index = .019, Boot SE =.013 BootCI .0003, .0521) were also observed on aggressive reactions to misophonic triggers.

Moral disgust failed to have direct (b = – .12, t = – 1.37, p > .05) and indirect effects (index = .027, Boot SE =.019 BootCI – .0718, .0008) on misophonic distress. However, regarding aggressive reactions to misophonic triggers, moral disgust showed a significant direct effect and a non-significant indirect effect via index = – .01, Boot SE =.008 BootCI – .0297, .0008) mental contamination.

DISCUSSION

The current study sought to determine whether mental contamination mediates the link between disgust proclivity, specifically moral and sexual disgust, and misophonia. Pathogen and sexual disgust and mental contamination were found

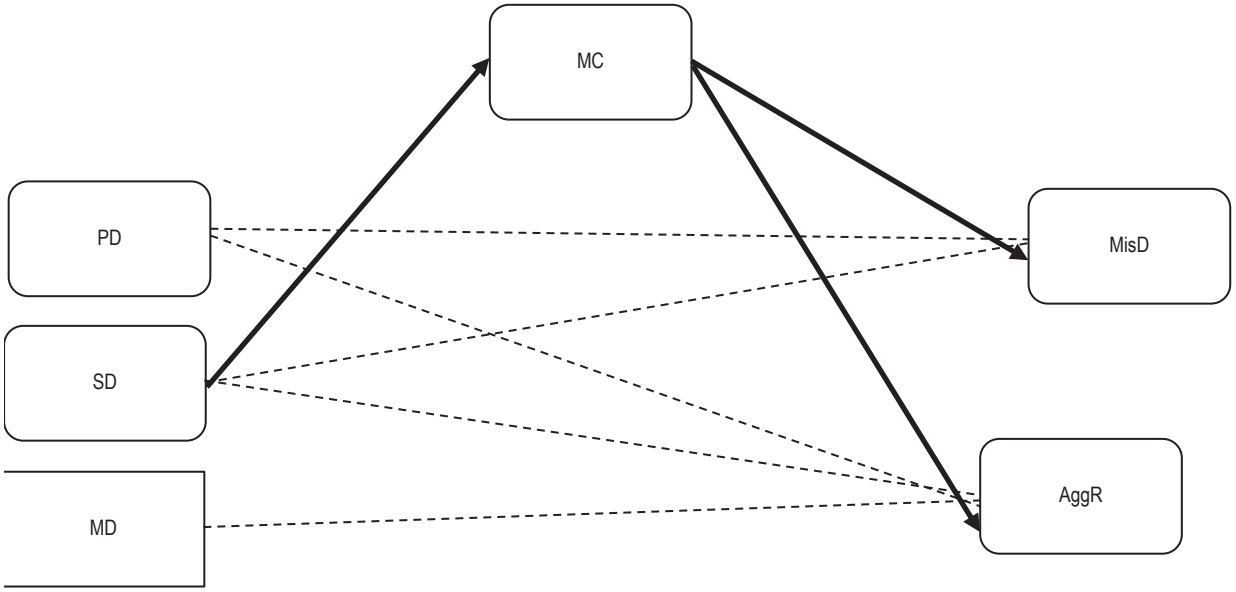

Figure 1. Path Model Displaying Mediation of Mental Contamination in the Relationships of Pathogen, Sexual and Moral Disgust with Misophonic Distress and Misophonic Aggressive Reactions (significant direct paths are indicated by dashed lines and the significant mediation is indicated by a solid line)

Note. PD = Pathogen Disgust; SD = Sexual Disgust; MD = Moral Disgust; MC = Mental Contamination; MisD = Misophonic Distress; AggR = Aggrssive Reactions to MisophonicTriggers

to have zero-order correlations with misophonic distress and aggressive avoidance reactions. Moral disgust showed a significant positive correlation with pathogen and sexual disgust but failed to correlate significantly with any of the other constructs. The non-aggressive avoidance reactions to misophonic triggers also showed no significant correlations with the other constructs.

The strong and significant association we found between pathogen disgust and sexual disgust is in keeping with the findings of Poli et al [47] and may imply support for the assertion by Tybur et al [48] that pathogen disgust partially shapes sexual strategies and sexual disgust. The significant associations among pathogen disgust, sexual disgust, and moral disgust are also explained by Olatunji et al [49] as supportive of a general disgust factor. The association of both sexual and pathogen disgust but not moral disgust with features of misophonia is consistent with the findings of previous studies. van Delft, Finkenauer [46] found no association between moral disgust sensitivity and posttraumatic stress symptoms among mothers of sexually abused children, Poli et al [47] found no association between moral disgust and obsessive-compulsive washing symptoms, and Żelaźniewicz et al [51] found no association between moral disgust and hand-grip strength. This finding may reflect the idea that the moral disgust scale is of questionable validity as the items are about social-related violations involving intentionality (e.g., deceiving a friend, forging someone's signature) and judgments of fairness and harm that tap the emotions of anger and contempt rather than disgust [49,52].

The finding that sexual disgust and pathogen, but not moral disgust, were associated with mental contamination is in line with the findings of Badour et al [53] and Poli, Melli [43]. Badour [et al] [53] found a link between disgust related to unwanted sexual contact and mental contamination in women who had experienced sexual trauma but not in those who had experienced non-sexual assault. Poli [47] reported that pathogen-based disgust predicted contact contamination and not mental contamination, sexual disgust predicted mental contamination, and the association of moral disgust with both contact contamination and mental contamination was nonsignificant. These findings indicate that just as the three domains of disgust differ in terms of their elicitors, they also differ in the mechanisms through which they motivate behavioral reactions to the elicitors, with pathogen disgust resulting only in feelings of biological contamination and sexual disgust in both biological and mental contamination. In contrast, the moral disgust domain was unrelated to both biological and mental contamination. This finding runs contrary to our hypothesis. Based on the conceptualization of mental contamination as feelings of internal dirtiness arising from observing or thinking about something unclean, immoral or undesirable [26], we expected a positive association with moral disgust. The absence of an association between the moral disgust domain and mental contamination has also been reported in the results of a recent study [47]. It is not clear whether the findings suggest a linguistic error in the use of the word disgust for anger in response to actions that are harmful or unfair [52], or whether the emotion of moral disgust does not necessarily give rise to feelings of physical or internal dirtiness. Further research is warranted.

Disgust has been implicated in various forms of psychopathology including obsessive-compulsive disorder [54,55], anxiety disorders [56,57], and eating disorders [58]. The association of pathogen disgust and sexual disgust with misophonic distress in the current study is in line with these studies. Knowles, et al [59] have proposed that cognitive biases (attentional bias, memory bias, interpretation bias, and judgment or expectancy bias) concerning disgust-relevant stimuli and trait disgust proneness together serve as mechanisms in the etiology and maintenance of psychopathologies. Although previous research has linked disgust to misophonia via emotion dysregulation [5], the role of cognitive biases in misophonia has yet to be examined. It is plausible that as per the combined cognitive bias hypothesis [60] the biased cognitive processes of expectancy, attention, interpretation, and memory influence each other and contribute to emotion regulation difficulties and the use of maladaptive emotion regulation strategies. A recent randomized control trial [61] did confirm the efficacy of cognitive behavioral therapy for misophonia, but it is not clear whether the cognitions targeted were associated with disgust and whether changes in disgust ensued.

According to mediation analysis, pathogen and sexual disgust had direct effects on aggressive behavioral avoidance, a finding consistent with prior research focusing on disgust serving as a buffer towards aggression. Olatunji et al. [62] found that individuals that are particularly sensitive to disgust should be inclined towards avoidance or withdrawal-like behaviors. Pond et al. [63] found that individuals that are more sensitive to disgust are less likely to partake in aggressive actions as behavioral avoidance supersedes this reaction. Misophonic situations that may involve sexual or pathogen-based disgust may elicit anger and aggression, but aggression is buffered by behavioral avoidance. In other words, individuals may express their anger in ways designed to avoid the disgust-eliciting stimulus. The expression of disgust through aggressive avoidance reactions such as "turning up the sound of music" or "clenching fist" is supportive of the idea proposed by Sabo, et al [64] that disgust is related to indirect aggression, and when violations are not directed to oneself, greater feelings of disgust than anger are experienced.

Sexual disgust also had indirect effects through mental contamination on total misophonia and on the emotional distress and aggressive avoidance reactions to disgust elicitors. But mental contamination did not mediate the association of pathogen-based disgust to misophonia and to the emotional and behavioral reactions to the disgust elicitors. These findings only partially support our hypothesis of mental contamination as a mediator in the link between disgust propensity and misophonia. The link between sexual disgust and misophonic distress and aggressive avoidance reactions via mental contamination may imply that sexual disgust is associated with appraisals of the use of the body as abnormal and judgments of such use as wrong resulting in feelings of internal dirtiness (mental contamination) and consequent emotions of anger [65]. Experiencing sexual disgust (e.g., a stranger of the opposite sex intentionally rubbing your thigh in an elevator) potentially affects misophonic distress and aggression by creating feelings of mental contamination which then leads to a misophonic person reacting to this with a misophonic emotional and behavioral reaction. Limited research has been available to cohere the association between sexual disgust, mental contamination, and misophonia. The absence of a link between moral disgust and misophonic features via mental contamination may imply that non-sexual moral transgressions are associated with judgments of rights violation and elicit anger but no feelings of internal dirtiness (mental contamination).

Theoretical implications

The current study confirms certain hypotheses suggested by previous researchers while also suggesting other implications.

The finding that pathogen and sexual disgust were directly associated with the emotional and behavioral aspects of misophonia may imply that disgust in misophonia is a visceral reaction to stimuli from sensory modalities especially auditory and visual stimuli. The finding that pathogen-based disgust had significant direct effects on misophonic distress and aggressive avoidance reactions could also likely be an artifact of the assessment tool. All items assessing pathogen-based disgust include visual stimuli which may elicit aversive reactions of disgust or anger in individuals with misophonia without the inference of the stimuli being noxious. Moral disgust was not associated with any feature of misophonia, which again may be attributed to the abstract nature of the items assessing moral disgust. Items about moral disgust do not easily result in a sensory representation, and consequently, do not elicit the same emotional reactions as items about pathogen and sexual disgust. Items in the moral disgust scale were all about social violations eliciting anger rather than disgust. The obtained findings support the assertion that misophonia reflects an abnormality in the perception of specific patterns of sounds or visual stimuli in the context of disgust propensity, causing an emotional reaction and may, therefore, be a neurological disorder involving perception and emotional neural networks [66].

The current finding of mental contamination mediating the link between sexual disgust and features of misophonia implies that sexual disgust likely results in emotion dysregulation which potentiates the effect of disgust on

mental contamination, leading to misophonic distress and aggressive reactions. The lack of a mediating role of mental contamination in the link between pathogen-based disgust and misophonia may serve as a significant difference between misophonia and OCD in which, feelings of mental contamination arising from contamination-based disgust lead to distress that manifests itself through compulsive washing, avoidance, and neutralizing tactics [20]. The main motivating factor in OCD is contact contamination. In contrast, in accordance with the integrative functional theory [67], the disgust experienced in misophonia may have no accompanying elaborated reasons and appraisals of harm or intent. We argue that the mental contamination in misophonia is the consequence of the perception of something unclean, undesirable, or just not right [26]. Mental contamination in misophonia arises in the context of sociomoral transgressions with a sensory component. Stimuli that evoke sensory representations give rise to feelings of disgust and internal dirtiness which can lead to misophonic reactions. That is, the mental contamination in misophonia does require an external sensory stimulus, but individuals with misophonia may not feel an urge to wash and do not infer a risk of illness from their disgust response. Instead, misophonic triggers are appraised as violations of psychological balance or status quo resulting in anger and distress rather than fear and anxiety. Consistent with the idea put forth by Tybur et al [68], to the extent that misophonic triggers are perceived as self-targeting violations, more anger, and less disgust will be experienced. But if the triggers are perceived as violations but not targeting the self, the experienced emotion will be more disgust than anger.

LIMITATIONS

This current study presents many ideas, but it is not without limitations. Our main construct, moral disgust, was only found to be directly associated with aggressive reactions leading to a partial support of one of our hypotheses. This implies that moral disgust and mental contamination cannot be used together to explain or predict misophonia. Future studies should identify if there is another construct that connects moral disgust to misophonia through mental contamination. Further studies should also be done to further explore the connection between misophonic anger as well as general anger and moral disgust. Aggressive reactions were found to be correlated with all three domains of disgust and mental contamination, suggesting that focusing on this could be the link between all four constructs. Furthermore, the sample demographic is another limitation. As a non-clinical sample, not every participant may be reflective of actually being misophonic. Utilizing a clinical sample of misophonics can provide more clarity on behaviors, misophonic reactions, and relevant constructs. As a novel topic, this study adds to the growing literature on misophonia and disgust. Other facets of disgust can be explored to uncover if they correlate with misophonia and different misophonia behaviors.

Authors' Contributions

Usha Barahmand: Conception or design; data collection, analysis and interpretation of data; drafting the article, revising it critically for important intellectual content.
Laurisa Peters: Data Collection, drafting the article, revising it critically
Maria Stalias-Mantzikos: Data collection, drafting the article, revising it critically
Naila Shamsina: Data collection, drafting the article, revising it critically
Kerry Aguero: Data collection, drafting the article

Declarations

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Ethics approval*: The study proposal received approval from the IRB of the City University of New York, USA.*
Consent to participate*: All participants provided informed consent before gaining access to the survey questions used in this study.*
Availability of data and material**:** *All data are available upon reasonable request.*

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