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The New York Misophonia Scale (NYMS): A New Instrument to Identify Misophonia in the General Population

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Misophonia is a condition in which certain sounds and behaviors elicit distress that ranges from mild annoyance to disgust or anger. The aim of this research was to develop and validate an instrument to screen for misophonia in the general population. Study 1 developed and explored the factor structure and item quality of the New York Misophonia Scale (NYMS), which originally included 42 triggers and 13 behavioral reactions. A sample of 441 American adults responded to the instrument via social media platforms. Of the original 42 triggers, 25 clustered into 4 factors: repetitive actions, mouth sounds, ambient object sounds, and ambient people sounds. The 13 behavioral reactions loaded on to 2 factors, aggressive and non-aggressive reactions. Study 2 evaluated the psychometric properties of the final version of the NYMS using a sample of 200 American adults. The results supported the validity of the factor structure and the reliability of the final version of the NYMS from Study 1. Finally, Study 3 explored the concurrent and convergent validity of the final version of the NYMS with the Misophonia Questionnaire (MQ) and the Difficulties in Emotion Regulation Scale-Short Form (DERS-SF). A sample of 171 adult participants completed all of the scales. Good concurrent validity was found with the MQ and good convergent validity was found with the DERS-SF. Overall, the NYMS appears to be a useful and promising instrument for assessing misophonia triggers, severity of distress elicited, and behavioral reactions to the distress in the general population.

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KEY WORDS: misophonia, sound sensitivity, distress, emotion regulation, Misophonia Questionnaire, New York Misophonia Scale

Misophonia is a relatively under-researched condition characterized by a decreased tolerance to specific sounds or stimuli associated with the sounds.¹ Although auditory triggers are most common, visual triggers such as *leg shaking* or *feet wiggling* may independently provoke distress in misophonia. The triggers are perceived as unpleasant or distressing and elicit strong negative physiological, emotional, and behavioral responses not experienced by most other people. It is not the intensity of the auditory stimuli but rather the pattern of the sounds or the individual's interpretation of them that is aversive.¹ The trigger stimuli elicit autonomic reactions such as increased muscular tension, increased heart rate, sweating, negative affective reactions such as feelings of anger, irritation, or distress, and behavioral reactions such as avoiding or escaping from the trigger stimuli, agitation, or verbal or physical aggression. Although there are individual differences, individuals with misophonia often report similar categories of triggers such as the sound of humans

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chewing and repetitive movements such as swinging or tapping.² Further reports include sounds created by other people such as lips smacking, coughing, and throat clearing.³ Misophonia can be a debilitating condition that affects the individual's concentration, social relationships, and overall quality of life, resulting in significant distress, reduced academic or occupational functioning, strained social relationships, social isolation, or mental illness.^{1,2} Some individuals with misophonia are aware that their reactions to misophonic trigger stimuli are disproportionate to the circumstances.

While misophonia was originally reported as a distinct clinical entity, defined as an abnormally strong reaction such as increased sympathetic nervous system arousal to sounds with a certain meaning to a person,⁴ it was later proposed as a primary nosologic entity or discrete psychiatric disorder that could be classified within obsessive-compulsive spectrum disorder in the DSM-5.⁵ Explanations for misophonia include that it represents conditioned physical and emotional responses⁶ or patterns originating from early childhood/early adulthood that increase in intensity with repeated exposure to triggers as the individual goes through life.⁷ Other studies have reported that misophonia symptoms can be found in the context of Tourette syndrome,⁸ obsessive-compulsive disorder,⁹ generalized anxiety disorder, and schizotypal personality disorder.¹⁰ In contrast, a recent study by McKay et al¹¹ showed that the large majority of individuals with misophonia did not differ from those without misophonia on a range of psychopathological symptoms specifically related to obsessive-compulsive disorder, and only a small percentage showed elevations on some dysfunctional obsessions. These findings led those authors to conclude that misophonia may be a unique syndrome associated with a wide range of dysfunctional cognitions and stress-related symptoms. Similarly, a 2018 review of the literature on misophonia by Brout et al¹² also suggested that misophonia may just be a condition characterized by high levels of psychological distress not uniquely associated with any specific disorder. Therefore, the existing evidence indicates that the relationship of misophonia with other psychiatric conditions is far from clear and warrants further research.

Several scales have been developed to assess this condition. One of the earliest measures was the Misophonia Activation Scale (MAS-1).¹³ Developed by

a team at misophonia-UK.org in 2010, this instrument is not intended to diagnose the condition but rather it is designed to measure the severity of misophonic reactions. While there is no reference to actual triggers, hierarchies of likely emotional and physical reactions to a misophonic trigger ranging from 0 to 10 are described. Psychic responses are assumed to precede physical responses, with the combination of emotional and physical responses considered to be indicative of the most severe levels of misophonia.

While the MAS-1 focuses relatively more on emotional than physical responses, the Misophonia Physiological Response Scale (MPRS)¹⁴ assesses the intensity of physical reactions to triggers. It was developed by Bauman¹⁴ in 2015 to be used in conjunction with the MAS-1. A less well-known scale is the Misophonia Assessment Questionnaire (MAQ) developed by Johnson¹⁵ in 2014, which has been used in one case study involving treatment of misophonia.¹⁶ These 3 scales have not been widely used in research, nor have their psychometric properties been reported in peer-reviewed journals.

Schröder et al⁵ conducted a study that led them, in 2013, to propose diagnostic criteria for misophonia as well as to develop the 6-item Amsterdam Misophonia Scale (A-Miso-S), later revised as the A-MisoS-R. This scale includes 3 sections assessing sensitivity to various categories of sounds, emotional responses and cognitions, and functional impairment associated with the sound triggers. This scale was adapted from the Yale-Brown Obsessive Compulsive Scale and is based on the assumption that misophonia is strongly associated with obsessive-compulsive disorder, an assumption that has not been consistently substantiated in research. Also, the validity of the measure has not been tested. The A-Miso-S has been used in research testing the effectiveness of cognitive behavioral therapy for misophonia¹⁷ and comorbidity in misophonia.^{18–20}

The Misophonia Questionnaire (MQ)² is another instrument developed to measure the severity of misophonia and is probably the most widely used measure for misophonia. The scale has been validated in a sample of undergraduate students, and its wide use is likely due to its empirically supported psychometric properties as well as its simple structure. The questionnaire assesses sensitivity to categories of triggers; cognitive, behavioral, and emotional responses to the triggers; and severity of

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misophonia. This scale has also been used in research on misophonia²¹ and the comorbidity of misophonia with other psychiatric conditions.^{11,22} Although widely used, the scale appears to measure sound sensitivity rather than misophonia, as its external validity was assessed with a questionnaire that measures sound sensitivity and the instrument includes only auditory triggers, while individuals with misophonia may show a decreased tolerance to any stimuli associated with the auditory triggers.¹ That is, patterned visual stimuli may also serve as triggers. Secondly, the MQ does not assess responses to specific triggers but instead groups various triggers together implying the assumption that only a limited range of auditory stimuli may provoke misophonic reactions. Furthermore, emotional, behavioral, and cognitive responses are all grouped together, obscuring any potential individual differences in reactions to misophonic triggers and compromising the practical utility of this subscale. Finally, the scale measures severity with 1 question, further casting doubt on the necessity or advantage of the 2 subscale scores.

Three recently developed measures of misophonia are MisoQuest,²³ the Selective Sound Sensitivity Syndrome Scale (S-Five),²⁴ and the Duke Misophonia Questionnaire (DMQ).²⁵ MisoQuest is a questionnaire developed in Polish and based on the criteria proposed by Schröder et al⁵ in 2013. This instrument assesses strong somatic and emotional reactions to aversive sounds made by the human body, animals, or things, and the items may not be endorsed by individuals with mild or moderate levels of misophonic reactions. The S-Five measures externalizing appraisals, internalizing appraisals, impact, outbursts, and threat. The authors state the scale factors have good reliability, and the scale validity was demonstrated by comparison with the MQ and A-Miso-S. This scale assesses the cognitive and emotional experiences of individuals with misophonia. It cannot be used as a measure to screen for or identify individuals with misophonia. The DMQ is a comprehensive tool, with 2 composite scales capturing many of the aspects of misophonia identified in the recently published “consensus definition” of misophonia.¹ The instrument is reported to have excellent psychometric properties and provides cut-off points for identifying clinical severity. The only possible drawback with this instrument is its length. With 86 items, it may not

be used to quickly identify individuals experiencing misophonic distress. The specific drawbacks of the existing measures are presented in Table 1.

The existing instruments described above were all designed for the purpose of identifying the severity of misophonia, focusing mainly on anger responses. However, these questionnaires vary in their focus in different ways. The MAS-1 and MPRS focus on the severity of emotional and physical responses, respectively, while the MAQ and the A-MISO-S assess the emotional impact of misophonia. The MQ, MisoQuest, and S-Five represent attempts to develop tools to measure triggers, responses, and the impact of misophonia—that is, the items in these scales are more likely to be endorsed by individuals with moderate to very severe levels of misophonia. According to the recent consensus definition presented by Swedo et al,¹ misophonia may be a condition characterized by varying degrees of negative emotions ranging from slight discomfort or irritation to extreme disgust and anger. Similarly, reactions to triggers may range from nonconfrontational reactions associated with no functional impairment to aggressive responses and maladjustment. Furthermore, in the majority of individuals with misophonia, symptoms are not associated with other comorbid psychopathological conditions,¹ indicating no significant differences between individuals with misophonia and those without, and individuals with misophonia may differ across a wide range of emotional and behavioral reactions. A scale that measures the existence of misophonic features in nonclinical individuals through the assessment of a range of negative emotional and behavioral reactions to a wide variety of auditory and visual triggers is necessary so that individual differences and normal and abnormal levels of sensitivity to selective sounds and gestures can be identified.

OBJECTIVE

The goal of the study presented here was to develop and validate a new questionnaire to screen for misophonia in the general population. The newly developed scale allows for the identification of a range of specific triggers and a range of emotional reactions from mild to extreme annoyance, distress, or disgust. In addition to the range of triggers and emotional reactions, a wide range of behavioral responses is assessed from ignoring the trigger, to

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TABLE 1. Existing Measures of Misophonia and Their Drawbacks

<i>Scale</i>	<i>Abbreviation</i>	<i>Feature</i>
Misophonia Activation Scale ¹³	MAS-1	No reference to actual triggers; focuses more on emotional responses
Misophonia Physiological Response Scale ¹⁴	MPRS	No reference to actual triggers; focuses only on physiological responses
Misophonia Assessment Questionnaire ¹⁵	MAQ	Psychometric properties not reported
Amsterdam Misophonia Scale ⁵	A-MisoS-R	Based on the assumption that misophonia is associated with obsessive-compulsive disorder; scale validity not tested
Misophonia Questionnaire ²	MQ	Measures sound sensitivity; includes only auditory triggers; does not assess responses to specific triggers; severity measured with 1 question
MisoQuest ²³	MisoQuest	Developed in Polish; items may not be endorsed by individuals with mild or moderate misophonia
Selective Sound Sensitivity Syndrome Scale ²⁴	S-Five	Assesses cognitive and emotional experiences of people with misophonia; cannot screen or identify individuals with misophonia
Duke Misophonia Questionnaire ²⁵	DMQ	Too long; cannot be used to quickly identify individuals experiencing misophonic distress

nonconfrontational or nonaggressive reactions, to confrontational or aggressive reactions. The psychometric properties of the scale are examined in large samples of individuals from the general population.

METHODS AND RESULTS

Ethics Statement

The study was approved by the IRB of City University of New York, Queens College (No.2020-0728), and informed consent was obtained from respondents over the internet.

Study 1

The first study was designed to develop the preliminary version of the New York Misophonia Scale (NYMS) and evaluate its factor structure, internal consistency, and item quality. No specific number of factors was anticipated a priori, although the scale items were arranged in 2 sections. Part A consisted of a list of various auditory and visual triggers and associated emotional reactions, and

Part B consisted of a list of behavioral reactions to or accompanying the misophonic emotional arousal.

Design

Questionnaire Development and Selection of Items. The researchers first decided that the instrument should be structured in 2 parts, with Part A presenting the stimuli that trigger emotional arousal in misophonia and Part B encompassing the variety of responses that an individual with misophonia might employ to cope with the emotional arousal and source. This was done to ensure that a variety of triggers; a range of emotional responses including increasing degrees of annoyance, anger, anxiety, and disgust; and a range of behavioral responses to the triggers could be assessed.

The items in the instrument were constructed from information about misophonia that has been published in scientific journals. All triggers and physical and emotional responses that have been reported as describing misophonia were included. Therefore, in addition to sensitivities to human sounds, sensitivity to repetitive movements and ambient sounds was also included.

First, all empirical research reports on misophonia published in academic journals between the

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years 2009 and 2020 were scanned and all of the authors, including 2 seasoned faculty, a doctoral candidate, and an honors undergraduate student, contributed to generating a pool of items describing various features of misophonia as reported in scientific articles. As part of this review of the literature, the items were categorized as triggers, emotional responses, or behavioral responses, which were then evaluated by each author independently using a rating scale. All of the top-ranked items were then evaluated in terms of content validity by all of the authors together. These categories are also consistent with the recently published definition of misophonia.¹ Next, all of the existing tools for the assessment of misophonia were examined and compared against the categories created. After elimination of duplicate and synonymous entries, a total of 63 items that were rated as best by all of the authors were retained. These items included 42 that assessed misophonia triggers and 21 that assessed behavioral responses to the triggers. The triggers included both auditory and visual stimuli. The sound triggers included repetitive oral and nasal sounds as well as repetitive sounds made by humans when manipulating everyday objects like pens. The auditory triggers also included ambient sounds made by humans and commonly used appliances. The visual triggers included repetitive hand and leg movements and facial gestures. Since the emotional responses were observed to include irritation, annoyance, anger, and disgust as well as anxiety and panic, the decision was made to include options that would assess varying degrees of negative affect using terms that would capture all of these negative emotions, while at the same time allow for identifying individual differences in severity of negative affect. Furthermore, the available literature associating misophonia with anxiety suggests that anxiety plays a mediating or moderating role in misophonia rather than being a reaction to the triggers.^{2,11,22,26} Therefore, the research team decided to drop the terms “anxiety” and “panic” and to present the responses arranged on a continuum of increasing unpleasantness, including the term “distressing or disgusting” to allow for the identification of individuals experiencing extreme anger, anxiety, or disgust. Therefore, a 5-point Likert scale ranging from 0 = *doesn't bother me* to 4 = *disgusting/distressing* was considered as the response format for the 42 triggers. The behavioral reactions were listed in no specific order and a

5-point Likert scale ranging from 0 = *never* to 4 = *always* was considered as the response format to reflect the frequency with which each response is demonstrated.

These items were then submitted to a pilot study in a sample of 30 participants to confirm that the items were easily comprehensible. The self-report survey was administered to a group of undergraduates who volunteered to participate in response to announcements made through the learning management system. Feedback was solicited through 2 open-ended questions placed after each part of the questionnaire. Slight modifications were made in the wording of some items and 8 items from Part B which did not reflect behavioral reactions or appeared to be redundant with other items were dropped. For example, the item, *I shout at the individual* was dropped as it was redundant with the item *I become verbally aggressive*. The final set of 42 triggers (Part A) and 13 behavioral reactions (Part B) were randomly ordered and represented the first version of the NYMS. Table 2 presents the complete list of the 42 trigger items and Table 3 presents the 13 behavioral response items. A 5-point Likert-type scale was selected for participants' responses to triggers in Part A (from 0 = *doesn't bother me* to 4 = *extremely annoying/disgusting/distressing*) and for their responses to behavioral reactions in Part B (from 0 = *never* to 4 = *always*).

Participants and Procedure. A sample of 441 adult American participants (294 female, 139 male, and 8 nonbinary individuals) participated in the study. The mean age of the participants was 29.6 years ($SD = 11$ y). Recruitment was conducted online through social networking sites including LinkedIn, Facebook, Instagram, Twitter, and Reddit, and survey exchange sites such as Survey Swap, Survey Tandem, and Survey Circle. No personal accounts were used. Links to the survey were posted on pages relevant to data collection for research purposes. All individuals between the ages of 18 and 65 were invited to participate in the study. All data were collected through the survey presented on Google Forms. The inclusion criteria included (1) age between 18 and 65 years, and (2) fluency in English. Exclusion criteria included (1) being under 18 years or over 65 years of age and (2) not having completed at least 2 years of instruction in English, which was considered an indication of a lack of sufficient fluency in English. No identifying information was

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TABLE 2. Items in Part A of the Preliminary Version of the New York Misophonia Scale Representing Triggers of Misophonia

<i>Part A</i>	
1 Chewing food loudly	22 Leg shaking
2 Gum popping	23 Certain hand gestures
3 Throat clearing	24 Certain facial expressions
4 Crunching an apple	25 Twirling hair
5 Slurping	26 Pen clicking
6 Eating chips	27 Pencil tapping
7 Smacking lips	28 Clock ticking
8 Hiccups	29 Rustling paper or plastic
9 Sneezing	30 Tap dripping
10 Humming	31 Cutlery or glasses clinking
11 Baby crying	32 Refrigerator humming
12 Certain accents	33 Swallowing
13 Certain consonants and/or vowels	34 Grinding teeth
14 Certain voices	35 Neighbors speaking
15 Nose sniffing or blowing	36 Yawning
16 Breathing loudly	37 Fiddling fingers
17 Knuckle, wrist, knee (any other joint) cracking	38 Nail clipping
18 Foot tapping	39 Whistling
19 Feet wiggling	40 Snoring
20 Finger tapping	41 Scratching
21 Leg swinging	42 Neighbors playing music

collected. Information about the study was provided to the participants and consent to participate was requested. Only participants who consented to participate were provided access to the survey. Each participant could respond only once to the survey.

Results

Reliability Analysis of the Preliminary Scale. The internal consistency of the items in Parts A and B were first examined to identify any items that needed to be dropped. This initial examination revealed excellent internal reliability for Part A (Cronbach $\alpha = 0.93$), Part B (Cronbach $\alpha = 0.89$), and for the full scale (Cronbach $\alpha = 0.94$).

TABLE 3. Items in Part B of the Preliminary Version of the New York Misophonia Scale Representing Behavioral Responses to Triggers of Misophonia

<i>Part B</i>	
1	I leave the place
2	I look away
3	I distract myself
4	I cover my ears
5	I become verbally aggressive
6	I become physically aggressive
7	I become restless
8	I try to ignore them
9	I play or increase the sound of music
10	I stare negatively at the person
11	I try to control my anger
12	I clench my fist
13	I grit my teeth

Factor Validity. To evaluate the factor structure of the NYMS, principal components analyses (PCAs) with oblique rotation (Promax) were conducted on each set of items. In the analysis of the Misophonia triggers, the Kaiser-Meyer-Olkin (KMO = 0.93) measure verified the sampling adequacy of the analysis, which is above the acceptable limit of 0.50. Bartlett's test of sphericity ($\chi^2(861) = 10298$, $P < 0.001$) indicated that correlations between items were sufficiently large for PCA. An initial analysis conducted on items from Part A with factor loadings of a value greater than 0.40 using eigenvalues > 1 revealed 8 factors explaining a total of 61.5% of the variance. Items 17, 38, and 41 failed to load onto any factor, and only 3 items loaded on to 2 of the factors and only 1 item loaded onto factor 8. However, the Cattell's scree test suggested the presence of only 5 components. To verify the adequacy of a 5-component structure, a second PCA was conducted while forcing the extraction of 5 factors. The loadings obtained varied between 0.47 and 0.93, supporting the adequacy of the 5-factor solution (KMO = 0.92, Bartlett's test of sphericity, $\chi^2(861) = 10298$, $P < 0.001$) representing 61.6% of item variance. Items 3, 8, 9, 10, 13, 15, 17, 38, 39, and 40 did not load onto any factor and items 25, 34, 37, and 41 cross-loaded onto more than 1 factor, so these items were removed. Only 3 items (23, 24, and 36) loaded on to Factor 5, representing the triggers "certain hand gestures," "certain

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facial expressions,” and “yawning.” Being too few in number and having no clearly descriptive association, these items were eliminated, leaving a 4-factor solution. The retained items representing 60.8% of item variance and the factor loadings obtained are presented in Table 4. These suggested item groupings represent (1) mouth sounds (eating or breathing) accounting for 21.73% of the variance, (2) repetitive movements or actions (eg, leg shaking or pen clicking) accounting for 19.10% of the variance, (3) patterned sounds from objects (eg, tap dripping or clock ticking) accounting for 10.87% of the variance, and (4) vocal sounds (eg, baby crying or certain accents) accounting for 9.09% of the variance.

Next, a PCA was conducted on items from Part B of the NYMS. The KMO (0.89) indicated that the sampling was adequate and Bartlett’s test of sphericity ($\chi^2(91) = 2317$, $P < 0.001$) confirmed that the items were suitable for structure detection. Using eigenvalues > 1 on items with factor loadings > 0.40 , 2 factors emerged. Cattel’s scree test also suggested the presence of 2 significant components representing 54.4% of item variance. Examination of the factor loadings (Table 4) suggested that the first 9-item factor represents *aggressive behavioral reactions* accounting for 34.1% of the variance while the second 4-item factor explains 20.3% of the variance and reflects *nonaggressive behavioral responses* to the misophonia triggers.

We chose to label these 2 factors using these terms because they do not include an intention to harm and are just indicative of the displeasure the individual with misophonia experiences. All other alternatives such as assertive and nonassertive or offensive and nonoffensive, approach and avoidance, impulsive and nonimpulsive do not include the negative affect experienced or allude to anger only. An aggressive reaction is a reaction that only includes the perception of intention to harm and not necessarily harm itself. In addition, with the existence of terms like physical aggression, verbal aggression, and relational aggression, we believe that the terms that can best capture the behavioral reactions seen in misophonia are aggressive and nonaggressive reactions.

Reliability. Internal consistency and item–total correlations were calculated to evaluate the reliability of the final version of the NYMS. For the

items in Part A, the internal consistency indexed by Cronbach’s α was 0.93, while item–total correlations varied between 0.25 (item 32) and 0.69 (item 20). No increases in reliability could be obtained through the withdrawal of items. Only item 32 *refrigerator humming* had an item–total correlation less than the criterion of 0.35. For Part B, the Cronbach α was 0.88, and the item–total correlations ranged from 0.39 (item 12) to 0.75 (item 7). In this subscale, all items had an item–total correlation greater than the criterion value of 0.35. Finally, the internal consistency of the full NYMS was 0.94.

Discussion

In sum, the findings from Study 1 suggest the NYMS is a reliable tool for the measurement of misophonia as it provides information about the specific triggers that a misophonic individual may find aversive, the extent of emotional arousal the triggers may induce, and the kinds of behavioral responses the individual with misophonia typically shows. With responses being rated on an ordinal scale, the severity of misophonia can also be assessed, and, if norms are developed, the scale may provide information of diagnostic value. The instrument may be simplified by categorizing the items and collapsing each category into a single item.

Based on the factor loadings, reliability analyses (item–total correlations), descriptive statistics for the items (means and SDs), as well as face validity, 25 items from Part A (1, 2, 4, 5, 6, 7, 11, 12, 14, 16, 18, 19, 20, 21, 22, 26, 27, 28, 29, 30, 31, 32, 33, 35, and 42) and all 13 items from Part B of the preliminary version were retained for the final version of the NYMS. Items in Part A represented 4 categories of triggers of emotional arousal in misophonia, *mouth sounds*, *repetitive movements or actions*, *patterned sounds*, and *vocal sounds*. Two categories of behavioral responses to the misophonic triggers reflected by items in Part B are aggressive responses (9 items) and nonaggressive responses (4 items).

The items comprising the final version of the NYMS were then reordered. In Part A, all items belonging to the same category were grouped together but in Part B, items from the non-aggressive category were interspersed among the items of the aggressive category. The final version of the NYMS is shown in Supplemental Digital Content 1 (<http://links.lww.com/JPP/A64>).

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TABLE 4. Factor Solutions Obtained for Part A and Part B of the New York Misophonia Scale Using Principal Component Analyses With Oblique Rotation (Promax)

Components of Part A					Components of Part B				
Item	1	2	3	4	Uniqueness	Item	1	2	Uniqueness
t7	0.896				0.269	r5	0.847		0.392
t5	0.867				0.279	r11	0.760		0.467
t6	0.862				0.269	r12	0.740		0.420
t33	0.850				0.329	r6	0.722		0.546
t4	0.836				0.313	r13	0.639		0.483
t1	0.829				0.341	r8	0.613		0.316
t2	0.729				0.417	r3	0.605		0.480
t16	0.510				0.459	r2	0.576		0.481
t22		0.930			0.257	r8	0.443		0.507
t21		0.875			0.252	r10		0.815	0.443
t18		0.865			0.226	r7		0.754	0.482
t20		0.856			0.223	r4		0.706	0.442
t19		0.845			0.279	r1		0.584	0.480
t27		0.631			0.336				
t26		0.546			0.376				
t32			0.822		0.521				
t29			0.689		0.415				
t28			0.657		0.505				
t30			0.628		0.501				
t31			0.556		0.528				
t42				0.816	0.385				
t35				0.715	0.414				
t11				0.594	0.678				
t14				0.556	0.571				
t12				0.471	0.659				

Study 2

The goal of Study 2 was to verify the psychometric properties of the final version of the NYMS. Therefore, in this study, a confirmatory factor analysis and reliability analysis were carried out to evaluate and confirm the factor structure and acceptability of the instrument. Based on the results from Study 1, we hypothesized that factor analysis of Part A would yield a 4-factor structure and that of Part B would yield a 2-factor structure, reflecting the 6 components of the instrument.

Methods

Participants and Procedure. A sample of 200 American adults (141 women, 54 men, and 5

nonbinary individuals), ranging in age from 18 to 62 years participated in the study. The mean age of the participants was 25.8 years (SD = 7.48 y). Recruitment was conducted online using social media platforms. Participants completed the final 38-item version of the NYMS (25 items for Part A and 13 items for Part B), as well as a socio-demographic information questionnaire (duration of administration of the entire survey was <10 min). The items in Part A of the NYMS were ordered as follows: Mouth Sounds (items 1 to 8), Repetitive Movements or Actions (items 9 to 15), Patterned Sounds of Objects (items 16 to 20), and Vocal Sounds (items 21 to 25). In Part B, the items of the nonaggressive component were inserted among the items of the aggressive component and consisted of numbers 1, 4, 7, and 10. The same 5-point (0 to 4) response format was used for both sections. Scores

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TABLE 5. Descriptive Statistics and Reliability Indices of the Components, Subscales, and Full NYMS (Study 2)

<i>Component</i>	<i>Cronbach α</i>	<i>Total Sample</i>		<i>Males</i>		<i>Females</i>		<i>Sex Differences</i>	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>Cohen d</i>
Mouth Sounds	0.91	13.9	8.62	14.09	9.42	13.91	8.40	0.128	0.02
Repetitive Actions	0.92	7.37	6.56	5.85	5.95	8.10	7.74	-1.928	-0.32
Ambient Object Sounds	0.74	5.12	3.96	4.76	3.63	5.18	4.11	-0.667	-0.11
Ambient People Sounds	0.71	6.57	3.95	6.43	3.52	6.57	4.12	-0.223	-0.03
NYMS Total Emotional Arousal	0.92	33.0	17.8	31.13	16.91	33.77	18.32	-0.918	-0.15
Aggressive Reactions	0.85	15.0	7.43	15.22	6.98	14.86	7.57	0.307	0.05
Nonaggressive Reactions	0.70	11.3	3.19	11.15	3.25	11.35	3.23	-0.399	-0.06
NYMS Total Reactions	0.85	26.3	9.22	26.37	8.85	26.21	9.43	0.106	0.02
NYMS Total Misophonia	0.93	59.3	24.8	57.50	23.72	59.98	25.40	-0.621	-0.10

NYMS indicates New York Misophonia Scale.

for each subscale, section, and total scale were computed. This scoring procedure allows for the assessment of emotional and behavioral reactions specific to each category of triggers in addition to an assessment of overall severity level.

Results

Descriptive Statistics. Table 5 presents the means and SDs of the participants' scores on the 2 parts of the NYMS, as well as on each of the instrument's components. The ranges of possible scores are: *mouth sounds* 0 to 32, *repetitive movements or actions* 0 to 28, *patterned sounds of objects* 0 to 20, *vocal sounds* 0 to 20, *aggressive reactions* 0 to 16, and *nonaggressive reactions* 0 to 36. Accordingly, the ranges of possible total scores are: *NYMS Total Emotional Arousal* 0 to 100, for *NYMS Total Reactions* 0 to 52, and for *NYMS Total Misophonia* 0 to 152. No sex differences emerged in any of the components of the NYMS. Therefore, the subsequent validation analyses were conducted on the whole sample.

Confirmatory Factor Analyses. As a final step, confirmatory factor analyses were conducted. One model aimed to confirm a 6-factor solution representing all 38 items in both Parts A and B of the NYMS: (1) mouth sounds, (2) repetitive actions, (3) patterned sounds, (4) vocal sounds, (5) aggressive behavioral reactions, and (6) nonaggressive behavioral reactions.

Fit indices included the comparative fit index, the Tucker Lewis Index, the root mean square error of

approximation, and the standardized root mean square residual. Examination of the comparative fit index (0.84) and Tucker Lewis Index (0.83), revealed a fairly good model fit,²⁷ and the root mean square error of approximation value [0.06, CI (0.062, 0.073)] represents an acceptable fit. Furthermore, all the estimated factor loadings were significant ($P < 0.001$), suggesting a feasible structure.

Reliability. The Cronbach α coefficient obtained for all items in Part A was 0.92, and the item-total correlations varied between 0.23 and 0.67. For Part B, Cronbach α was 0.85, and the item-total correlations varied between 0.24 and 0.63. In both Parts A and B, withdrawal of items did not result in an increase in the obtained Cronbach α . The Cronbach α coefficients for the subscales of the instrument were also high (mouth sounds = 0.91, repetitive actions = 0.92, patterned sounds = 0.74, vocal sounds = 0.71, aggressive reactions = 0.85, non-aggressive reactions = 0.70). The item-total correlations were less than the criterion threshold of 0.35 only for item 21 (baby crying) in Part A and item 6 (I become physically aggressive) in Part B.

Discussion

In sum, this second study provided overall support for the factor validity and reliability of the NYMS. A 4-factor structure for Part A and a 2-factor structure for Part B appeared to be adequate to represent the items of the NYMS. The analyses confirmed that the instrument's items are valid and reliable for

evaluating emotional and behavioral responses to triggers in misophonia.

Study 3

In this study, we evaluated the concurrent validity and reliability of the final version of the NYMS. Participants completed the NYMS along with the MQ² and the Difficulties in Emotion Regulation Scale-Short Form (DERS-SF).²⁸ We hypothesized that the total scores obtained by participants on Part A (misophonic arousal) and Part B (behavioral reactions) of the NYMS would show significant and high positive correlations with the total scores they obtained on the 2 subscales of the MQ, namely, sound sensitivity and reactions. Given that emotion regulation problems have been associated with various forms of psychopathology, we also hypothesized that the NYMS subscale and total scores would correlate positively with emotion regulation difficulties.

Methods

Participants and Procedure. A sample of 171 adult participants (119 women and 49 men, 3 nonbinary) voluntarily participated in the study. The mean age of the participants was 25.3 years (SD = 9.06 y). Recruitment was conducted in a manner similar to that used in the previous studies.

Measures. In addition to the 38-item final version of the NYMS, the following 2 questionnaires were administered. The MQ² was used to examine the concurrent validity of the NYMS, while the DERS-SF²⁸ was used to provide support for the convergent validity of the NYMS. Emotion regulation difficulties are considered to be a transdiagnostic key factor contributing to symptoms of various forms of psychopathology.²⁹ Therefore, we anticipated significant positive correlations between total scores on the DERS-SF and the NYMS.

The MQ². The MQ has 2 subscales, the misophonia symptom scale and the misophonia emotions and behaviors scale, that assess 2 factors, sound sensitivity (7 items) and emotional reactions to trigger sounds (10 items). The sound sensitivity subscale includes various categories of triggers such as eating sounds or nasal sounds, and the emotional reactions subscale includes reactions to the trigger sounds such as becoming sad, angry, or leaving the

room. Responses are indicated on a 5-point Likert-type scale from 0 = *not at all true* to 4 = *always true* for the sound sensitivity subscale and 0 = *never* to 4 = *always* for the emotional reactions scale. The questionnaire provides 2 subscale scores which can then be summed to yield a total score. The final section of the questionnaire, named the Misophonia Severity Scale, requires respondents to provide a rating of their sound sensitivity on a scale from 1 to 15, ranging from *minimal* to *very severe*, respectively. This section was not used in the current study for 2 reasons. It includes 1 question that assesses degree of impairment along with intensity of distress and is not included in calculating the total misophonia score. We wanted to compare total misophonia scores obtained on the MQ with those obtained on the NYMS. Secondly, we wanted to be able to measure distress independently of impairment as our scale does not measure impairment. Since the reactions subscale of the MQ is intended by the authors to measure emotional and behavioral reactions, we expected that subscale to correspond closely with both our subscales that are intended to measure emotional and behavioral reactions, respectively. We used only the first 2 subscales of the MQ that reflect sensitivity to triggers and reactions to them and together provide a total score for misophonia. The MQ has been reported to have an internal consistency (Cronbach α) of 0.89.² In the current study, internal consistency (Cronbach α) was 0.88 for the total scale, 0.80 for the misophonia sound sensitivity subscale, and 0.85 for the misophonia emotional behaviors toward trigger sounds factor. Mean total MQ score was 19.6 (SD = 10.4, min = 0, max = 51), mean MQ sound sensitivity score was 7.99 (SD = 5.16, min = 0, max = 24), mean MQ emotional behaviors toward trigger sounds was 11.6 (SD = 6.52, min = 0, max = 34).

The Difficulties in Emotion Regulation Scale-Short Form (DERS-SF).²⁸ The DERS-SF is a shortened 18-item version of the 36-item Difficulties in Emotion Regulation Scale.³⁰ The instrument has 6 subscales, each with 3 items: (1) lack of emotional awareness, (2) lack of emotional clarity, (3) non-acceptance of emotional responses, (4) impulse control difficulties under distress, (5) limited access to emotion regulation strategies, and (6) difficulties engaging in goal-directed behavior. Participants

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respond to each item by indicating their agreement using a 5-point Likert scale with 1 = *almost never* to 5 = *almost always*. A total score is obtained by summing the subscale scores. Higher scores indicate greater difficulties in regulating emotions. The DERS-SF is reported to have good reliability, with Cronbach α ranging from 0.79 to 0.90 for the subscales and 0.91 for the total score.²⁸ The authors reported acceptable reliability for all 6 subscales ranging from 0.78 to 0.91, with a full-scale reliability of 0.89.

Results and Discussion

Concurrent Validity. The analysis revealed that all subscales, Parts A and B, and full-scale scores of the NYMS showed significant moderate to high correlations with both the subscales and total scores of the MQ, confirming that the NYMS correlates with constructs associated with the MQ. The correlation between the total NYMS score and total MQ scores was strong, indicating good concurrent validity. In addition, the total scores on Part A of the NYMS, the items that assess emotional reactions to various triggers, were strongly correlated with the subscale of the MQ that assesses sound sensitivity to various triggers. Furthermore, total scores on Part B of the NYMS, the items that capture behavioral reactions to the aversive triggers, as well as the aggressive reactions component, were strongly correlated with the subscale of the MQ that assesses emotional reactions to the various triggers of sound sensitivity. All correlations are presented in Table 6.

Convergent Validity. Pearson correlations were calculated between the subscale scores and total scores on Parts A and B of the NYMS and the total DERS-SF scores. As hypothesized, all correlation coefficients were moderately strong except for the nonaggressive behavioral reactions to misophonic triggers which displayed a weak positive (0.15) but significant correlation ($P < 0.001$). These correlations are displayed in Table 6.

CONCLUSIONS

The studies described above were intended to evaluate the validity and reliability of a new instrument, the NYMS, that can be used to screen for misophonia. The results presented confirm that the instrument has excellent psychometric properties.

The self-report measure assesses the extent to which individuals find various auditory and visual triggers aversive as well as their typical behavioral reactions to those triggers, which may be aggressive or nonaggressive.

The items developed for the NYMS correspond to descriptions of the construct in previous research, showing that the instrument has very good face validity. The factor analyses, both principal component and confirmatory, supported the factor validity of the NYMS. Part A of the inventory, which captures the triggers that elicit emotional arousal experienced in misophonia, is represented by a 4-dimension structure, while Part B, which comprises the behavioral reactions evoked by the triggers, reflects 2 components. Therefore, the instrument assesses a range of common triggers of misophonia along with the corresponding degrees of emotional arousal and varying behavioral responses they elicit.

The results also confirmed that the instrument has excellent internal reliability. The concurrent validity and convergent validity of the NYMS were also adequate. The patterns of correlation between the NYMS subscale and total scale scores and the MQ subscale and total scale scores confirm that the NYMS is an adequate measure of misophonia. The NYMS total score also correlated well with a widely used measure of emotion regulation difficulties, an indication of acceptable convergent validity.

Although the development of the NYMS represented an attempt to address the limitations of previous measures of misophonia, it has 2 limitations that must be addressed in future revisions of the scale. The first is that the scale has been developed for adults; therefore, since misophonia begins in childhood, validation of the scale using children is essential. Secondly, although emotional and behavioral reactions to various misophonic triggers are assessed by the NYMS, assessing each of the negative emotions separately should be considered for future revisions of the scale.

With the publication of a consensus regarding the definition of misophonia,¹ the NYMS has potential for use in clinical settings. The scale can be used to detect misophonia as a condition not associated with any other psychopathology. Contingent on the availability of specific diagnostic criteria for misophonia, future research can demonstrate if the NYMS can be used in a clinical population for the diagnosis and assessment of severity of misophonic

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TABLE 6. Correlations between the NYMS Subscale and Total Scale Scores and the MQ Subscale and Total Scale Scores, and Between the NYMS Subscale and Total Scale Scores and the DERS-SF Scores, Along With Reliability Estimates (Study 3)

<i>NYMS Subscale</i>	<i>Internal Reliability Cronbach α</i>	<i>Sound Sensitivity</i>	<i>Emotional Reactions</i>	<i>Total MQ Score</i>	<i>DERS-SF</i>
Mouth Sounds	0.80	0.59***	0.46***	0.58***	0.29***
Repetitive Actions	0.88	0.38***	0.23**	0.33***	0.32***
Ambient Object Sounds	0.70	0.54***	0.40***	0.51***	0.29***
Ambient Vocal Sounds	0.69	0.29***	0.38***	0.38***	0.31***
Total Emotional Arousal to Triggers	0.88	0.62***	0.49***	0.61***	0.35***
Aggressive Behavioral Reactions	0.76	0.56***	0.71***	0.72***	0.42***
Nonaggressive Behavioral Reactions	0.69	0.30***	0.40***	0.40***	0.15**
Total Behavioral Reactions to Triggers	0.80	0.53***	0.68***	0.69***	0.37***
Total NYMS Misophonia Score	0.90	0.66***	0.62***	0.72***	0.39***

DERS-SF indicates The Difficulties in Emotion Regulation Scale-Short Form; MQ, Misophonia Questionnaire; NYMS, New York Misophonia Scale.
 ** $P < 0.01$.
 *** $P < 0.001$.

reactions. The items and psychometric characteristics of the instrument can also be validated in non-English speaking populations, albeit with some linguistic and cultural modifications. Similarly, as discussed above, the instrument should also be validated in children and adolescents. Although the studies presented here involved a fairly large population, the predominance of females in the samples limits the generalization of the findings. The instrument will also benefit from future studies that focus on assessing its convergent and divergent validity. Studies are also needed to investigate the test-retest reliability and predictive validity of the NYMS. Also, although the scale provides a total score indicating the level of emotional distress experienced by the individual and, therefore, the likely severity of misophonia, the validity of the scale for assessing severity of misophonia may be strengthened through a comparison with an assessment of functional impairment. The scale does not assess functional impairment as it is intended to be used as a screening tool, and currently, since misophonia is not yet recognized as a psychiatric disorder, it is not known whether

individuals experiencing misophonia also experience functional impairment. Future research in this regard is warranted. Finally, the criterion validity of the scale must be tested with a clinical sample. We do affirm that, until misophonia is recognized as a psychological disorder with formal diagnostic criteria, such research may not be possible. However, the scale can be used with individuals diagnosed with other psychological disorders who may self-report misophonic distress and reactions.

In sum, although formal criteria for the diagnosis of misophonia are yet to be established, the NYMS can be a useful instrument for determining both specific triggers and emotional and behavioral reactions in misophonia. The total score can be used to indicate severity of misophonia and subscale scores can be used to indicate the severity of emotional and behavioral reactions to misophonic triggers, respectively. The quick administration of the instrument makes it a valuable tool for use in both clinical and research settings to screen for misophonia and for assessing the effects of intervention strategies on changes in emotional and behavioral reactions to misophonic triggers. The

scale is an improvement over the existing measures of misophonia because (1) it assesses a variety of specific triggers as well as a range of specific emotional and behavioral reactions, (2) it is based entirely on the descriptive features of misophonia and not on any specific theory about misophonia, (3) it can be used to assess misophonia at various levels, mild to severe, (4) it can be used with the general population to screen for misophonia, (5) it is short and provides a quick but detailed assessment, and (6) it has sound psychometric properties. Overall, the scale allows for the valid and reliable determination of the specific nature and severity of misophonic reactions in a very short time.

REFERENCES

- Swedo S, Baguley DM, Denys D, et al. A consensus definition of misophonia: using a delphi process to reach expert agreement. *Front Neurosci.* 2022;16:1–16. <https://www.frontiersin.org/articles/10.3389/fnins.2022.841816/full>
- Wu MS, Lewin AB, Murphy TK, et al. Misophonia: incidence, phenomenology, and clinical correlates in an undergraduate student sample. *J Clin Psychol.* 2014;70:994–1007.
- Webber TA, Storch EA. Toward a theoretical model of misophonia. *Gen Hosp Psychiatry.* 2015;37:369–370.
- Jastreboff PJ, Jastreboff MM. Decreased sound tolerance: hyperacusis, misophonia, diplacusis, and polyacusis. *Handb Clin Neurol.* 2015;129:375–387.
- Schröder A, Vulink N, Denys D. Misophonia: diagnostic criteria for a new psychiatric disorder. *PloS One.* 2013;8:e54706–e54706.
- Dozier TH, Morrison KL. Phenomenology of misophonia: initial physical and emotional responses. *Am J Psychol.* 2017;130:431–438. <https://doi.org/10.5406/amerjpsyc.130.4.0431>
- Rouw R, Erfanian M. A large-scale study of misophonia. *J Clin Psychol.* 2018;74:453–479.
- Neal M, Cavanna AE. Selective sound sensitivity syndrome (misophonia) in a patient with Tourette syndrome. *J Neuropsychiatry Clin Neurosci.* 2013;25:E01.
- Webber TA, Johnson PL, Storch EA. Pediatric misophonia with comorbid obsessive-compulsive spectrum disorders. *Gen Hosp Psychiatry.* 2014;36:231.e1–2.
- Ferreira GM, Harrison BJ, Fontenelle LF. Hatred of sounds: misophonic disorder or just an underreported psychiatric symptom? *Ann Clin Psychiatry.* 2013;25:271–274.
- McKay D, Kim S-K, Mancusi L, et al. Profile analysis of psychological symptoms associated with misophonia: a community sample. *Behav Ther.* 2018;49:286–294.
- Brout JJ, Edelstein M, Erfanian M, et al. Investigating misophonia: a review of the empirical literature, clinical implications, and a research agenda. *Front Neurosci.* 2018;12:36.
- Fitzmaurice G. The Misophonia Activation Scale (MAS-1). Developed in 2010. Accessed June 23, 2023. <http://www.misophonia-uk.org/the-misophonia-activation-scale.html>
- Bauman N. Misophonia physical sensation scale. Developed in 2015. Accessed June 23, 2023. <https://misophonia-treatment.com/misophonia-physical-sensation-scale/>
- Johnson M. Cases of Misophonia Using the MMP. Atlanta, GA: Misophonia Conference of the Tinnitus Practitioners Association; 2014.
- Dozier TH. Counterconditioning treatment for misophonia. *Clin Case Stud.* 2015;14:374–387. <https://doi.org/10.1177/1534650114566924>
- Schröder AE, Vulink NC, van Loon AJ, et al. Cognitive behavioral therapy is effective in misophonia: an open trial. *J Affect Disord.* 2017;217:289–294.
- Erfanian M, Kartsonaki C, Keshavarz A. Misophonia and comorbid psychiatric symptoms: a preliminary study of clinical findings. *Nord J Psychiatry.* 2019;73:219–228.
- Quek TC, Ho CS, Choo CC, et al. Misophonia in Singaporean psychiatric patients: a cross-sectional study. *Int J Environ Res Public Health.* 2018;15:1410.
- Tunç S, Başbuğ HS. An extreme physical reaction in misophonia: stop smacking your mouth. *Psychiatry Clin Psychopharmacol.* 2017;27:416–418. <https://doi.org/10.1080/24750573.2017.1354656>
- Janik McErlean AB, Banissy MJ. Increased misophonia in self-reported autonomic sensory meridian response. *PeerJ.* 2018;6:e5351.
- Cusack SE, Cash TV, Vrana SR. An examination of the relationship between misophonia, anxiety sensitivity, and obsessive-compulsive symptoms. *J Obsessive Compuls Relat Disord.* 2018;18:67–72. <https://doi.org/10.1016/j.jocrd.2018.06.004>
- Siepsiak M, Śliwerski A, Łukasz Dragan W. Development and psychometric properties of MisoQuest—a new self-report questionnaire for misophonia. *Int J Environ Res Public Health.* 2020;17:1797.
- Vitoratou S, Uglik-Marucha N, Hayes C, et al. Listening to people with misophonia: exploring the multiple dimensions of sound intolerance using a new psychometric tool, the S-Five, in a large sample of individuals identifying with the condition. *Psych.* 2021;3:639–662. <https://doi.org/10.3390/psych3040041>
- Rosenthal MZ, Anand D, Cassiello-Robbins C, et al. Development and initial validation of the Duke Misophonia Questionnaire. *Front Psychol.* 2021;12:709928.
- Schadegg MJ, Clark HL, Dixon LJ. Evaluating anxiety sensitivity as a moderator of misophonia and dimensions of aggression. *J Obsessive Compulsive Relat Disorders.* 2021;30:100657. <https://doi.org/10.1016/j.jocrd.2021.100657>
- Brown TA. Confirmatory factor analysis for applied research. New York: Guilford; 2006.
- Kaufman EA, Xia M, Fosco G, et al. The Difficulties in Emotion Regulation Scale Short Form (DERS-SF): validation and replication in adolescent and adult samples. *J Psychopathol Behav Assess.* 2016;38:443–455. <https://doi.org/10.1007/s10862-015-9529-3>
- Aldao A, Gee DG, De Los Reyes A, et al. Emotion regulation as a transdiagnostic factor in the development of internalizing and externalizing psychopathology: current and future directions. *Dev Psychopathol.* 2016;28:927–946.
- Gratz KL, Roemer L. Multidimensional assessment of emotion regulation and dysregulation: development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *J Psychopathol Behav Assess.* 2008;30:315. <https://doi.org/10.1007/s10862-008-9102-4>