Using Psychoacoustic Tasks and Multidimensional Questionnaires to Characterize Auditory Hyperreactivity in Autistic Young People

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Abstract

Purpose: Prior studies of auditory hyperreactivity in autism have often not distinguished between different aspects of auditory sensory discomfort, such as hyperacusis and misophonia. The present study rigorously characterizes multiple forms of auditory sensory hyperreactivity, using a mixture of laboratory-based psychoacoustic tasks and self- and caregiver-reported questionnaires, and examines group differences and relationships among different measures.

Methods: 18 autistic and 22 comparison adolescents rated the pleasantness of conventionally-pleasant, conventionally-unpleasant, and misophonic trigger sounds at intensities of 50 through 80 dB SPL. They also provided hearing thresholds, loudness discomfort levels, and filled out a number of questionnaires; their caregivers completed additional questionnaires.

Results: Autistic participants rated conventionally-pleasant sounds as being more unpleasant at intensities of 60 through 80 dB, but overall loudness discomfort caused by pure tones did not significantly differ across groups, nor did ratings of common misophonic triggers appear to differ. Autistic participants nevertheless self-reported more auditory hyper-reactivity, including hyperacusis and misophonia. However, in the autism group, self-reported auditory hyper-reactivity scores were unexpectedly lower than caregiver-reported scores. Psychoacoustic task and some questionnaire-

based measures of misophonia converged well, but hyperacusis measures did not converge well.

Conclusions: Sound intolerance reportedly affected autistic participants' quality of life. Autistic aversions to some conventionally-pleasant sounds did not appear to be accompanied by overall heightened loudness distress at the group level, emphasizing the complexity and seeming idiosyncrasy of sensory discomfort and distress in autism. Psychoacoustic sound rating tasks showed some convergence and some divergence with questionnaire measures, pointing to the importance of multimodal measurement.

Keywords

Misophonia, hyperacusis, sound intolerance, sensory hyperreactivity, sensory overload

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Author Contributions

This study was designed by PD, CDS, and SMR. FE and AN provided code and technical support related to the Core Discriminant Sounds task. Data were collected by PD, AS, and others named in the acknowledgements section. PD conducted statistical analyses and drafted this paper, which was read, edited, and approved by all authors.

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1. Introduction

Sensory differences in autism are highly impactful; studies indicate that they are related to anxiety (Green et al., 2012; Neil et al., 2016), sleep problems (Dwyer, Ferrer, et al., 2022; Tzischinsky et al., 2018), and diets (Chistol et al., 2018; Kinnaird et al., 2019). Aversive sensory stimulation can interfere with autistic people's social interactions and processing (Boldsen, 2022; Green et al., 2018; Taels et al., 2023), and constrain the activities that autistic people take part in (Ismael et al., 2018; Little et al., 2015; MacLennan, Woolley, et al., 2022). Moreover, reports link experiences of sensory distress to trauma (Kerns et al., 2022). Thus, it is hardly surprising that autistic sensory differences are related to, or contribute to, quality of life in autism (Lin & Huang, 2019; McConachie et al., 2020; Scheerer et al., 2022). Furthermore, differences in sensory reactivity and neural responsivity early in life can predict autism diagnoses and social/communication difficulties (Baranek et al., 2018; Damiano-Goodwin et al., 2018; Feldman et al., 2022; Kolesnik et al., 2019). Some accounts suggest that cascading effects of sensory differences and altered sensory experiences can shape autistic development across many domains (Cascio et al., 2016).

1.a. Sensory Phenotypes and Forms of Auditory Hyper-Reactivity

Despite their profound impacts, autistic sensory reactivity and sensory experiences remain poorly understood. Much of the literature

focuses on broad constructs such as sensory hyper-reactivity (being more strongly reactive to sensory stimuli, especially aversive stimuli), hypo-reactivity (being less reactive to sensory stimuli), and sensory interests (being interested in or fascinated by explorations of the sensory properties of things), but some of these broad patterns may be modality-specific (Williams, Feldman, et al., 2021; Williams, Schaaf, et al., 2023). The auditory modality is particularly important; it is the modality in which autistic and other neurodivergent people report the most distressing sensory experiences (Wada et al., 2023; see also Strömberg et al., 2022), and auditory stimuli appear to exert a disproportionate influence on autistic people's sensory processing in multi-modal contexts (Bonneh et al., 2008; Ronconi et al., 2022). However, even within this single auditory modality, the hyper-reactivity pattern alone does not appear to be unitary (Williams, He, et al., 2021).

While there is some debate regarding the conceptualization of, and terminology for, forms of auditory hyper-reactivity in autism and in the general population (Jastreboff & Jastreboff, 2015; Salvi et al., 2022; Tyler et al., 2014; Williams, He, et al., 2021), one important pattern is *misophonia*, which appears to be common in autism (Dwyer et al., 2023; Williams et al., 2022), though the literature regarding misophonia in autism is currently limited.

Misophonic reactions are emotional responses, especially anger and frustration, and disgust, caused by certain trigger sounds (Ferrer-Torres &

Giménez-Llort, 2022; Swedo et al., 2022); these often-repetitive triggers can be seen as obnoxious and infuriating. Human-produced sounds such as chewing and slurping are particularly common and aversive triggers, but non-human sounds such as repetitive keyboard clicks can also trigger misophonic reactions (Enzler, Loriot, et al., 2021; Hansen et al., 2021). Misophonic reactions appear to be partly driven by participants' recognition that a given sound is a trigger sound, not just by stimulus properties (Edelstein et al., 2020; Heller & Smith, 2022; Savard et al., 2022).

In contrast, the term *loudness hyperacusis* is often used to describe a pattern of experiencing sounds of relatively moderate intensity as uncomfortably loud, when these sounds are usually not perceived as uncomfortably loud in others (Fackrell et al., 2017; Salvi et al., 2022; Tyler et al., 2014; Williams, He, et al., 2021). However, it may be difficult to clearly separate this construct from *sensory overload* more general feelings of being overwhelmed by the intensity, diversity, or pattern of stimuli around oneself (Scheydt et al., 2017; Taels et al., 2023). These experiences can be difficult to articulate using neurotypical language (Belek, 2018), but such experiences of overload are often described in autistic accounts of sensory reactivity (Belek, 2018; Jones et al., 2003; MacLennan, Brien, et al., 2022; Strömberg et al., 2022). The experiences appear to be closely related to one's sense of control over one's environment (Smith & Sharp, 2013; Taels et al., 2023) and they can lead to stress, disturbed thought processes (e.g., incoherent thinking), mood and behaviour changes, perceptual

disturbances, reduced attention (Scheydt et al., 2017). In turn, the idea of sensory overload appears to overlap with *noise sensitivity*, a concept sometimes used to describe heightened reactivity to sounds outside of loudness hyperacusis or other specific phenotypes (Williams, He, et al., 2021), and which, in its own right, could potentially have a fuzzy boundary with the more specific sound aversions characteristic of misophonia.

Another sound intolerance dimension is *phonophobia*, a specific phobia of certain sounds or types of sounds, resulting in anticipatory anxiety and avoidance (Williams, He, et al., 2021); phonophobia is common in autism (Kerns et al., 2014; Lau et al., 2020). Because it is tied to specific sounds, phonophobia is sometimes considered a form of misophonia (Jastreboff & Jastreboff, 2015), but anticipatory anxiety appears quite distinct from emotional reactions, particularly when those reactions primarily involve emotions such as anger or disgust.

Just as misophonic reactions to specific sounds can be separated from loudness/overload reactions, phonophobia might be distinguishable from more generalized sensory anxieties that are also common among autistic people, such as fears of loud sounds (see Lau et al., 2020). The Multidimensional Inventory of Sound Tolerance-Adult (MIST-A), a recent measure designed for use in autism, contains a dimension of “fear/panic” that may appear relevant to phonophobia; however, items appear relevant not to *anticipatory* anxiety, but rather to panicked and distressed *reactions* to aversive auditory stimulation (Williams, Barrett, et al., 2023; see also

Scheerer et al., 2022). While not the focus of this study, there may be a need for further research regarding measurement of phonophobia in autism.

Though these sound intolerance dimensions can be distinguished from one another, they may not be without common roots. Even outside autism, greater loudness discomfort appears to be related to misophonia symptoms (Aazh et al., 2022), and contributions of autistic traits to sound intolerance within autism might accentuate such relationships.

And beyond sound intolerance, there is at least one other variety of auditory hyper-reactivity often observed in autism. Autistic people can sometimes be more aware than non-autistic people of background sounds, or other sensory stimuli; this increased awareness of background stimuli is not always inherently distressing (Remington & Fairnie, 2017). Nevertheless, in some contexts, autistic people's increased awareness of such stimuli can lead to *auditory distractibility/filtering problems* and difficulties focusing on tasks such as following conversations or completing work (Dunlop et al., 2016; Dwyer et al., 2023; Robertson & Simmons, 2015; Scheerer et al., 2022; Smith & Sharp, 2013; Taels et al., 2023).

Interestingly, some questionnaire-based sensory measures are intended to capture levels of sensory and perceptual acuity (e.g., Ausderau et al., 2014; Dunn, 1997; Tavassoli et al., 2016), and some measures or subscales have even been constructed in order to capture a sensory "threshold" for detection of or reaction towards stimuli (Dunn, 1997).

However, questionnaire subscales intended to capture sensory/perceptual acuity do not appear to converge with psychophysical thresholds (Dwyer, Takarae, et al., 2022a). It seems possible these questionnaires instead capture everyday sensory distractibility/filtering issues.

1.b. Lab-Based Sensory Ratings

Indeed, not only do existing questionnaire measures generally fail to distinguish among these auditory hyperreactivity phenotypes, but existing questionnaires – including, but not limited to, ones intended to capture sensory/perceptual acuity – show limited convergence with other kinds of sensory measures, such as psychophysical detection/discrimination thresholds (Dwyer, Takarae, et al., 2022a; Quinde-Zlibut et al., 2020; Schulz & Stevenson, 2021). In autism sensory research, associations between supposedly-different constructs measured using comparable methods can be stronger than associations between supposedly-similar constructs measured using different methods (Wodka et al., 2016). Therefore, multi-method investigation of sensory processes and experiences is an important direction for research aiming to improve understanding of autistic sensory processing (DuBois et al., 2017; Uljarević et al., 2017) and it seems possible that using psychophysical techniques to explore the pleasantness and comfort of stimuli, rather than detection and discrimination of them, might result in greater convergence with questionnaire measures.

Autistic people, on average, report finding stimuli uncomfortably loud at lower intensity/volume levels than do non-autistic controls (Demopoulos

& Lewine, 2016; Dunlop et al., 2016; Khalfa et al., 2004). Moreover, Dunlop and colleagues (2016) did indeed find that autistic participants who reported more discomfort to sound stimuli had higher scores on a sound discomfort questionnaire. However, prior autism studies have usually focused on ratings of a limited range of stimuli, such as pure tones (Khalfa et al., 2004) and speech sounds (Demopoulos & Lewine, 2016; Dunlop et al., 2016; Ohmura et al., 2019). Behavioural reactions to naturalistic sounds have been observed (McCormick et al., 2014; Siper et al., 2017; Tavassoli et al., 2016), but autistic people can experience internal overload and distress while appearing behaviourally under-reactive (Grandin & Panek, 2014, pp. 81–84). Michel and colleagues (2023) recently examined ratings of a variety of naturalistic stimuli – sung, spoken, and whispered voices; music; animal sounds; and environmental sounds – finding that autistic people, unlike non-autistic controls, reported finding vocal sounds less pleasant than non-vocal sounds. Furthermore, apparently motivated in part by theories regarding endogenous neural noise in autism (e.g., Davis & Plaisted-Grant, 2015; Sohal & Rubenstein, 2019), the authors examined stimuli with varying harmonic-to-noise ratios (that is, different levels of exogenous noise relative to the main sound signal); while both autistic and non-autistic participants found stimuli with high harmonic-to-noise ratios more pleasant than those with lower ratios, this effect was reduced in autistic people. However, harmonic-to-noise ratios appear to have been confounded with sound types (and it is unclear whether they may have been

confounded with additional dimensions, such as frequency). Moreover, studies outside of autism have gone farther, using ratings of naturalistic sounds to draw distinctions between different sound intolerance phenotypes. For example, non-autism studies have measured misophonic reactions using ratings of a variety of potential misophonia triggers (Enzler, Loriot, et al., 2021; Hansen et al., 2021; Heller & Smith, 2022; Savard et al., 2022). Loudness distress, however, has its own profile; relative to controls, hyperacusic participants often rate conventionally-pleasant sounds, e.g., water flowing and birds chirping, as more aversive, presumably due to them being too loud (Enzler, Fournier, et al., 2021). How autistic people would respond to such paradigms remains unclear.

1.c. Informant Discrepancies

Another sensory measurement challenge concerns reliance on proxy reports. Most autism sensory studies, and even nearly half of studies of older children and adults, have not collected self-reports (Ben-Sasson et al., 2019). Non-autistic experts have traditionally assumed that autistic people lack self-insight (Johnson et al., 2009), an ableist stereotype which has contributed to the neglect of autistic people's perspectives in research and intervention. Although interoception can be challenging for many autistic people (Trevisan et al., 2021), only individuals have privileged access to their own sensory experiences, and as noted previously, observing behavioural reactions to sensory stimuli can be misleading (Grandin & Panek, 2014, pp. 81–84).

Few sensory questionnaires used in the autism field have largely identical proxy- and self-report versions, making it difficult to evaluate convergence of sensory responses across raters. A handful of studies suggest that autistic and general population adolescents report more auditory sensory reactivity than their caregivers do on their behalf (Keith et al., 2019; Millington et al., 2021). Pain ratings do not appear to differ across self- and caregiver-reports, but neither are autistic children's reports of pain associated with their caregivers' (Bandstra et al., 2012), and caregivers' reports might be influenced by their own mental health (Grosvenor et al., 2021). Adolescents' ratings of their auditory hyperreactivity, but not caregivers' ratings, have been found to significantly correlate with autonomic reactivity to noise exposure, providing preliminary evidence of convergent validity for self-reports but not for caregiver-reports (Keith et al., 2019).

1.d. Present Study

In the present study, well-characterized samples of autistic and comparison adolescents completed a mixture of self-report questionnaire and lab-based sensory measures; their caregivers also completed sensory questionnaires. In particular, the present study measured hyperacusis and misophonia using multiple methods: not only questionnaire reports, but also lab-based psychoacoustic tasks inviting participants to report on the pleasantness and comfortability of pure tones, conventionally-pleasant sounds, conventionally-unpleasant sounds, and common misophonia

triggers. In addition, participants' hearing thresholds were measured, and their caregivers reported on participants' real-world experiences of enhanced perception. Furthermore, the present study's questionnaire battery included measures and subscales capturing broad information regarding other sensory experiences and behaviours, such as experiences of sensory fear/overload and experiences of auditory distractibility.

Study hypotheses included:

1. Autistic participants, relative to comparison participants, would exhibit more auditory discomfort and distractibility in self-report, caregiver-report, and lab-based psychoacoustic measures, but their hearing detection thresholds would not reveal evidence of altered sensory acuity.
2. Measures intended to index the same sensory constructs (especially measures of hyperacusis and measures of misophonia) would converge with one another, even if measurement methods (i.e., psychoacoustic tasks versus questionnaire-report) were different – however, caregiver-reports of enhanced perception would not be associated with hearing detection thresholds, and would instead converge with measures of auditory distractibility and sound intolerance.
3. Measures of different sensory constructs would also converge with one another (e.g., measures of hyperacusis would converge with misophonia) when the measures use the same methods (e.g., when

both are questionnaire-based, or when both are laboratory-based discomfort ratings).

4. Caregiver- and self-reported auditory hyperreactivity scores would be associated with one another, but autistic participants would self-report more atypical and uncomfortable auditory sensory experiences, relative to caregiver proxy-reports.

2. Methods

2.a. Participants

Participants aged 11–16 years old were recruited from community advertising via social media and community groups, personal contacts, and from institutional research registries (the UC Davis MIND Institute Research Participant Registry and the UC Davis Center for Mind and Brain's participant pool). This age range was chosen to suit the study objectives related to self- and caregiver-report measures, to maximize the degree to which both participants and caregivers would likely be available and able to provide such reports.

Autistic participants had prior diagnoses of "autism spectrum disorder" or equivalent "pervasive developmental disorders." Comparison participants had no known or suspected neurodivergence and no first- or second-degree autistic relatives. Participants in both groups had trichromatic vision and at least 20/40 (corrected) vision, assessed by a Titmus T2S device. In both groups, intellectual disability and hearing loss (monaural pure tone average ≥ 25 dB HL) were exclusionary.

A total of 69 participants' caregivers filled out screening questionnaires to determine eligibility; 17 were ineligible. 8 participants were initially thought to be eligible and enrolled in the study yet were later found to be ineligible due to colour blindness, hearing loss, not meeting autism criteria, or undiagnosed neurodivergence; 4 more withdrew due to scheduling issues or could no longer be contacted. Ultimately, a total of 18

autistic and 22 control participants provided useable study data. As reported in Table 1 and Table 2, the autistic and comparison groups did not statistically differ in handedness or gender, although there were some trends for groups to differ in age and cognitive ability.

17 autistic participants' diagnoses were confirmed by clinician judgement in a visit including administration of a (sometimes masked) Autism Diagnostic Observation Schedule (ADOS)-2 (Lord et al., 2012). Another participant received their diagnosis <1 year previously, in an evaluation including ADOS administration.

Table 1. Continuous variables describing the present study sample. Variables are compared across groups using uncorrected Wilcoxon-Mann-Whitney tests, with Cliff's δ as an effect size.

	Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
	M (SD)	Range	n	M (SD)	Range	n		
Age (years)	13.72 (1.64)	11.24 to 15.94	18	13.05 (1.50)	11.16 to 15.67	22	.16	.27 [–.11, .58]
SCQ-Lifetime Total Autistic Traits	20.39 (6.32)	10 to 33	18	2.41 (1.92)	0 to 7	22	<.0001****	1.00 [.995, 1.00]
SWAN Inattention	0.52 (1.14)	–1.67 to 2.33	18	–0.97 (0.78)	–2.78 to 0.33	22	.0002***	.70 [.37, .87]
SWAN Hyperactivity/ Impulsivity	0.69 (1.23)	–1.78 to 2.56	18	–0.97 (0.90)	–2.89 to 0.00	22	.0001***	.72 [.37, .89]
ASC-ASD Caregiver-Report Total Anxiety	22.06 (10.27)	7 to 40	18	9.95 (5.69)	2 to 19	22	.0002***	.70 [.39, .86]

ASC-ASD Self-Report Total Anxiety	17.83 (13.49)	4 to 59	18	13.24 (8.56)	2 to 30	21	.34	.18 [–.19, .51]
Modified Edinburgh Handedness	46.95 (47.80)	–100.00 to 100.00	18	55.10 (31.59)	–26.32 to 100.00	21	.58	–.11 [–.45, .27]
WASI-II Verbal Comprehension	111.33 (19.72)	80 to 149	18	122.50 (10.80)	102 to 144	22	.06	–.35 [–.65, .05]
WASI-II Perceptual Reasoning	104.00 (14.93)	73 to 129	18	110.00 (12.59)	85 to 137	22	.20	–.24 [–.56, .14]
WASI-II FSIQ-4	108.61 (17.62)	78 to 136	18	118.82 (10.37)	101 to 140	22	.055	–.36 [–.65, .02]

Table 2. Categorical variables describing the present study sample. Variables are compared across groups using uncorrected Fisher's exact tests, with Cramér's V as an effect size.

	Autistic	Comparison	Fisher *p*	Cramér V
Gender	3 female (16.67%) 14 male (77.78%) 1 nonbinary (5.56%)	6 female (27.27%) 16 male (72.73%)	.46	.21
Race/ ethnicity	9 non-Hispanic White (50.00%) 2 Hispanic/Latiné (11.11%) 3 Mixed (16.67%) 1 Filipino (5.57%) 1 Black (5.57%) 1 declined to state (5.57%, omitted in statistical comparison)	15 non-Hispanic White (68.18%) 4 Hispanic/Latiné (18.18%) 2 Mixed (9.09%) 1 East Asian (4.55%)	.59	.35

2.b. Wechsler Abbreviated Scale of Intelligence, 2nd edition (WASI-II)

The WASI-II (Wechsler, 2011) is a brief, standardized, normed cognitive ability measure. The block design and matrix reasoning subtests are from an interchangeable assessment (Zhou & Raiford, 2011) and may more accurately measure cognitive ability in autism than other subtests (Nader et al., 2016), so perceptual reasoning/nonverbal cognitive ability composites based on them were used for the purpose of controlling for any group differences in cognitive ability.

2.c. Sensory Questionnaires

2.c.i. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A)

The Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) is a self-report measure of decreased sound tolerance originally developed for adults, including autistic adults (Williams, Barrett, et al., 2023; Williams et al., In preparation). 24 items ask about the frequency of sound intolerance experiences; these MIST-A experience items cluster into four dimensions, namely, misophonia (8 items), loudness hyperacusis (9 items), fear/panic (3 items), and pain hyperacusis (4 items). In addition, the frequencies of bodily/physiological symptoms are reported in 15 items, forming two dimensions: hyperacusis symptoms (8 items) and systemic nonspecific symptoms (7 items). Experience and symptom items are rated from “Never (not in the past month)” (0) to “Very often (multiple times per day)” (4). Finally, 8 Likert items regarding daily-life impacts of diminished sound

tolerance, rated from “Not at all” (0) to “Very much” (4), form an impairment/impacts on quality of life dimension. When the questionnaire is administered, 9 items are used for screening; if participants report none of the screened sound intolerance experiences, their scores are assumed to be zero.

2.c.ii. Vanderbilt Auditory Distractibility Questionnaire (VADQ)

The Vanderbilt Auditory Distractibility Questionnaire (VADQ) is a brief, 7-item, unidimensional self-report measure of auditory distractibility originally developed for use with autistic adults (Williams, 2021). Items are rated from “Strongly Disagree” (0), reflecting minimal auditory distractibility, to “Strongly Agree” (5).

2.c.iii. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ)

The Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) (Williams et al., 2022) is a brief self-report measure of core misophonic characteristics, as per recent definitions (Jager et al., 2020; Swedo et al., 2022), validated in general-population and autistic adult samples (Williams et al., 2022). If participants report being bothered by specific sounds, even if they are not loud, participants complete the measure; otherwise, their scores are assumed to be zero. 17 items generate total scores; 10 of these items ask about symptoms/experiences, 8 of which load on two dimensions: “Anger and Aggression” (4 items) and “Distress and Avoidance” (5 items, including one item cross-loading on “Anger and Aggression”). The other 7

items concern impacts/impairment. Due to the participant age range, in this study, items were slightly revised to remove references to work/employment.

2.c.iv. Brain-Body Center Sensory Scales (BBCSS)

The 50-item brief self- and proxy-report forms of the Brain Body Center Sensory Scales (BBCSS) (Kolacz et al., 2018; Porges, 2012) were administered. As described by Kolacz et al. (2018), factors are Auditory Hypersensitivity (9 items), Auditory Hyposensitivity to Voices (5 items), Visual Hypersensitivity (10 items), Tactile Hypersensitivity (10 items), Affiliative Touch Aversion (3 items), Selective Eating (6 items), Ingestive Problems (3 items), and Digestive Problems (4 items). Response options range from “Almost Never” (1) to “Almost Always” (4); a “Not Sure/Not Applicable” response option is ignored when scores are calculated. Due to the inclusion of this not applicable option, the number of participants with useable BBCSS data varies from subscale to subscale (see Supplementary Tables A.13-A.14).

2.c.v. Sensory Experiences Questionnaire, Version 3.0 (SEQ-3.0)

The SEQ-3.0 is a 105-item caregiver-report sensory behaviour questionnaire (Ausderau et al., 2014) with items scored from “Never/Almost Never” (1) to “Almost Always/Always” (5). It assesses four patterns of sensory behaviour – namely, hyporesponsiveness (HYPO), hyperresponsiveness (HYPER), sensory interests and seeking (SIRS), and

enhanced perception (EP) – with EP being defined as “superior acuity in the awareness of specific sensory stimuli” (Ausderau et al., 2014). However, SEQ EP does not appear to converge with psychophysical thresholds (Dwyer, Takarae, et al., 2022a), and some EP items were classified by Williams, Schaaf, et al. (2023) as being HYPER items. The SEQ collects data from five modalities – auditory, visual, tactile, gustatory/olfactory, and vestibular/proprioceptive – and as the interpretability of overall, modality-independent sensory pattern scores from the SEQ has been challenged (Williams, Schaaf, et al., 2023), the present study used modality-specific scores.

2.d. Other Questionnaires

2.d.i. Social Communication Questionnaire (SCQ) – Lifetime Form

The lifetime version of the Social Communication Questionnaire (SCQ) is a 40-item, parent-report measure of autistic characteristics, with a particular retrospective focus on ages 4-5. Items are binary; responses indicate that a behaviour has been present, or that it has not. Scores over 15 are, for screening, considered indicative of autism (Berument et al., 1999).

2.d.ii. Strengths and Weaknesses of ADHD-symptoms and Normal-behavior (SWAN)

The SWAN is an 18-item questionnaire inviting caregivers to rate their child’s ability to be attentive (9 items) and to avoid/suppress hyperactivity/impulsivity (9 items) on a 7-point scale from “Far Below

Average” (3) to “Far Above Average” (-3); higher scores reflect more ADHD traits (Swanson et al., 2012).

2.d.iii. Anxiety Scale for Children with Autism Spectrum Disorder (ASC-ASD)

Both the caregiver- and self-report versions of the ASC-ASD (Rodgers et al., 2016), a 24-item questionnaire measuring anxiety as it often presents in autism, were collected. Items are scored from 0 (“Never”) to 3 (“Always”), with higher scores reflecting greater anxiety. Subscales include Anxious Arousal (6 items), Performance Anxiety (5 items), Separation Anxiety (5 items), and difficulties related to Uncertainty (8 items). Caregiver-report data were available from all participants, and self-report data from all except one control participant, due to a questionnaire response that was terminated early.

2.e. Psychoacoustic Tasks

All psychoacoustic tasks were presented in an audiometrically quiet, non-acoustically reflective chamber, which also used a pneumatic airbag suspension system to suppress external vibrations. An experimenter was seated with the participant inside the chamber; this experimenter used earbuds to communicate with the experimenter(s) in the control room, who monitored events in the chamber via a video monitor and microphone.

2.e.i. Hearing Thresholds

Hearing thresholds were measured in each ear with an Otovation Amplitude T4 audiometer and Sennheiser HDA-200 audiometric headphones. Participants were told to "press the button [on the audiometer response box] when you hear a tone, even if it was really soft or you just thought you may have heard a tone." Participants then listened to 1000 ms pure tones of 125, 250, 500, 1000, 2000, 4000, and 8000 Hz, presented at random interstimulus intervals between 1200 and 2500 ms. The starting intensity was 40 dB HL, and sound levels were increased in steps of 5 dB or decreased in steps of 10 dB via an automated Hughson-Westlake procedure, until either the participant's threshold, or –10 dB HL, was reached.

2.e.ii. Loudness Discomfort Levels (LDLs)

Loudness discomfort levels were measured binaurally (in both ears together) with the Otovation Amplitude T4 system. Participants were verbally given the following instructions by an experimenter, adapted from the British Society of Audiology recommendations (2011):

> "We have some more sounds for you to listen to now. Like before, some will be soft, some will be high, and some will be low. This time we will gradually make the sound louder in your ear, and you must raise your hand as soon as the sound becomes uncomfortably loud. This is not a test to find the loudest sound you can tolerate; it is a test to find what level of sound you find uncomfortable. You should raise your hand only when the sound becomes uncomfortable; but

make sure you raise it as soon as the sound reaches that level and we will turn the sound volume down."

Participants then listened to 1000 ms pure tones of 250, 1000, 4000, and 8000 Hz, presented manually by the experimenters with brief gaps between each tone. The initial intensity was 45 dB HL, and sound levels were increased in 5 dB steps until participants indicated that the sound was uncomfortable, or until the maximum intensity was reached (95 dB HL @ 250 Hz, 105 dB HL @ 1000 Hz, 95 dB HL @ 4000 Hz, 90 dB HL @ 8000 Hz). Intensity was then decreased by 20 dB before resumption of 5 dB increase steps, until participants had either indicated discomfort or reached the maximum intensity three times. Discomfort levels for each frequency were the average of these three intensities, unless the participant was already uncomfortable at 45 dB HL, in which case only subsequent runs at lower intensities were used (this occurred for three participants, at 4000 and/or 8000 Hz).

2.e.iii. Core Discriminant Sounds (CDS)

The Core Discriminant Sounds (CDS) task can measure both misophonia (Enzler, Loriot, et al., 2021) and hyperacusis (Enzler, Fournier, et al., 2021). Participants sat in front of a Samsung 55 cm, 1920 x 1080 pixel monitor and listened to binaurally-presented sounds through AKG K612 headphones. They were instructed to use the computer keyboard and mouse to rate the sounds on a visual analogue scale (VAS) ranging from "pleasant" (0) to "unpleasant" (100). Each sound was repeated twice, in

randomized order, at increasing intensities: 50 dB, 60 dB, 70 dB, and 80 dB SPL, calibrated via an artificial ear and sound meter (HBK 4153, HBK 2236). If participants rated a sound as very unpleasant (VAS ratings ≥ 90), that sound was not presented again, and in calculating scores, the research team assumed participants would have provided responses of 100 to all subsequent repetitions of that sound. To calibrate the response scale, participants were told that "maximally unpleasant ratings should mean a sound is unbearable."

Sounds were controlled with an adaptation of custom MATLAB code shared by Enzler and colleagues. After a short practice block featuring 6 sounds (which were not repeated afterwards), participants listened to sounds from several categories: 7 conventionally-pleasant sounds ("birds", "fountain", "harp", "laugh", "ocean", "piano", "underwater"); 10 common misophonia triggers, including breathing/nasal sounds ("breath running", "sniffling", "snoring"), mouth sounds ("chewing 1" , "chewing 2", "slurping"), throat sounds ("swallowing", "throat clearing"), and repetitive sounds ("keyboard", "pen clicking"); and 6 conventionally-unpleasant sounds ("clapping", "distorted guitar neck dissonance", "fingernails on chalkboard", "fork scratch plate", "knife hitting glass", "scream"), using stimuli from prior studies (Enzler, Fournier, et al., 2021; Enzler, Loriot, et al., 2021). Mean sound duration was 2134 ms (SD = 314).

The logic of this task is to compare participant's responses to a database obtained in a control population (in this case, non-autistic, non-

hyperacusis, non-misophonic participants). It is assumed that that misophonia or hyperacusis, by definition, reflect reduced tolerance to sounds compared to a “normal” population. This test attempts to assess the lived experience of subjects from the ratings of subjects. It is important to have in mind that participants’ ratings are “composite” in the sense that they can be informed by several dimensions (loudness, emotions, memories etc.). The core discriminant sounds (CDSs) are the sounds that have been found to be optimal to differentiate the two populations (controls and subjects with hyperacusis or misophonia) (Enzler, Fournier, et al., 2021; Enzler, Loriot, et al., 2021). In the logic of this task, rating misophonic trigger sounds as more unpleasant suggests more misophonic reactions towards those sounds, as one would expect. For hyperacusis, surprisingly, the CDSs are pleasant sounds rather than unpleasant sounds. A putative explanation for that may reside in the fact that unpleasant sounds are unpleasant for everyone. Presumably, people experiencing hyperacusis have a less pleasant experience of typically-pleasant sounds when they are presented at sufficient intensity, because of the aversion to loudness inherent in hyperacusis. In contrast, the scores for unpleasant sounds are limited by a plateau/ceiling effect.

Following Enzler, Loriot, et al. (2021) and Enzler, Fournier, et al. (2021), Core Discriminant Sound scores were obtained for misophonia (CDS_{Miso}) and hyperacusis (CDS_{HypA}). These sounds are optimal to discriminate the population of participants with hyperacusis from the

general population. Separately for each sound and each intensity level, the 75% quantiles of ratings of misophonic trigger sounds (CDS_{Miso}) and conventionally pleasant sounds (CDS_{HypA}) were extracted in non-autistic participants not meeting the DVMSQ misophonia criteria as described in Table 2 of Williams et al. (2022); n=21. If the 75% quantile rating was ≤90 (to avoid magnifying minute differences), and if the participant's rating was larger than the 75% quantile, differences were obtained between each participant's mean rating of each sound at each intensity and the corresponding 75% quantile. The values of these differences were then divided by the largest possible difference between a participant's rating and the 75% quantile, multiplied by 100, and averaged across sounds and intensities. Where participants' ratings were less than the 75% quantile, differences were considered to be zero. This yielded a metric ranging from 0 (meaning a participant's ratings of misophonic triggers, CDS_{Miso}, or conventionally pleasant sounds, CDS_{HypA}, were always equally or more pleasant than the 75% quantile rating in non-autistic, non-misophonic controls) to 100 (meaning ratings were always maximally unpleasant).

Participants' raw median ratings of pleasant, unpleasant, and various types of misophonic trigger sounds are presented in Appendix A, as are the 75% quantiles (Supplementary Table A.3).

2.f. Analyses

2.f.i. Group Differences on Psychoacoustic Tasks

Hearing thresholds for each frequency and ear, LDLs at each frequency, and CDS scores at all intensities were compared across diagnostic groups using ordinal probit regression (Harrell, 2022; Ripley et al., 2022), controlling for chronological age and WASI Perceptual Reasoning standard scores.

2.f.ii.Associations Among Sensory Measures

Prior to further analyses of group differences, the pattern of associations among auditory hyper-reactivity measures was examined, partly in order to determine whether composite scores could be defined for certain constructs. Convergence of measures was examined using scaled, ranked regression, covarying for diagnostic group membership: effectively, insofar as statistical inference is concerned, this procedure yields a Spearman's correlation controlling for any group differences.

Of particular interest in the present study was convergence of measures of misophonia (self-report DVMSQ scores, self-report MIST-A misophonia subscores, and CDS_{Miso} scores) and hyperacusis (self-report MIST-A loudness hyperacusis, pain hyperacusis, and hyperacusis symptom subscores, CDS_{HypA} scores, and LDLs averaged across frequencies); in addition, analyses examined whether misophonia and hyperacusis were related to SEQ auditory hyperresponsitivity, BBCSS self- and caregiver-report auditory hypersensitivity, MIST-A fear/panic, MIST-A nonspecific

symptoms, MIST-A impairment/quality of life impacts, and VADQ auditory distractibility.

Separately, analyses examined whether SEQ auditory enhanced perception scores were associated with Pure Tone Average (PTA) hearing thresholds, or conversely whether they showed more robust associations with measures of sound intolerance/distractibility (LDLs, CDS_{Miso} scores, CDS_{HypA} scores, MIST-A total scores, DVMSQ total scores, VADQ scores, or BBCSS auditory hyper-reactivity scores).

Full association matrices involving additional variables are presented in Appendix A.

2.f.iii. Auditory Hyper-Reactivity Group Differences

For subsequent group difference analyses, when measures purportedly indexing the same sensory constructs (e.g., misophonia), were sufficiently associated – reflected by statistically significant (before any multiple comparison correction) scaled, ranked regression coefficients of .4 or greater,[1] controlling for diagnostic group – composites were created, analogously to the approach of Feldman and colleagues (2021). Raw scores on the variables were converted to scaled *z*-scores and averaged. The resulting composites, and other auditory sensory measures, were compared

[1] The inferential *p*-values from the scaled, ranked regression analyses examining associations between measures, while controlling for diagnostic groups, remain the same regardless of which variable is the predictor. However, coefficients vary depending upon which variable is entered into the regression model as the predictor and as the response (see Supplementary Table A.4). The average of the two resulting coefficients was used to determine whether the variables were sufficiently associated for the creation of composites.

across diagnostic groups using Wilcoxon-Mann-Whitney tests, with Cliff's δ as an effect size. Group comparisons of all other sensory measures are presented in Appendix A.

2.f.iv. Caregiver-Child Reporter Differences

Finally, to examine potential differences between parent- and child-reports of sensory phenotypes, BBCSS auditory hyperreactivity subscale scores were entered into a cumulative link multilevel model using the ordinal package (Christensen, 2022); the model included fixed effects of group, reporter, their interaction, and the covariates of age and nonverbal cognitive ability, as well as varying (random) intercepts by participant. Paired Wilcoxon tests were used to follow up interactions; as corresponding effect sizes, estimates of *r*, based on *z*-values, are provided (Kassambara, 2022).

3. Results

3.a. Group Differences on Psychoacoustic Tasks

As expected, groups did not statistically differ in hearing thresholds averaged across ears, b=0.52, p=.13, , 95% CI=[−0.15, 1.20], nor did they differ in hearing thresholds at any frequency in either ear (Supplementary Table A.1; *Supplementary Figure A.1*).

Unexpectedly, there were also no statistical between-group differences in loudness discomfort levels (LDLs), either on average, b=0.37, p=.29, 95% CI=[−0.31, 1.05], or for any frequencies examined (Supplementary Table A.2), although visual inspection suggested a subset of autistic participants strongly disliked high-frequency sounds (*Supplementary Figure A.2*).

Also unexpectedly, CDS_{Miso} scores did not statistically differ between diagnostic groups, either overall or at any intensity level, despite some apparent trends at 60 and 80 dB (Table 3; *Supplementary Figure A.3*; see also raw median sound ratings in *Supplementary Figure A.4* and CDS scores for each misophonia trigger type in Supplementary Table A.11). However, groups did differ in CDS_{HypA} scores, reflecting greater aversion to conventionally-pleasant naturalistic sounds in autistic participants at the 60, 70, and 80 dB intensity levels (Table 1.3; *Supplementary Figures A.3-A.4*). The effect of group on CDS_{HypA} scores to 50 dB sounds did not approach significance, suggesting 50 dB was too soft for most autistic participants to experience an unusually negative reaction. Ratings of conventionally-

unpleasant sounds appeared similar across groups (*Supplementary Figure A.5*, Supplementary Table A.10).

Table 3. Results of ordinal probit regressions tests comparing autistic and non-autistic comparison participants' Core Discriminant Sound (CDS) scores for hyperacusis and for misophonia, controlling for age and nonverbal cognitive ability, separately at each intensity level, as well as on average. A false discovery rate correction for 10 comparisons was applied.

	CDS Misophonia					CDS Hyperacusis				
	50 dB	60 dB	70 dB	80 dB	Average	50 dB	60 dB	70 dB	80 dB	Average
Autistic Mean (SD)	12.30 (22.51)	20.19 (28.65)	28.30 (39.96)	38.13 (40.03)	21.72 (27.55)	8.87 (11.75)	14.03 (16.81)	27.48 (30.26)	33.57 (37.75)	20.52 (20.67)
Comparison Mean (SD)	11.80 (17.64)	14.92 (24.30)	15.05 (25.16)	21.49 (31.94)	14.40 (20.76)	3.53 (5.18)	3.77 (5.90)	7.06 (10.81)	10.50 (17.64)	6.06 (8.22)
p_{raw} p_{cor}	.69 .69	.08 .14	.16 .21	.059 .12	.17 .21	.21 .23	.01* .03*	.01* .03*	.005** .03*	.006** .03*
b [95% CI]	−0.14 [−0.85, 0.57]	−0.63 [−1.35, 0.08]	−0.55 [−1.33, 0.22]	−0.72 [−1.47, 0.02]	−0.48 [−1.17, 0.20]	−0.44 [−1.12, 0.25]	−0.88 [−1.57, −0.19]	−0.89 [−1.60, −0.18]	−1.03 [−1.75, −0.31]	−0.99 [−1.69, −0.29]

3.b. Auditory Hyper-Reactivity Associations

3.b.i. Within-Construct Associations: Misophonia

Different measures of misophonia clearly converged, even when these measures used different methods (Table 4; see also Supplementary Tables A.4-A.6, *Supplementary Figure A.6*). Indeed, the association between self-report questionnaire-based DVMSQ scores and laboratory-based CDS_{Miso} scores, p_{raw}=.007, p_{cor}=.02, was comparably robust to that between DVMSQ scores and likewise-questionnaire-based MIST-A misophonia scores, p_{raw}=.001, p_{cor}=.007. The overall association between MIST-A misophonia scores and CDS_{Miso} scores did not closely approach significance, p_{raw}=.12, p_{cor}=.19, although a trend was observed in autistic participants alone, p_{raw}=.04, p_{cor}=.16 (Supplementary Table A.5).

3.b.ii. Within-Construct Associations: Hyperacusis

Self-report questionnaire-based MIST-A hyperacusis symptom scores and MIST-A hyperacusis (loudness/pain) experience scores were associated, p_{raw}=.001, p_{cor}=.007 (Table 4; see also Supplementary Tables A.4-A.6, *Supplementary Figure A.7*). Similarly, laboratory rating-based CDS_{HypA} scores and average loudness discomfort levels (LDLs) trended towards being associated, p_{raw}=.02, p_{cor}=.06. But contrary to this study's hypothesis, scores from self-report questionnaire and laboratory-based hyperacusis measures were not related to one another, $p_{raw}\geq.18$, $p_{cor}\geq.28$.

3.b.iii. Other Auditory Hyper-Reactivity Associations

As expected, self-report MIST-A scores from various subscales tended to converge with one another (Table 4; see also Supplementary Tables A.4-A.6); a number of these self-report subscores also tended to converge with self-report VADQ auditory distractibility scores and BBCSS auditory hypersensitivity scores. There were also some associations with self-report DVMSQ scores.

However, there were no statistically robust relationships between psychoacoustic sound comfort/pleasantness ratings and MIST-A subscores or self-report BBCSS auditory hypersensitivity scores.

Similarly, as expected, different psychoacoustic scores converged with one another across constructs: CDS_{HypA} and CDS_{Miso} scores were robustly related, $p_{raw}<.0001$, $p_{cor}=.002$, and CDS_{Miso} scores tended to converge with loudness discomfort levels, $p_{raw}=.03$, $p_{cor}=.08$.

Caregiver-report SEQ and BBCSS auditory hyper-responsiveness/sensitivity scores were strongly related, $p_{raw}<.0001$, $p_{cor}<.0001$, but these caregiver-report subscores seldom converged with self-report scores. SEQ auditory hyper-responsiveness was only robustly associated with MIST-A fear/overwhelm scores and systemic nonspecific symptom scores, while BBCSS caregiver-report hyper-sensitivity was only robustly associated with its BBCSS self-report equivalent.

More complete association matrices are presented in Supplementary Table A.7.

Table 4 (Upper Rows). *Results of scaled, ranked regression analyses examining how auditory hyper-reactivity (HYPER) variables are associated with one another, collapsed across groups but controlling for any potential diagnostic group differences. Misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Coefficients from models where predictors are on the left are presented in Supplementary Table A.4, and can slightly differ from those in this table.
Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 105 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
Misophonia	Self-Report	1. MIST-A Misophonia		.001** .01**	.12 .20	.0008*** .006**	.005** .02*	<.0001**** <.0001****	.95 .96	.84 .89	.002** .01*	.04* .08	.02* .06	.003** .02*	.006** .02*	.21 .32	.055 .11
		2. DVMSQ	.48 [.20, .76]		.007** .02*	.04* .09	.12 .21	.007** .03*	.12 .20	.54 .66	.03* .08	.27 .38	.18 .28	.03* .08	.11 .19	.76 .84	.37 .48
	Lab	3. CDS_{Miso}	.26 [-.07, .58]	.45 [.13, .76]		.17 .27	.28 .40	.42 .54	.0001*** .002**	.03* .08	.62 .73	.79 .85	.77 .84	.35 .46	.20 .31	.23 .35	.14 .23
	Self-Report	4. MIST-A Hyperacusis Loud/Pain	.43 [.19, .67]	.28 [.01, .56]	.19 [-.08, .46]		.0001*** .002**	.002** .01*	.59 .70	.88 .90	.0006*** .006**	.02* .06	<.0001**** .002**	.0001*** .002**	.0004*** .004**	.06 .12	.08 .14
		5. MIST-A Pain Hyperac	.44 [.14, .73]	.26 [-.07, .58]	.17 [-.15, .49]	.67 [.35, .99]		.001** .010**	.68 .77	.56 .68	.03* .07	.01* .048*	.002** .01*	.003** .02*	.02* .050*	.75 .84	.49 .61

Table 4 (Upper Rows). *Results of scaled, ranked regression analyses examining how auditory hyper-reactivity (HYPER) variables are associated with one another, collapsed across groups but controlling for any potential diagnostic group differences. Misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Coefficients from models where predictors are on the left are presented in Supplementary Table A.4, and can slightly differ from those in this table.
Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 105 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
Within-Construct: Hyperacusis	Self-Report	6. MIST-A Hyperacusis Symptom	.69 [.44, .94]	.44 [.13, .76]	.13 [-.20, .47]	.58 [.22, .93]	.51 [.21, .81]		.86 .89	.65 .76	.02* .06	.0002*** .002**	.008** .03*	.02* .06	.003** .02*	.77 .84	.23 .35
	Lab-Rating	7. CDS_{HypA}	-.01 [-.32, .30]	.25 [-.06, .55]	.53 [.28, .78]	.10 [-.27, .47]	.07 [-.25, .38]	-.03 [-.33, .28]		.02* .06	.85 .89	.29 .40	.52 .65	.48 .61	.39 .50	.34 .46	.79 .85
		8. LDL	-.03 [-.37, .30]	.11 [-.24, .45]	-.35 [-.66, -.03]	.03 [-.37, .43]	-.10 [-.44, .24]	.08 [-.26, .41]	-.41 [-.75, -.07]		.98 .98	.67 .77	.33 .45	.89 .90	.15 .25	.06 .13	.07 .13

Table 4 (Upper Rows). *Results of scaled, ranked regression analyses examining how auditory hyper-reactivity (HYPER) variables are associated with one another, collapsed across groups but controlling for any potential diagnostic group differences. Misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Coefficients from models where predictors are on the left are presented in Supplementary Table A.4, and can slightly differ from those in this table.
Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 105 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor.*

	Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
	Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
	1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
racusis															

708

Table 4 (Lower Rows). *See above for table caption.*

	Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
	Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
	1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER

Other/General Auditory Hyper-Reactivity	Self-Report	9. MIST-A Fear/Panic	.46 [.18, .74]	.34 [.03, .65]	.08 [-.24, .40]	.60 [.28, .93]	.34 [.04, .65]	.35 [.05, .64]	.03 [-.31, .38]	.00 [-.31, .32]		.002** .01*	.02* .06	.004** .02*	.03* .07	.21 .33	.03* .07
		10. MIST-A Nonspecific Symptom	.33 [.02, .64]	.19 [-.15, .52]	-.04 [-.37, .28]	.44 [.08, .81]	.39 [.08, .70]	.55 [.28, .81]	-.18 [-.53, .16]	.07 [-.25, .39]	.50 [.20, .79]		.004** .02*	.046* .10	.07 .13	.31 .43	.01* .047*
		11. MIST-A Impairment	.34 [.05, .63]	.21 [-.10, .53]	.05 [-.26, .35]	.66 [.36, .96]	.47 [.19, .74]	.39 [.11, .66]	.11 [-.23, .44]	-.15 [-.45, .16]	.36 [.06, .66]	.42 [.14, .71]		.0007*** .006**	<.0001*** .002**	.06 .12	.19 .31
		12. VADQ Auditory Distraction	.45 [.16, .73]	.34 [.03, .66]	.15 [-.17, .46]	.67 [.36, .99]	.45 [.16, .75]	.36 [.06, .65]	.12 [-.22, .47]	.02 [-.29, .34]	.45 [.15, .75]	.32 [.01, .63]	.54 [.24, .83]		<.0001*** <.0001***	.053 .11	.24 .36
		13. BBCSS Auditory HYPER	.38 [.12, .64]	.24 [-.05, .53]	.19 [-.10, .47]	.56 [.27, .86]	.34 [.07, .62]	.40 [.14, .65]	.14 [-.18, .46]	-.20 [-.48, .08]	.32 [.03, .60]	.27 [-.02, .55]	.56 [.31, .81]	.63 [.41, .86]		.002** .01*	.03* .07
	Caregiver	14. BBCSS Auditory HYPER	.13 [-.08, .34]	.03 [-.18, .25]	.12 [-.08, .33]	.24 [-.01, .49]	.03 [-.19, .26]	-.03 [-.24, .18]	.11 [-.12, .33]	-.19 [-.38, .01]	.14 [-.08, .36]	.11 [-.11, .32]	.21 [-.01, .44]	.20 [-.00, .41]	.35 [.13, .56]		<.0001*** <.0001***
		15. SEQ Auditory HYPER	.21 [-.00, .43]	.11 [-.13, .34]	.17 [-.06, .39]	.24 [-.03, .50]	.08 [-.15, .32]	.13 [-.09, .36]	.03 [-.22, .28]	-.20 [-.42, .02]	.25 [.03, .48]	.28 [.06, .49]	.16 [-.08, .40]	.14 [-.10, .37]	.29 [.03, .54]	.82 [.55, 1.08]	

1. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) Misophonia scores; 2. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) total scores; 3. Core Discriminant Sounds (CDS) scores for misophonia, based on pleasantness ratings of misophonic trigger sounds, collapsed across intensities; 4. MIST-A (Loudness) Hyperacusis scores; 5. MIST-A Pain (Hyperacusis) scores; 6. MIST-A Hyperacusis Symptom scores; 7. CDS scores for hyperacusis, based on pleasantness ratings of conventionally-pleasant sounds, collapsed across intensities; 8. Loudness Discomfort Levels (LDLs) collapsed across frequencies; 9. MIST-A Fear/Panic scores; 10. MIST-A Systemic Nonspecific Symptom scores; 11. MIST-A impairment scores, reflecting the impact of sound intolerance on quality of life; 12. Vanderbilt Auditory Distractibility Questionnaire (VADQ) total scores; 13. self-report Brain-Body Center Sensory Scales (BBCSS) Auditory Hypersensitivity scores; 14. caregiver-report BBCSS Auditory Hypersensitivity scores; and 15. Sensory Experiences Questionnaire Version 3.0 (SEQ-3.0) Auditory Hyperresponsiveness scores.

709

710

3.c. Auditory Enhanced Perception Associations

Unexpectedly, there were no relationships between SEQ Auditory EP scores and either hearing thresholds *or* sound intolerance/distractibility, even before *p*-value correction (Table 5; see also Supplementary Tables A.8-A.9). Instead, exploratory analyses found that auditory EP was predicted by SEQ Auditory Interests, Repetitions, and Seeking (SIRS), β=.74, p_{raw}<.0001, an effect which remained significant even when correcting for the large number of exploratory comparisons, p_{cor}=.0002 (Supplementary Table A.7). Spearman's tests indicated this effect could be observed in both the autistic, ρ=.70, 95% CI=[.35, .88], uncorrected *p*=.001, and comparison, ρ=.52, 95% CI=[.12, .77], uncorrected *p*=.01, groups.

Table 5. *Results of separate scaled, ranked regression analyses examining how caregiver-report SEQ Auditory Enhanced Perception is predicted by hearing thresholds and by various measures of sound intolerance, with diagnostic group membership as a covariate to control for any diagnostic group differences.*
Coefficients and their confidence intervals, representing the effect of each predictor variable on SEQ Auditory EP scores, are presented above uncorrected p*-values. As no effects attained significance, no* p*-value correction for multiple comparisons was applied.*

	Acuity	Sound Intolerance and Distractibility							
		Lab Rating			Self-Report				Caregiver
	2. PTA	3. LDL	4. CDS_{Miso}	5. CDS_{HypA}	6. MIST-A Total	7. DVMSQ Total	8. VADQ Auditory Distract	9. BBCSS Auditory HYPER	10. BBCSS Auditory HYPER
1. SEQ Auditory EP (caregiver)	-.13 [-.42, .17] .38	-.07 [-.36, .23] .65	.11 [-.18, .41] .45	.02 [-.30, .34] .90	-.01 [-.34, .32] .96	-.01 [-.30, .32] .95	-.03 [-.34, .28] .86	-.12 [-.46, .22] .48	.23 [-.25, .71] .34

3.d. Auditory Hyper-Reactivity Group Differences

For analyses of group differences in auditory hyper-reactivity phenotypes, following procedures described in the "Analyses" section,

composite scores were created for misophonia (from DVMSQ and CDS_{Miso}), self-reported hyperacusis (MIST-A loudness and pain hyperacusis and hyperacusis symptoms), and caregiver-report auditory hyperreactivity (caregiver-report SEQ and BBCSS auditory hyperresponsiveness/hypersensitivity).

Autistic participants appeared to experience more misophonia, hyperacusis, auditory fears/panic, auditory enhanced perception, auditory distractibility, generalized auditory hyper-reactivity reactivity, and impairment/quality of life impacts from sound intolerance, all corrected $p \leq .04$ (Table 6.). Groups did not significantly differ in scores for nonspecific auditory sensory symptoms, all corrected $p \geq .12$ (Table 6).

Group differences on all sensory measures examined in this study can be found in Supplementary Table A.10. Notably, before correction for multiple comparisons, DVMSQ anger/aggression and impairment scores differed across groups, despite the lack of group differences in CDS_{Miso} scores (see Table 3). This suggests the composite misophonia group differences in Table 6 were primarily driven by self-reports rather than ratings of sounds presented in the laboratory. We were curious whether this might reflect differences in the types of triggers identified by participants, and indeed, autistic participants' DVMSQ responses mentioned some trigger sounds that were not presented in the CDS task (Supplementary Table A.11). Interestingly, some of these triggers – such as

748 singing (mentioned by two autistic participants) – might conventionally be
749 considered pleasant.
750 Although analyses in Table 6 are based on a composite measure of
751 self-reported hyperacusis, this effect appeared to be driven particularly by
752 loudness hyperacusis; group differences in pain hyperacusis and bodily
753 symptoms did not reach significance in supplementary analyses
754 (Supplementary Table A.10).

Table 6. Results of ordinal probit regression models comparing autistic and non-autistic comparison participants' auditory sensory hyper-reactivity phenotypes, controlling for nonverbal cognitive ability and age. A false discovery rate correction for 11 comparisons was applied.

	Autistic			Comparison			*p*	Coefficient [95% CI]
	M (SD)	Range	n	M (SD)	Range	n		
Misophonia Composite	0.29 (1.04)	-0.68 to 2.93	18	-0.24 (0.56)	-0.68 to 0.96	22	.02* .03*	-0.81 [-1.51, -0.11]
MIST-A Misophonia	0.67 (0.70)	0.00 to 2.38	18	0.35 (0.31)	0.00 to 1.00	22	.10 .12	-0.57 [-1.25, 0.12]
Hyperacusis Self-Report Composite	0.40 (0.83)	-0.91 to 1.95	18	-0.33 (0.52)	-0.91 to 0.93	22	.009** .02*	-0.92 [-1.62, -0.23]
MIST-A Fear/ Panic	0.96 (0.68)	0.00 to 2.33	18	0.52 (0.50)	0.00 to 1.67	22	.01* .02*	-0.90 [-1.59, -0.20]
MIST-A Nonspecific Systemic Symptom	0.48 (0.59)	0.00 to 1.86	18	0.16 (0.24)	0.00 to 1.00	22	.22 .22	-0.46 [-1.18, 0.27]
MIST-A Impairment/ Quality of Life Impact	0.41 (0.46)	0.00 to 1.50	18	0.13 (0.25)	0.00 to 1.00	22	.02* .03*	-0.88 [-1.60, -0.16]
VADQ Auditory Distractibility	2.40 (1.12)	0.57 to 4.29	18	1.65 (0.90)	0.00 to 3.29	22	.03* .04*	-0.73 [-1.41, -0.06]
BBCSS Auditory HYPER Self-Report	1.98 (0.53)	1.00 to 2.88	18	1.41 (0.44)	1.00 to 2.89	21	.002** .008**	-1.13 [-1.87, -0.40]
Auditory HYPER Caregiver Composite	0.76 (0.92)	-0.61 to 2.41	18	-0.64 (0.34)	-0.93 to 0.03	20	<.0001**** <.0001****	-2.91 [-3.96, -1.91]
SEQ Auditory Enhanced	2.43 (0.98)	1.00 to	18	1.59 (0.60)	1.00 to	22	.0007***	-1.24 [-1.96,

Perception		5.00			3.25		.004**	-0.52]

755

3.e. Caregiver-Child Reporter Differences

As reported above (Table 4; see also Supplementary Tables A.4-A.6), caregiver- and self-reports of auditory hyperreactivity were moderately and significantly associated.

According to the cumulative link multilevel model, autistic participants generally experienced more auditory hyperreactivity than controls, χ^2=30.46, p<.0001. There was also a significant effect of the covariate of age, χ^2=3.94, p=.047, and at a trend level of nonverbal cognitive ability, χ^2=3.26, p=.07; Spearman's correlations in each group suggested the effect of age may have reflected less caregiver-reported auditory hyperreactivity in older autistic participants, ρ=–.53, p=.02. There was no main effect of reporter (caregiver- vs. self-), χ^2=0.18, p=.68, but there was an interaction between reporter and diagnostic group, χ^2=7.60, p=.006. Unexpectedly, follow-up Wilcoxon paired tests suggested that autistic participants usually self-reported *less* auditory hyperreactivity than their caregivers reported for them, r=.59, 95% CI=[.22, .84], corrected p=.03, while control participants' self- and caregiver-reports did not significantly differ, r=.28, 95% CI=[.02, .65], p=.21.

As an additional exploratory analysis, scores from other BBCSS subscales were examined (Supplementary Table A.13). Autistic participants similarly self-reported *less* atypical sensory phenotypes than reflected by their caregivers' proxy-reports on a number of subscales; furthermore, typically-developing comparison participants sometimes self-reported *more*

779 sensory differences and issues than their caregivers proxy-reported for
780 them. Convergence between raters was generally poor.
781 Because BBCSS items can be left blank and omitted from scoring,
782 sensitivity analyses were conducted on the subset of participants whose
783 self-reports and caregiver-reports included at least two-thirds of the items
784 on each subscale (Supplementary Table A.14). Patterns of results were
785 overall very similar to the main analyses reported here and in
786 Supplementary Table A.13.

4. Discussion

The present study characterized auditory sensory phenotypes in autistic and non-autistic adolescents using a mixture of psychoacoustic tasks, caregiver-report measures, and self-report measures.

4.a. Group Differences

As expected, autistic participants did not differ from comparison participants in hearing acuity, but overall, they reportedly exhibited generalized auditory hyper-reactivity and sound intolerance-related impairment/quality of life impacts, as well as auditory fear/panic. Moreover, autistic participants appear to have experienced more misophonia and auditory distractibility, as predicted by study hypotheses and in line with prior research (Dwyer et al., 2023; Scheerer et al., 2022; Williams et al., 2022), although group differences in misophonia were not statistically significant when relying on ratings of misophonic triggers presented in the laboratory. According to supplementary analyses, groups did not appear to differ in median laboratory ratings of conventionally-unpleasant sounds either, perhaps reflecting ceiling effects and the overall-negative ratings of these sounds in each group.

Instead, in laboratory visits, autistic participants generally gave unusually negative ratings to conventionally-pleasant sounds at intensities of 60 dB SPL (a normal conversational volume) or higher, a pattern which would canonically be interpreted as suggestive of elevated susceptibility

towards hyperacusis and loudness discomfort – and indeed, autistic participants did self-report more hyperacusis, particularly loudness hyperacusis. However, as autistic and control participants did not apparently differ in loudness discomfort towards pure tones, at least at lower frequencies, some caution should be exercised in assuming that loudness/volume alone drove the auditory discomfort experienced by most participants in the autism group.

Rather, autistic participants may often have had negative reactions towards some specific sounds that are not typically misophonia triggers, including some conventionally-pleasant sounds, perhaps finding them distressing and overwhelming when they were presented at sufficient volumes.

This may also have accounted for the lack of observed group differences in reactions to common misophonic trigger sounds presented in the laboratory: these sounds could have excluded important triggers of some autistic participants' misophonia. These sounds may also have excluded important triggers of misophonia generally; as noted in Appendix A, in this younger sample, almost all participants – including non-autistic children – rated mouth sounds extremely negatively at all intensities, largely preventing them from being used in computing CDS_{Miso} scores. This could reflect greater emotional reactivity in children. Future studies in children should consider presenting sounds at even softer RMS intensities, such as 40 dB, and using scales with more clearly-defined response options.

It is also possible that the visual analogue response scale – ranging as it did from pleasant to unpleasant with no other labelled points – may have been too vague, and different autistic participants could have interpreted it differently, and this elevated random variability might have drowned out any remaining effects involving other trigger sounds. Meanwhile, self-reports of elevated loudness hyperacusis in the autistic group could conceivably have other reactions not necessarily specifically caused by sound loudness/volume. Experiences of loudness distress in the real world might take place in complex environments, with many stimuli overlapping on each other. Thus, experiences of loudness distress self-reported via questionnaires might have been difficult to disentangle from experiences of sensory overload and generalized reactivity to sounds.

Thus, from the present study's results, it is not entirely clear whether autistic participant's unusually negative reactions to some conventionally-pleasant sounds may have involved mechanisms similar to or distinct from misophonia. A further issue may be the question of what misophonia is – here, we use the term to refer to affective reactions to certain disliked sounds, but various models have been put forward to explain such reactions. Most straightforwardly, certain types of sounds (e.g., repetitive) may trigger emotional reactions in some people, though at present, the properties eliciting such reactions have not been systematically mapped. Alternatively, some suggest misophonic aversions are driven more by motor movements and imagery (Ash et al., 2023; Kumar et al., 2021), though this

account struggles to explain why misophonic triggers include sounds not associated with movements (Hansen et al., 2021). A new theory suggests misophonia can be understood as a reaction to violation of social politeness norms (Norena, 2024); if this is correct, insofar as autistic people can be more resistant to social conformity and arbitrary authority (Milton, 2013; Späth & Jongsma, 2019; Yafai et al., 2014) but can also show greater desire to punish harmless norm violations (Dempsey et al., 2022) – a seeming contradiction potentially reflecting developmental change, heterogeneity, or context – it is unclear how this might apply to autism. Studies considering cross-cultural variation in social norms, different trigger types, and systematically manipulating sound properties may be best suited to investigate these possibilities within and outside autism.

Notwithstanding these questions, the complexity of the sound intolerance profile observed in the autistic group appears to emphasize the importance of listening to autistic people when they experience sound intolerance, and of validating and accommodating such sensory distress. It may also suggest that laboratory rating-based measures of misophonia in autism could require a wider range of potential trigger sounds and/or clearer response scales, and that further work to develop and validate autism-specific versions of such measures may be necessary.

4.b. Associations Among Measures

Investigations of the relationships among measures of auditory sensory phenotypes appeared to reveal several informal “clusters” of

measures that were often related to one another, at least before multiple comparison correction, but less often related to measures from other "clusters." First, laboratory-based psychoacoustic discomfort indices – that is, Core Discriminant Sound misophonia (CDS_{Miso}) and hyperacusis (CDS_{HypA}) scores and, at least before correction for multiple comparisons, loudness discomfort levels (LDLs) – appeared to be related to one another. They did not appear to converge with questionnaires, except that CDS_{Miso} scores were associated with those from the DVMSQ misophonia measure. Second, self-reported scores from the MIST-A multidimensional sound intolerance questionnaire, the VADQ auditory distractibility questionnaire, and the BBCSS auditory hyper-reactivity subscale tended to converge with one another, and to some extent with DVMSQ scores. Third, caregiver-reported auditory hyper-reactivity from the SEQ and BBCSS tended to relate to one another, and to some extent they also converged with self-report questionnaire measures, but not with psychoacoustic measures. Finally, contrary to expectations, auditory enhanced perception did not appear to statistically associate with auditory hyper-reactivity and distractibility measures, but exploratory analyses suggested a robust relationship between auditory enhanced perception and sensory interests/seeking/repetitions.

This was partly consistent and partly inconsistent with the study hypotheses. In general, common methods were expected to result in convergence between measures (e.g., self-report sensory questionnaires

would converge with one another), as were shared constructs (e.g., misophonia measures would converge with one another). Most self-report, caregiver-report, and psychoacoustic discomfort measures did indeed tend to converge with other measures using the same methods, but measures putatively capturing the same constructs using different methods seldom converged. An exception was the DVMSQ, which did converge the CDS_{Miso} psychoacoustic index, suggesting that emotional misophonic reactions in autism are a relatively coherent construct. This may further imply that the DVMSQ's precise instructions and specific focus on misophonia experiences makes it more comparable to the highly specific context of a laboratory task. Alternatively, participants generally filled out the DVMSQ during or soon after the lab visit in which they completed the psychoacoustic tasks, and it is possible that participants' DVMSQ responses were more influenced by their memories of the psychoacoustic tasks.

Unexpectedly, self-report and psychoacoustic measures of hyperacusis failed to converge with one another, despite being intended to capture aspects of the same construct. However, there are several reasons to be cautious about drawing overly strong conclusions from this null effect. For one, the present study's autism group was small, leading to a risk of Type II error. For another, it is possible that a dedicated, hyperacusis-specific questionnaire would have converged more with psychoacoustic task responses than relevant MIST-A scores.

Alternatively, it is possible that hyperacusis might be difficult to disentangle from other forms of auditory discomfort, such as misophonia and sensory overload. This possibility might be consistent with the observation that the autistic group's reduced liking of moderately-loud, conventionally-pleasant sounds did not appear to be accompanied by an overall aversion to loudness in pure tones. Conceivably, some conventionally-pleasant sounds might have been idiosyncratically disliked, perhaps consistent with the wide range of misophonia triggers reported by autistic participants in Supplementary Table A.12, leading to misophonia-like reactions being captured in the ratings of the conventionally-pleasant sounds. It is also possible that autistic participants may have tended to find a wide range of sounds – those not sought out or preferred – mildly less pleasant, perhaps reflecting greater sensitivity to subtle stimulus features, or perhaps even due to skepticism of sounds related to past experiences of auditory discomfort.

As for auditory enhanced perception (EP), although the association between EP and sensory interests/seeking was unexpected, it may reflect the SEQ's item content. Auditory EP on the SEQ is indexed by four items, and while one (e.g., "How often does your child notice sounds in the environment…before other people do?") appears to reflect EP of background stimuli, others require the individual to generate sounds (e.g., "How often does your child have the exceptional ability to copy environmental sounds…"). In practice, children might often demonstrate

their sonic imitation abilities as a way of prolonging and further exploring interesting stimuli, which could be a form of sensory seeking, raising questions about the validity of EP as measured by the SEQ.

4.c. Reporter Differences

In this study, autistic children were expected to self-report greater auditory hyperreactivity than indicated by their caregivers' proxy-reports. However, this pattern was not observed. On the contrary, for auditory hyperreactivity and several other forms of sensory experience, autistic participants' caregivers reported more atypical sensory processing than was indicated by participants' self-reports. Moreover, this was the opposite of the pattern observed in the comparison group, where for some forms of sensory experience examined in the supplementary materials, comparison participants self-reported more sensory discomfort and issues than suggested from their caregivers' proxy-reports.

There appear to be a number of possible interpretations of autistic participants' caregivers' tendency to report higher levels of sensory processing differences. First, it is possible that autistic participants may have struggled to understand and self-report their internal experiences, perhaps due to known interoception difficulties in autistic populations. In this interpretation, despite lacking direct access to autistic participants' internal experiences, caregivers may have been better-able to interpret the observations they made.

Second, it is possible that caregivers' responses may have been influenced by behaviours or experiences that occurred when participants were younger, and that might no longer have been current. Although the BBCSS is worded in the present tense, the version administered in this study contained no explicit directions to base responses on any particular timeframe.

Third, caregivers might be more experienced advocates for their children's needs: as autistic adolescents often have limited involvement in advocacy activities such as school and transition planning meetings (Griffin et al., 2014; Wagner et al., 2012), they may not be practiced at describing autism-related differences or advocating for needed accommodations. This could imply adolescents require more opportunities to safely practice self-advocacy skills.

Fourth, there could be a sort of reference group effect whereby autistic and comparison participants' interpretations of the response options may have been influenced by their own experiences. For example, autistic participants might rate an experience as occurring merely "sometimes" when a comparison participant might rate it as occurring "often," due to autistic participants finding atypical sensory experiences to be less remarkable, less salient, and more expected.

Finally, as the present study did not include measures of autistic identity or internalized stigma, one cannot exclude the possibility that autistic participants' answers might have been implicitly influenced by a

desire to minimize the differences between them and members of the neurotypical population, while their caregivers' roles in providing them with support might conceivably have had a nearly-opposite impact on their perspectives.

Disambiguating among these explanations is challenging. The present study's sample appears quite similar in age, cognitive ability, and gender to the sample from Keith et al. (2019)'s study of self- and caregiver-reports on the BBCSS, and Keith and colleagues found autistic participants self-reported more auditory sensory hyperreactivity than indicated by parents' proxy-reports. It is unclear what factors might have caused the difference between the outcomes of the two studies.

4.d. Limitations

Although the present study has the advantages of a rigorous, comprehensive battery of sensory measures and other sample characterization measures, its sample size is limited, due to the large amount of data collected from each participant (including attention tasks not reported in this manuscript), coupled with the limited resources available for it as a PhD thesis project. This prohibits examination of heterogeneity in sensory phenotypes, and readers should bear in mind that individual autistic people's auditory hyperreactivity profiles are likely to diverge from the average/medial patterns described here. It also means that the study's statistical power to detect associations is limited,

particularly after application of multiple comparison corrections, so there is a considerable risk of Type II error.

In addition, the present study uses some measures that are not validated for children and adolescents. Use of these adult measures was to some extent unavoidable, as when the present study was designed – and even today – measures of specific sensory phenotypes such as misophonia have primarily been designed and validated for use by adults, not children (Cervin et al., 2023; Rinaldi et al., 2022). However, participants appeared to understand task instructions without a great deal of difficulty. The coherent patterns of results obtained using the CDS task suggests it can be used in adolescent populations, although future studies may be advised to include additional response options to ensure scale clarity.

Participants in this study were sometimes attending school or sometimes away from school due to summer break; others were homeschooled. Such differences in participants' real-world sensory environments may have influenced responses to the questionnaires.

The present study also leaves potentially-important dimensions of sound tolerance unexplored. For example, while the LDL and CDS tasks in this study asked participants to provide global evaluations (discomfort thresholds and continuous pleasantness ratings, respectively), it is possible that future studies distinguishing different dimensions of auditory experience (e.g., pleasantness, comfort with volume, emotional reaction) might illuminate specific patterns of interest. It is also possible that other

factors not manipulated here – such as the duration of sounds, or the order in which sounds of different intensities are presented (e.g., if sounds were repeated so that 50 dB sounds could be presented after 80 dB sounds) – could affect results.

Moreover, even if the auditory modality is particularly central, sensory issues encountered by autistic and neurodivergent people span multiple modalities (Wada et al., 2023) and differences in multisensory integration have been observed (Dwyer, Takarae, et al., 2022b; Feldman et al., 2018; Ronconi et al., 2022). It is unclear how adding additional stimuli might have influenced attention and sensory reactions – for example, whether an absorbing video could result in increased attention and greater reactivity to congruent sounds, or divert attention away from overwhelming video-irrelevant sounds.

Lastly, the present study has very limited representation in terms of gender (exacerbated by the exclusion of some female participants who did not meet autism criteria when seen by clinicians) and no representation of participants with intellectual disabilities, and many of the measures used in this study were not designed to be accessible for people with intellectual disabilities. Future research should strive to develop rigorous measures of highly specific sensory phenotypes that are accessible for neurodivergent individuals with and without intellectual disabilities, including children.

4.e. Summary

The present study used multiple methods to rigorously characterize auditory sensory phenotypes in autistic adolescents, finding, relative to controls, evidence of more auditory fear/panic experiences, more experiences of misophonia, more auditory distractibility, more hyperacusis and/or experiences of auditory overwhelm, more impact of auditory sensory distress on daily quality of life, and more negative ratings of conventionally-pleasant sounds at modest intensity levels, perhaps reflecting aversions to particular sound patterns rather than discomfort caused by loudness/volume alone. The study's autistic adolescents appeared to self-report less atypical sensory experiences than described in their caregivers' proxy reports, the opposite of the patterns seen in the comparison group, as well as in prior studies of autistic young people (Keith et al., 2019; Millington et al., 2021), raising questions about the factors driving differences between reporters' observations. Furthermore, although the study found evidence of convergence between some psychoacoustic and questionnaire-based measures of misophonia, self-reported and psychoacoustic measures of hyperacusis failed to converge, emphasizing the complexity of the constructs underlying atypical sensory experiences and the difficulties involved in measuring them. Future studies should endeavour to develop and validate measures of specific sensory constructs such as misophonia in autistic children and youth, including those with intellectual disabilities or who are nonspeaking; to continue efforts to explore the construct of

loudness hyperacusis and its relationship to constructs such as sensory overload; and to collect additional measures (e.g., of interoception, autonomic arousal, identity) and/or conduct cognitive interviews that may aid in understanding differences between caregiver- and self-reports.

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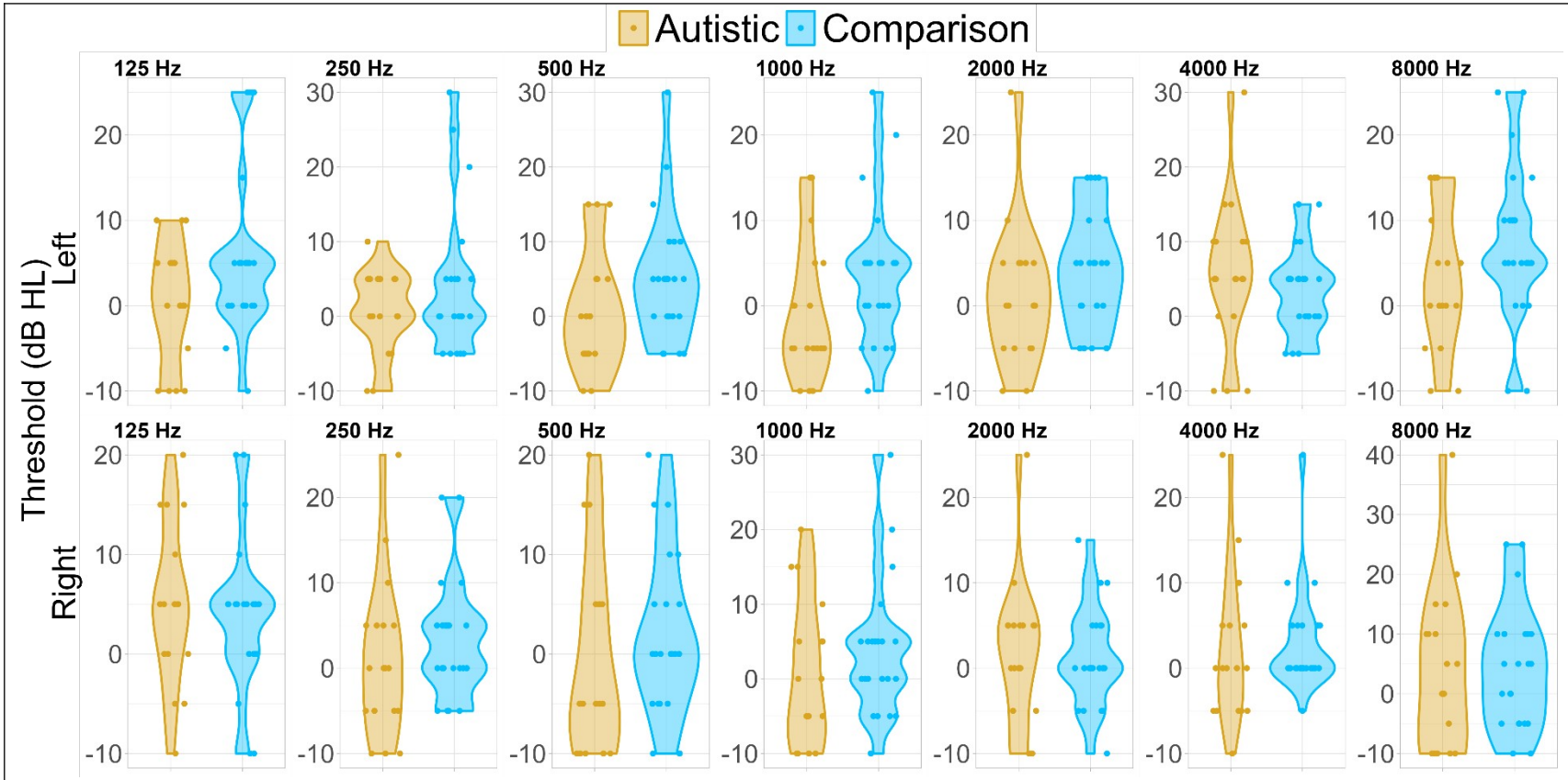
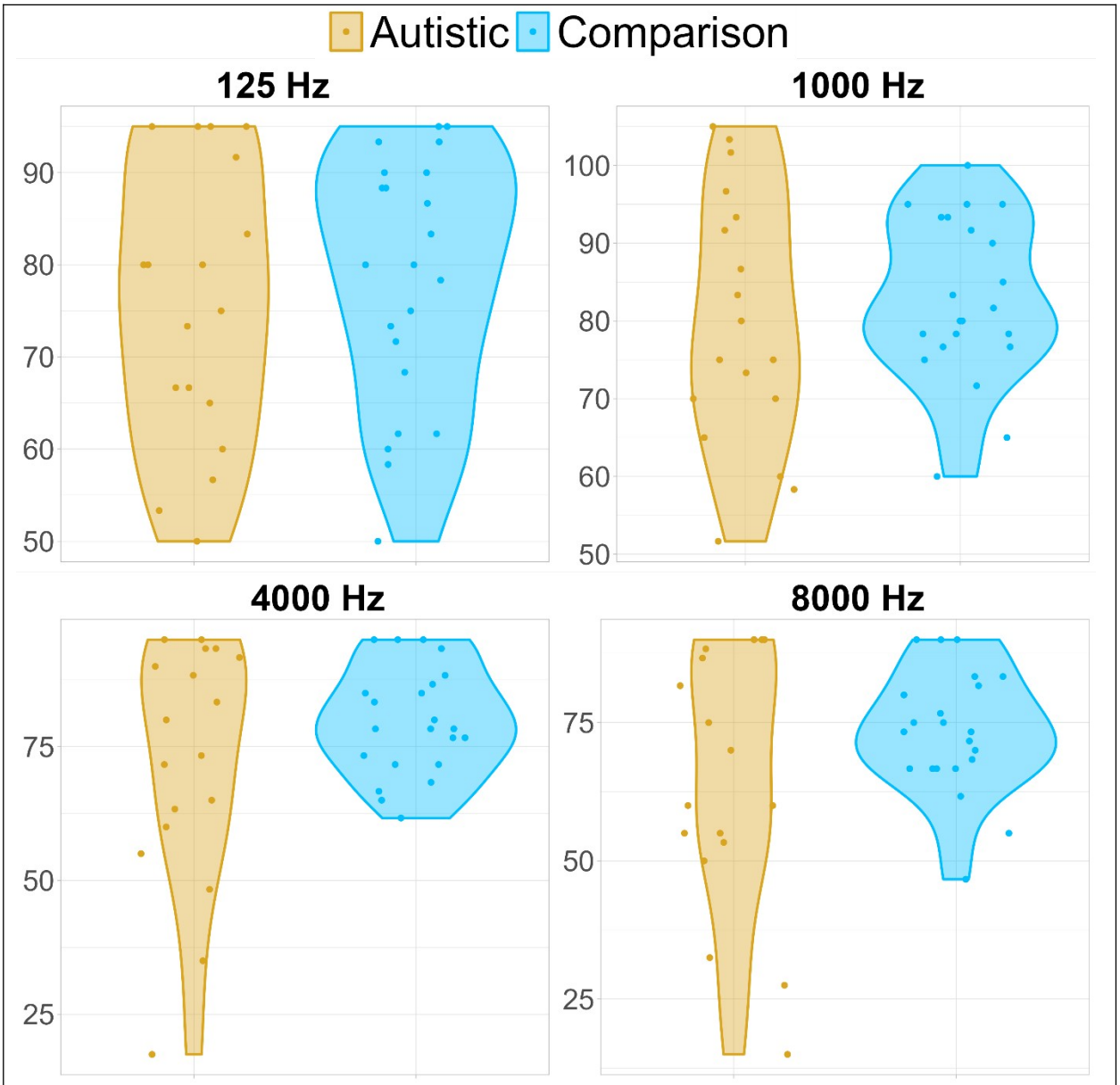
Appendix A



Supplementary Figure A.1. Violin plots depicting hearing acuity thresholds as measured by the study's Otovation Amplitude T4 audiometer. Individual participants' data points are overlaid, slightly jittered for display purposes. After correction for multiple comparisons, groups did not statistically differ in their ability to detect and report soft pure tones at any of the frequencies examined.

Supplementary Table A.1. Results of ordinal probit regression tests comparing autistic and non-autistic comparison participants' hearing acuity thresholds, controlling for age and nonverbal cognitive ability. A false discovery rate correction for 16 comparisons was applied.

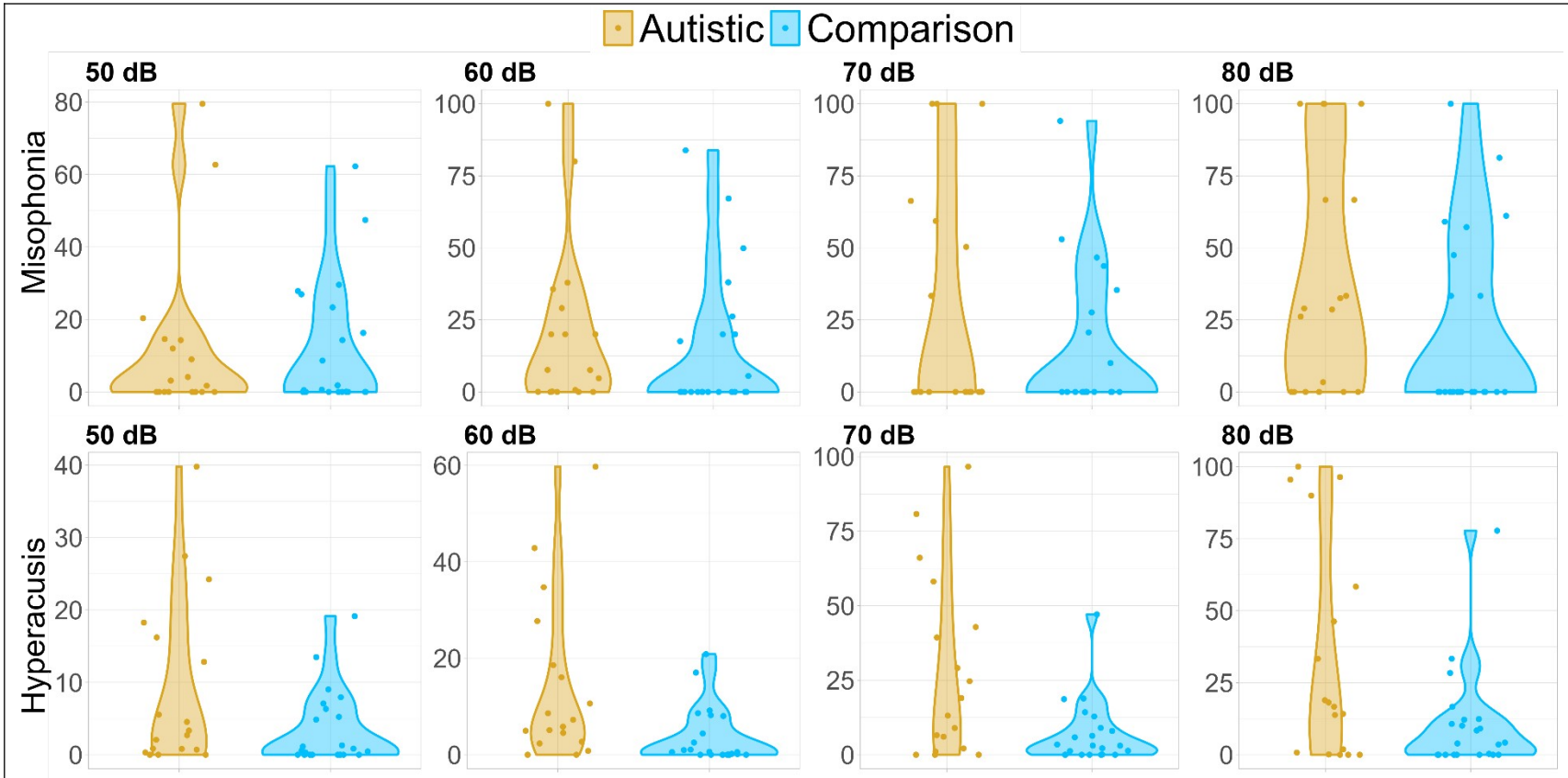
		125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Average
Left Ear	Autistic Mean (SD)	0.28 (6.96)	0.56 (5.39)	0.83 (7.91)	−0.83 (7.91)	1.11 (8.14)	5.56 (9.84)	3.33 (8.22)	1.55 (4.76)
	Comparison Mean (SD)	5.45 (9.25)	3.86 (9.63)	5.00 (8.59)	3.64 (8.34)	4.32 (6.78)	3.18 (5.88)	7.27 (9.09)	4.68 (6.35)
	p_{raw} p_{adj}	.12 .50	.29 .50	.08 .50	.02 .35	.17 .50	.47 .54	.25 .50	.20 .50
	b [95% CI]	0.54 [−0.15, 1.22]	0.37 [−0.31, 1.05]	0.60 [−0.08, 1.29]	0.83 [0.13, 1.54]	0.47 [−0.20, 1.15]	−0.25 [−0.93, 0.43]	0.40 [−0.28, 1.07]	0.43 [−0.23, 1.10]
Right Ear	Autistic Mean (SD)	5.00 (7.86)	1.11 (9.16)	−0.56 (9.68)	0.88 (9.72)	1.67 (8.40)	2.22 (8.61)	3.61 (13.70)	1.96 (6.83)
	Comparison Mean (SD)	4.09 (7.66)	3.41 (6.97)	2.05 (7.97)	3.64 (9.02)	1.36 (5.81)	2.95 (6.11)	4.32 (10.15)	3.12 (5.20)
	p_{raw} p_{adj}	.47 .54	.37 .50	.34 .50	.34 .50	.82 .82	.21 .50	.66 .70	.35 .50
	b [95% CI]	−0.25 [−0.93, 0.43]	0.31 [−0.37, 0.99]	0.33 [−0.35, 1.01]	0.33 [−0.35, 1.01]	0.08 [−0.60, 0.75]	0.44 [−0.25, 1.15]	0.15 [−0.52, 0.83]	0.32 [−0.35, 1.00]



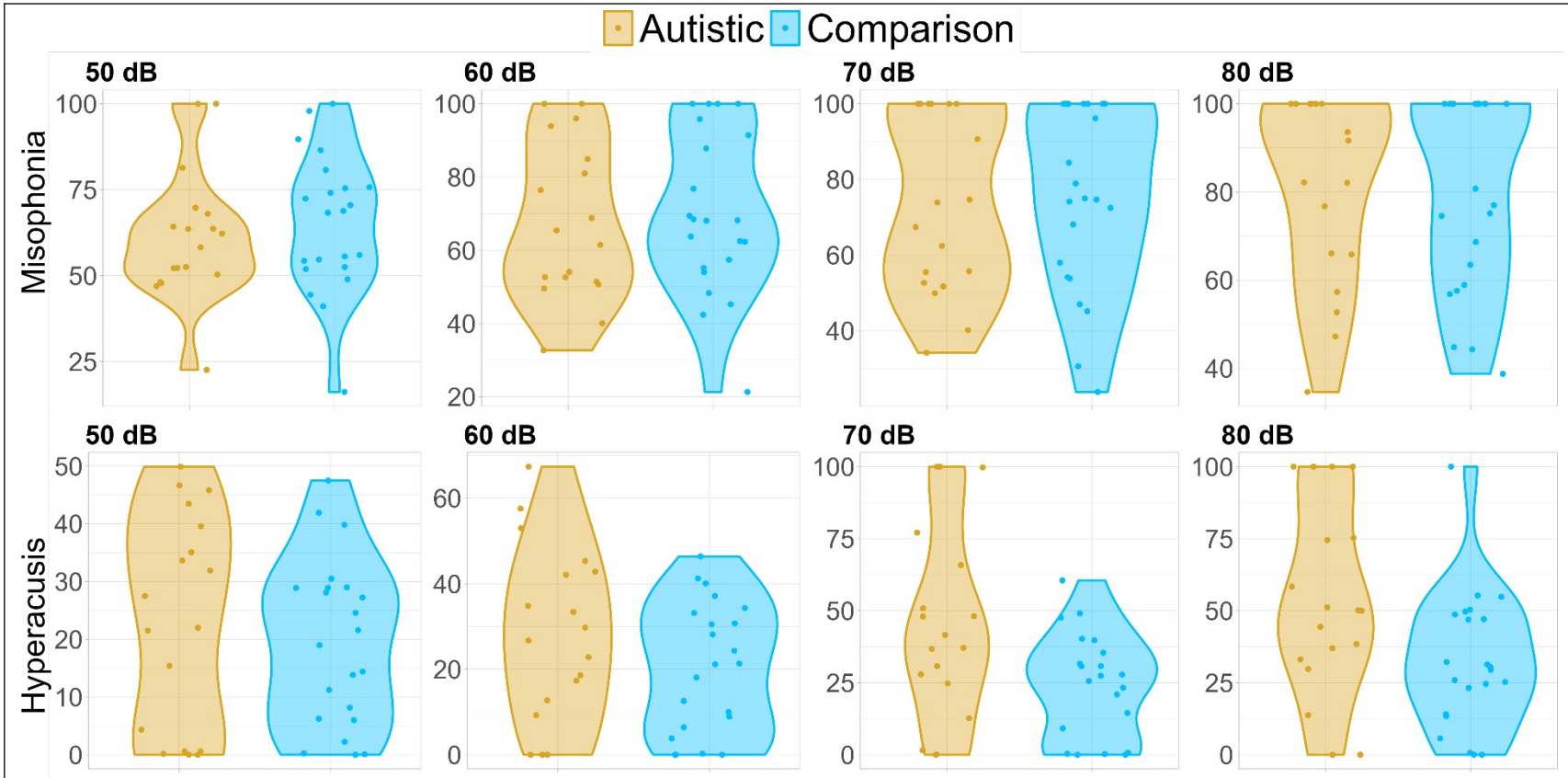
Supplementary Figure A.2. Violin plots depicting loudness discomfort levels (LDLs) as measured with the study's Otovation Amplitude T4 audiometer. Individual participants' data points are overlaid, slightly jittered for display purposes. On average, groups did not statistically differ in their discomfort levels, despite the visually-apparent tendency for some individual autistic participants to strongly dislike high frequency-sounds.

Supplementary Table A.2. Results of ordinal probit regression tests comparing autistic and non-autistic comparison participants' loudness discomfort levels (LDLs), controlling for age and nonverbal cognitive ability. As no statistical effects were observed, no multiple comparison correction was applied.

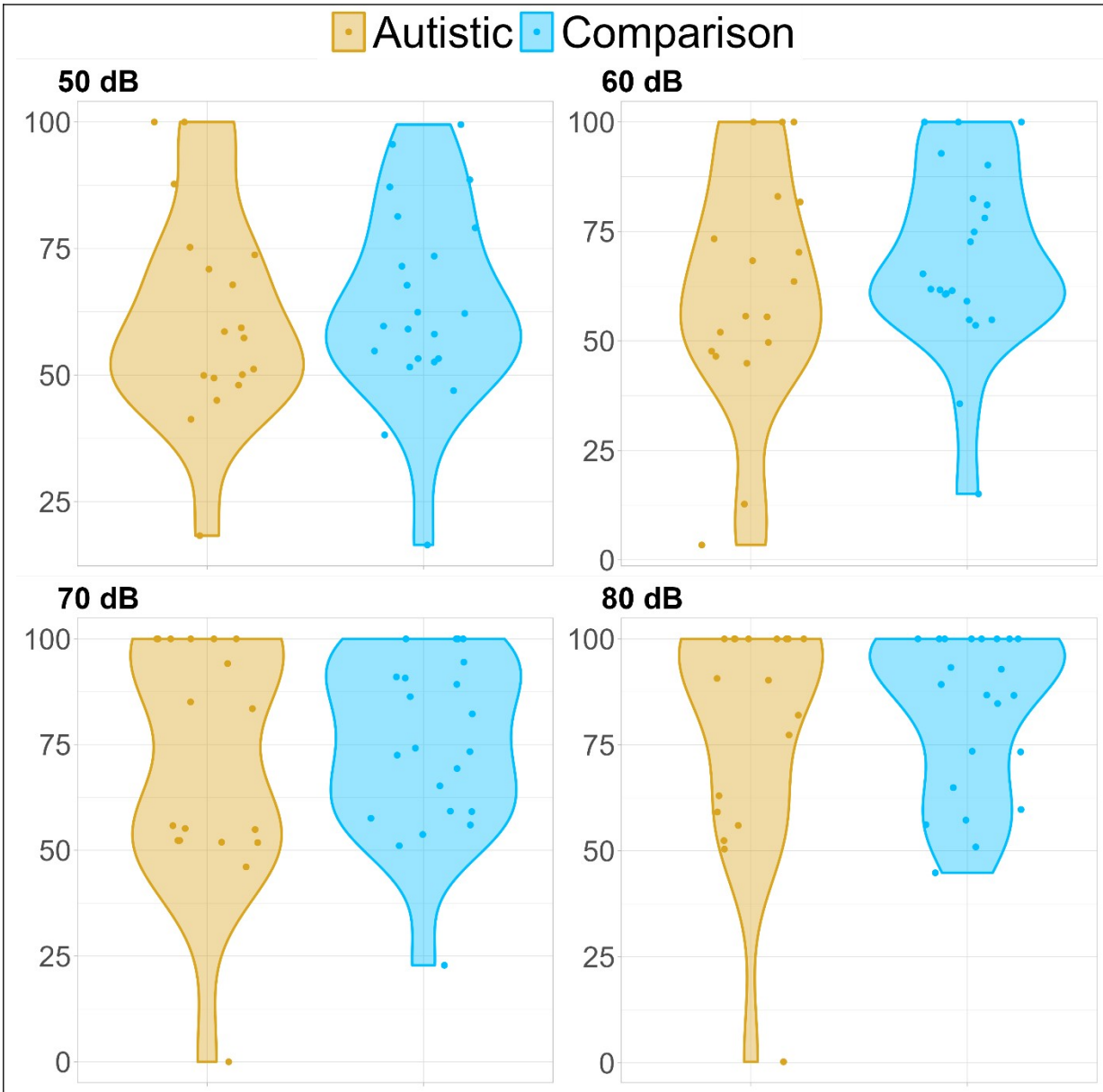
	250 Hz	1 kHz	4 kHz	8 kHz	Average
Autistic Mean (SD)	75.65 (15.17)	80.00 (16.23)	72.18 (22.49)	65.00 (23.63)	73.21 (18.27)
Comparison Mean (SD)	78.26 (13.54)	82.88 (10.40)	79.70 (10.03)	73.26 (11.05)	78.52 (9.78)
p_{raw}	.41	.22	.18	.24	.29
b [95% CI]	0.29 [−.54, .31]	0.42 [−0.26, 1.11]	0.47 [−0.22, 1.16]	0.41 [−0.28, 1.10]	0.37 [−0.31, 1.05]



Supplementary Figure A.3. Violin plots depicting Core Discriminant Sound (CDS) scores separately at each intensity for misophonia (above) and hyperacusis (below). Individual participants' data points are overlaid, slightly jittered for display purposes. Groups did not statistically differ in CDS scores for misophonia, but they did differ in CDS scores for hyperacusis: specifically, autistic participants were significantly more likely to report finding conventionally-pleasant sounds to be highly unpleasant (relative to the 75% quantile of non-autistic, non-misophonic controls' ratings) when presented at intensities of 60, 70, and 80 dB SPL.



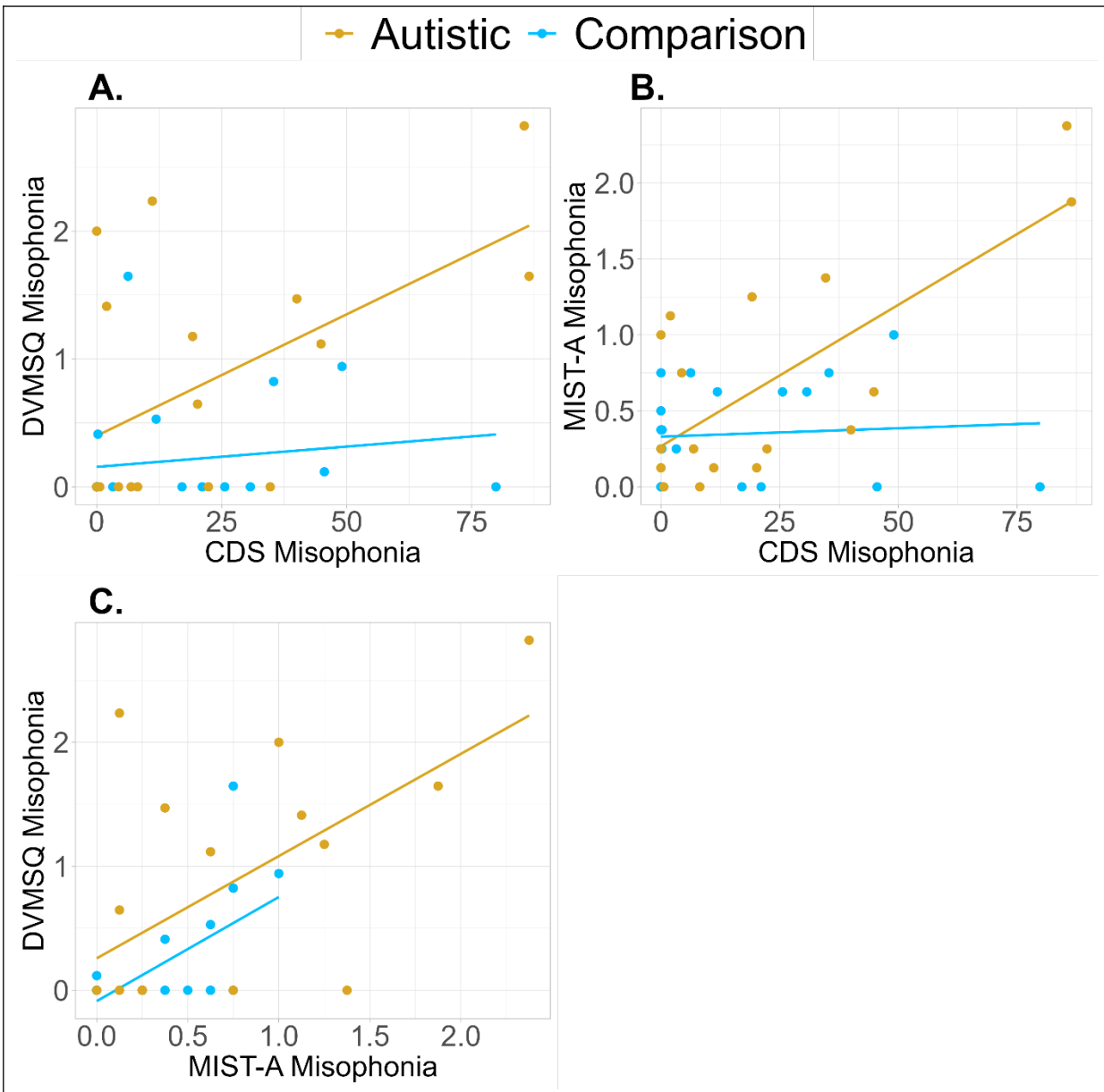
Supplementary Figure A.4. Violin plots depicting median raw ratings of common misophonic triggers (above) and conventionally-pleasant sounds (below), respectively used in computation of CDS scores for misophonia and hyperacusis. Individual participants' data points are overlaid, slightly jittered for display purposes. This visualization is provided to better contextualize the CDS scores presented in *Supplementary Figure A.3*.



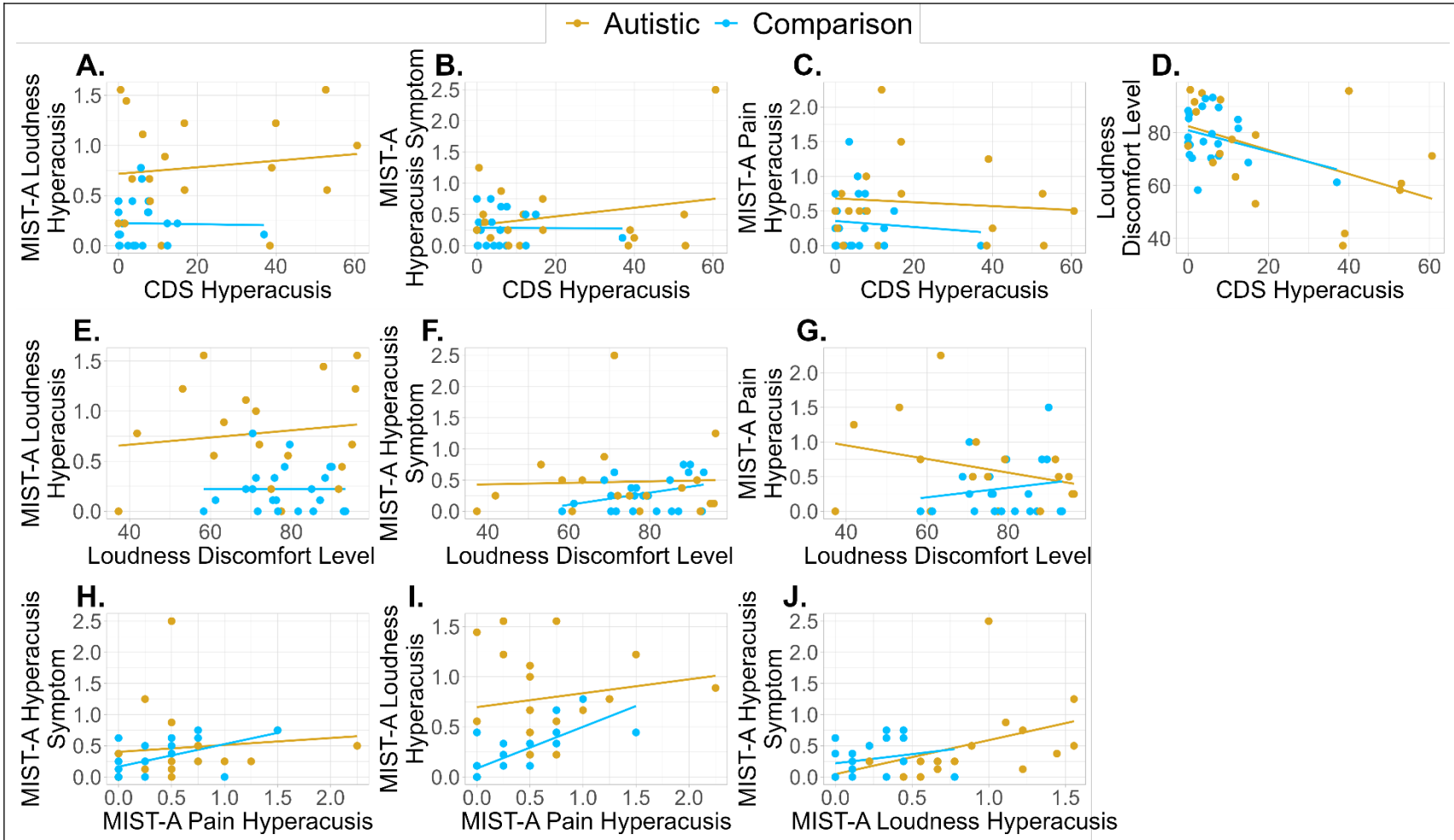
Supplementary Figure A.5. Violin plots depicting median raw ratings of conventionally-***un***pleasant sounds included within the Core Discriminant Sounds (CDS) task. Individual participants' data points are overlaid, slightly jittered for display purposes. There were no statistical differences in ratings of unpleasant sounds, as noted in Supplementary Table A.9.

Supplementary Table A.3. 75% quantiles of ratings of misophonic trigger sounds (for use in computing CDS misophonia scores) and conventionally pleasant sounds (for use in computing CDS hyperacusis scores) in the 21 non-autistic participants not meeting the DVMSQ misophonia criteria as described in Table 2 of Williams et al. (2022). Cells where the 75% quantile exceeded 90 – meaning that the sound in question was not used when computing CDS scores, in order to avoid magnifying small differences – are shaded red.

		50 dB	60 dB	70 dB	80 dB
Conventionally-Pleasant	Bird	29.42	28.67	32.83	38.92
	Fountain	32.08	37.17	53.75	94.83
	Harp	33.25	33.25	34.17	42.33
	Laugh	47.00	49.58	50.00	54.75
	Ocean	31.08	34.58	49.42	55.67
	Piano	33.08	34.08	38.42	40.25
	Underwater	30.92	32.33	34.08	38.75
Breathing/ Nasal	Breath Running	72.50	81.25	95.00	100.00
	Sniffling	79.42	97.25	100.00	100.00
	Snoring	80.75	87.25	100.00	100.00
Mouth	Chewing 1	90.17	100.00	100.00	100.00
	Chewing 2	97.67	100.00	100.00	100.00
	Slurping	78.42	91.83	100.00	100.00
Rep et-itive	Keyboard	56.17	51.08	61.42	74.50
	Pen Click	58.83	58.50	78.17	86.08
Throat	Swallowing	95.25	100.00	100.00	100.00
	Throat Clearing	63.50	73.08	81.83	89.42



Supplementary Figure A.6. Associations between misophonia measures, separately in each diagnostic group. Note that these plots present raw data, and linear relationships, whereas the statistical analyses are ordinal in nature.
Panel A. Collapsing across groups, there were robust associations between DVMSQ total scores and CDS_{Miso} scores.
Panel B. Collapsing across groups, there were no statistical relationships between MIST-A misophonia (anger/aggression) and CDS_{Miso} scores; however, before multiple comparison correction, there was a relationship among autistic participants only (see Supplementary Table A.4).
Panel C. Collapsing across groups, MIST-A misophonia and DVMSQ scores were robustly associated with one another.



Supplementary Figure A.7. Associations between hyperacusis measures, separately in each diagnostic group. Note that these plots present raw data, and linear relationships, whereas the statistical analyses are ordinal in nature.

Panels A-C. MIST-A hyperacusis scores were not related to CDS_{HypA} scores.

Panel D. However, CDS_{HypA} scores strongly trended (after correction) towards being associated with loudness discomfort levels.

Panels E-F. MIST-A hyperacusis scores were not related to loudness discomfort levels.
Panel H-J. However, MIST-A hyperacusis subscores did appear to be associated with one another.

Supplementary Table A.4 (Upper Rows). *Results of scaled, ranked regression analyses examining how auditory hyper-reactivity variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****. Misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).*
Coefficients and their 95% confidence intervals are presented in the upper-right half of the table, ***and are based on models in which the predictor variables are those above the cells displaying the coefficients. Coefficients from models where the other variables are the predictors are presented in the main text, and can slightly differ from those in this table.***
Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 105 comparisons in this table (below).* ***In contrast to coefficients,*** **p*****-values do not vary based on which variable is the predictor.*** *Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
Misophonia	Self-Report	1. MIST-A Misophonia		.51 [.22, .81]	.25 [-.07, .57]	.62 [.28, .96]	.45 [.15, .76]	.67 [.43, .91]	-.01 [-.37, .35]	-.03 [-.36, .29]	.50 [.19, .80]	.34 [.02, .66]	.39 [.05, .72]	.48 [.17, .78]	.51 [.16, .86]	.34 [-.20, .88]	.45 [-.01, .90]
		2. DVMSQ	.001** .010**		.41 [.12, .70]	.38 [.02, .74]	.25 [-.07, .57]	.40 [.11, .69]	.27 [-.07, .60]	.10 [-.22, .41]	.34 [.03, .66]	.18 [-.14, .50]	.23 [-.11, .57]	.34 [.03, .66]	.30 [-.07, .66]	.08 [-.46, .62]	.21 [-.25, .67]
	Lab	3. CDS_{Miso}	.12 .20	.007** .02*		.27 [-.12, .66]	.18 [-.16, .52]	.13 [-.20, .46]	.63 [.33, .92]	-.34 [-.65, -.03]	.09 [-.26, .43]	-.05 [-.39, .29]	.05 [-.31, .41]	.16 [-.18, .50]	.24 [-.13, .62]	.33 [-.22, .87]	.35 [-.12, .82]
	Self-Report	4. MIST-A Hyperacusis Loud/Pain	.0008*** .006**	.04* .09	.17 .27		.49 [.25, .72]	.39 [.15, .63]	.08 [-.22, .38]	.02 [-.25, .29]	.46 [.21, .70]	.32 [.06, .58]	.53 [.29, .77]	.50 [.27, .74]	.53 [.25, .80]	.41 [-.02, .83]	.34 [-.04, .73]
		5. MIST-A Pain	.005** .02*	.12 .21	.28 .40	.0001*** .002**		.48 [.20, .76]	.07 [-.28,	-.09 [-.41,	.35 [.04, .67]	.39 [.08, .69]	.51 [.21, .82]	.46 [.17, .76]	.44 [.09, .79]	.08 [-.45,	.16 [-.30,

Supplementary Table A.4 (Upper Rows). *Results of scaled, ranked regression analyses examining how auditory hyper-reactivity variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****. Misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).*
Coefficients and their 95% confidence intervals are presented in the upper-right half of the table, ***and are based on models in which the predictor variables are those above the cells displaying the coefficients. Coefficients from models where the other variables are the predictors are presented in the main text, and can slightly differ from those in this table.***
Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 105 comparisons in this table (below).* ***In contrast to coefficients,*** **p*****-values do not vary based on which variable is the predictor.*** *Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
Within-Construct: Hyp		Hyperacusis							.42]	.23]						.62]	.63]
		6. MIST-A Hyperacusis Symptom	<.0001**** <.0001****	.007** .03*	.42 .54	.002** .01*	.001** .010**		-.03 [-.40, .33]	.08 [-.26, .41]	.38 [.06, .71]	.58 [.30, .86]	.45 [.13, .78]	.39 [.07, .72]	.54 [.19, .90]	-.08 [-.64, .48]	.29 [-.19, .77]
		7. CDS_{HypA}	.95 .96	.12 .20	.0001*** .002**	.59 .70	.68 .77	.86 .89		-.34 [-.62, -.06]	.03 [-.29, .35]	-.16 [-.47, .15]	.10 [-.22, .43]	.11 [-.21, .43]	.15 [-.20, .50]	.24 [-.27, .75]	.06 [-.39, .50]
	Lab-Rating	8. LDL	.84 .89	.54 .66	.03* .08	.88 .90	.56 .68	.65 .76	.02* .06		.01 [-.35, .36]	.07 [-.27, .41]	-.17 [-.53, .18]	.03 [-.32, .38]	-.28 [-.67, .10]	-.51 [-1.05, .03]	-.43 [-.89, .04]

Supplementary Table A.4 (Upper Rows). *Results of scaled, ranked regression analyses examining how auditory hyper-reactivity variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****. Misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).*
Coefficients and their 95% confidence intervals are presented in the upper-right half of the table, ***and are based on models in which the predictor variables are those above the cells displaying the coefficients. Coefficients from models where the other variables are the predictors are presented in the main text, and can slightly differ from those in this table.***
Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 105 comparisons in this table (below).* ***In contrast to coefficients,*** **p*****-values do not vary based on which variable is the predictor.*** *Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
e r a c u s i s																	

Supplementary Table A.4 (Lower Rows). *See above for table caption.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER

Other/General Auditory Hyper-Reactivity	Self-Report	9. MIST-A Fear/Panic	.002** .01*	.03* .08	.62 .73	.0006*** .006**	.03* .07	.02* .06	.85 .89	.98 .98		.47 [.19, .76]	.38 [.06, .70]	.44 [.15, .74]	.39 [.04, .74]	.32 [-.19, .83]	.49 [.05, .92]
		10. MIST-A Nonspecific Symptom	.04* .08	.27 .38	.79 .85	.02* .06	.01* .048*	.0002*** .002**	.29 .40	.67 .77	.002** .01*		.47 [.16, .78]	.33 [.01, .65]	.34 [-.03, .70]	.27 [-.27, .81]	.55 [.12, .99]
		11. MIST-A Impairment	.02* .06	.18 .28	.77 .84	<.0001**** .002**	.002** .01*	.008** .03*	.52 .65	.33 .45	.02* .06	.004** .02*		.50 [.22, .78]	.65 [.36, .94]	.46 [-.02, .93]	.29 [-.15, .72]
		12. VADQ Auditory Distraction	.003** .02*	.03* .08	.35 .46	.0001*** .002**	.003** .02*	.02* .06	.48 .61	.89 .90	.004** .02*	.046* .10	.0007*** .006**		.75 [.48, 1.01]	.51 [-.01, 1.02]	.27 [-.19, .72]
		13. BBCSS Auditory HYPER	.006** .02*	.11 .19	.20 .31	.0004*** .004**	.02* .050*	.003** .02*	.39 .50	.15 .25	.03* .07	.07 .13	<.0001**** .002**	<.0001**** <.0001****		.69 [.27, 1.12]	.45 [.05, .85]
	Caregiver	14. BBCSS Auditory HYPER	.21 .32	.76 .84	.23 .35	.06 .12	.75 .84	.77 .84	.34 .46	.06 .13	.21 .33	.31 .43	.06 .12	.053 .11	.002** .01*		.65 [.45, .86]
		15. SEQ Auditory HYPER	.055 .11	.37 .48	.14 .23	.08 .14	.49 .61	.23 .35	.79 .85	.07 .13	.03* .07	.01* .047*	.19 .31	.24 .36	.03* .07	<.0001**** <.0001****	

1. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) Misophonia scores; 2. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) total scores; 3. Core Discriminant Sounds (CDS) scores for misophonia, based on pleasantness ratings of misophonic trigger sounds, collapsed across intensities; 4. MIST-A (Loudness) Hyperacusis scores; 5. MIST-A Pain (Hyperacusis) scores; 6. MIST-A Hyperacusis Symptom scores; 7. CDS scores for hyperacusis, based on pleasantness ratings of conventionally-pleasant sounds, collapsed across intensities; 8. Loudness Discomfort Levels (LDLs) collapsed across frequencies; 9. MIST-A Fear/Panic scores; 10. MIST-A Systemic Nonspecific Symptom scores; 11. MIST-A impairment scores, reflecting the impact of sound intolerance on quality of life; 12. Vanderbilt Auditory Distractibility Questionnaire (VADQ) total scores; 13. self-report Brain-Body Center Sensory Scales (BBCSS) Auditory Hypersensitivity scores; 14. caregiver-report BBCSS Auditory Hypersensitivity scores; and 15. Sensory Experiences Questionnaire Version 3.0 (SEQ-3.0) Auditory Hyperresponsiveness scores.

1562

1563

Supplementary Table A.5 (Upper Rows). *Results of Spearman's correlations among auditory hyper-reactivity variables* ***in autistic participants only****. Note that misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).*
Correlation coefficients and their 95% confidence intervals are provided in the lower-left half of the table.
Inferential p*-values are presented in the upper-right half of the table, both in raw form (first line in cells) and with a false discovery rate correction for the 105 comparisons in this table (second line in cells). Cells corresponding to statistically significant associations are shaded either red or blue depending on directionality; effects that remained significant after correction for multiple comparisons have darker shading.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
Misophonia	Self-Report	1. MIST-A Misophonia		.03* .15	.04* .15	.08 .25	.13 .29	.005** .055	.71 .87	.36 .55	.17 .34	.23 .39	.24 .40	.009** .07	.02* .14	.70 .86	.97 .99
		2. DVMSQ	.50 [.05, .79]		.07 .24	.04* .15	.57 .74	.09 .25	.09 .25	>.99 >.99	.008** .07	.19 .35	.19 .35	.009** .07	.16 .34	.95 .99	.86 .95
	Lab	3. CDS_{Miso}	.49 [.03, .78]	.43 [-.04, .75]		.20 .35	.16 .34	.38 .55	.0007*** .03*	.002** .03*	.37 .55	.97 .99	.12 .28	.10 .26	.002** .03*	.10 .26	.18 .34
	Self-Report	4. MIST-A Hyperacusis Loud/Pain	.42 [-.06, .74]	.49 [.03, .78]	.32 [-.18, .68]		.49 .65	.003** .04*	.66 .84	.80 .94	.006** .06	.04* .15	.03* .14	.002** .03*	.02* .11	.37 .55	.45 .61
		5. MIST-A Pain Hyperacusis	.37 [-.11, .72]	.14 [-.35, .57]	.34 [-.15, .70]	.17 [-.32, .59]		.08 .24	.88 .95	.25 .40	.19 .35	.40 .56	.29 .46	.41 .57	.80 .94	.84 .94	.82 .94

Supplementary Table A.5 (Upper Rows). *Results of Spearman's correlations among auditory hyper-reactivity variables* ***in autistic participants only****. Note that misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).*
Correlation coefficients and their 95% confidence intervals are provided in the lower-left half of the table.
Inferential p*-values are presented in the upper-right half of the table, both in raw form (first line in cells) and with a false discovery rate correction for the 105 comparisons in this table (second line in cells). Cells corresponding to statistically significant associations are shaded either red or blue depending on directionality; effects that remained significant after correction for multiple comparisons have darker shading.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
Within-Construct: Hyper		6. MIST-A Hyperacusis Symptom	.63 [.24, .85]	.42 [-.06, .74]	.22 [-.27, .62]	.65 [.27, .86]	.43 [-.05, .75]		.57 .74	.87 .95	.10 .26	.0005*** .02*	.02* .14	.04* .15	.06 .21	.94 .99	.58 .74
	Lab-Rating	7. CDS_{HypA}	.09 [-.39, .54]	.42 [-.06, .74]	.72 [.38, .89]	.11 [-.38, .55]	.04 [-.44, .50]	-.14 [-.57, .35]		.03* .14	.16 .34	>.99 >.99	.16 .34	.20 .35	.04* .15	.09 .26	.14 .30
		8. LDL	-.23 [-.63, .27]	.00 [-.47, .47]	-.67 [-.87, -.30]	.07 [-.41, .52]	-.29 [-.67, .21]	-.04 [-.50, .43]	-.53 [-.80, -.08]		.67 .84	.76 .91	.29 .46	.84 .94	.04* .15	.11 .27	.11 .26

Supplementary Table A.5 (Upper Rows). *Results of Spearman's correlations among auditory hyper-reactivity variables* ***in autistic participants only****. Note that misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).*
Correlation coefficients and their 95% confidence intervals are provided in the lower-left half of the table.
Inferential p*-values are presented in the upper-right half of the table, both in raw form (first line in cells) and with a false discovery rate correction for the 105 comparisons in this table (second line in cells). Cells corresponding to statistically significant associations are shaded either red or blue depending on directionality; effects that remained significant after correction for multiple comparisons have darker shading.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
a c u s i s																	

Supplementary Table A.5 (Lower Rows). *See above for table caption.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
		9. MIST-A Fear/Panic	.34 [-.15, .69]	.61 [.19, .84]	.22 [-.27, .62]	.62 [.21, .84]	.32 [-.17, .69]	.40 [-.08, .73]	.34 [-.15, .70]	.11 [-.38, .55]		.03* .15	.18 .34	.001*** .03*	.40 .56	.96 .99	.73 .88

Other/General Auditory Hyper-Reactivity	Self-Report	10. MIST-A Nonspecific Symptom	.30 [-.20, .67]	.32 [-.17, .69]	.01 [-.46, .47]	.48 [.02, .78]	.21 [-.28, .62]	.74 [.42, .90]	.00 [-.47, .47]	.08 [-.40, .52]	.50 [.05, .78]		.04* .15	.09 .25	.20 .35	.88 .95	.36 .55
		11. MIST-A Impairment	.29 [-.20, .67]	.33 [-.17, .69]	.38 [-.10, .72]	.52 [.07, .79]	.26 [-.23, .65]	.53 [.09, .80]	.35 [-.14, .70]	-.26 [-.65, .23]	.33 [-.16, .69]	.48 [.02, .78]		.21 .36	.03* .15	.42 .59	.24 .40
		12. VADQ Auditory Distraction	.60 [.18, .83]	.60 [.18, .83]	.40 [-.08, .73]	.68 [.31, .87]	.21 [-.29, .61]	.49 [.03, .78]	.32 [-.17, .68]	.05 [-.43, .51]	.71 [.36, .88]	.42 [-.06, .74]	.31 [-.18, .68]		.02* .12	.48 .64	.84 .94
		13. BBCSS Auditory HYPER	.53 [.08, .80]	.34 [-.15, .70]	.68 [.31, .87]	.56 [.13, .82]	.06 [-.42, .52]	.45 [-.02, .76]	.49 [.04, .78]	-.48 [-.77, -.02]	.21 [-.28, .62]	.32 [-.18, .68]	.51 [.06, .79]	.55 [.11, .81]		.01* .09	.12 .28
	Caregiver	14. BBCSS Auditory HYPER	.10 [-.39, .54]	-.02 [-.48, .45]	.40 [-.08, .73]	.23 [-.27, .63]	.05 [-.43, .51]	.02 [-.45, .48]	.41 [-.07, .74]	-.39 [-.73, .09]	.01 [-.46, .48]	.04 [-.44, .50]	.20 [-.29, .61]	.18 [-.31, .60]	.58 [.16, .82]		.0002*** .02*
		15. SEQ Auditory HYPER	-.01 [-.47, .46]	.04 [-.43, .50]	.33 [-.16, .69]	.19 [-.30, .60]	.06 [-.42, .51]	.14 [-.35, .57]	.37 [-.12, .71]	-.39 [-.73, .09]	.09 [-.40, .53]	.23 [-.27, .63]	.29 [-.20, .67]	-.05 [-.51, .43]	.38 [-.11, .72]	.78 [.49, .91]	

1. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) Misophonia scores; 2. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) total scores; 3. Core Discriminant Sounds (CDS) scores for misophonia, based on pleasantness ratings of misophonic trigger sounds, collapsed across intensities; 4. MIST-A (Loudness) Hyperacusis scores; 5. MIST-A Pain (Hyperacusis) scores; 6. MIST-A Hyperacusis Symptom scores; 7. CDS scores for hyperacusis, based on pleasantness ratings of conventionally-pleasant sounds, collapsed across intensities; 8. Loudness Discomfort Levels (LDLs) collapsed across frequencies; 9. MIST-A Fear/Panic scores; 10. MIST-A Systemic Nonspecific Symptom scores; 11. MIST-A impairment scores, reflecting the impact of sound intolerance on quality of life; 12. Vanderbilt Auditory Distractibility Questionnaire (VADQ) total scores; 13. self-report Brain-Body Center Sensory Scales (BBCSS) Auditory Hypersensitivity scores; 14. caregiver-report BBCSS Auditory Hypersensitivity scores; and 15. Sensory Experiences Questionnaire Version 3.0 (SEQ-3.0) Auditory Hyperresponsiveness scores.

Supplementary Table A.6 (Upper Rows). *Results of Spearman's correlations among auditory hyper-reactivity variables* ***in typically-developing participants only****.*
Note that misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).
Correlation coefficients and their 95% confidence intervals are provided in the lower-left half of the table.
Inferential p*-values are presented in the upper-right half of the table, both in raw form (first line in cells) and with a false discovery rate correction for the 105 comparisons in this table (second line in cells). Cells corresponding to statistically significant associations are shaded either red or blue depending on directionality; effects that remained significant after correction for multiple comparisons have darker shading.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
Misophonia	Self-Report	1. MIST-A Misophonia		.01* .07	.46 .72	.002** .02*	.007** .06	.0002*** .003**	.77 .88	.47 .72	.003** .02*	.04* .15	.02* .09	.12 .31	.052 .16	.22 .44	.01* .07
		2. DVMSQ	.53 [.13, .78]		.03* .10	.45 .72	.22 .44	.02* .09	.40 .68	.10 .26	.56 .78	.60 .80	.58 .79	.49 .74	.22 .44	.64 .82	.34 .60
	Lab	3. CDS_{Miso}	.17 [-.27, .55]	.48 [.07, .75]		.80 .89	.81 .89	.69 .85	.03* .11	.92 .95	.95 .98	.86 .92	.50 .74	.84 .90	.72 .85	.69 .85	.58 .79
	Self-Report	4. MIST-A Hyperacusis Loud/Pain	.62 [.26, .82]	.17 [-.27, .55]	.06 [-.37, .47]		<.0001**** .0008***	.08 .24	.71 .85	.90 .95	.02* .08	.08 .23	.0006*** .008**	.009** .06	.007** .06	.32 .58	.53 .78
		5. MIST-A Pain Hyperacusis	.56 [.18, .79]	.27 [-.17, .62]	.05 [-.38, .47]	.80 [.57, .91]		.009** .06	.63 .81	.96 .98	.13 .31	.048* .16	.0001*** .003**	.002** .02*	.0008*** .01**	.89 .95	.75 .88

Supplementary Table A.6 (Upper Rows). *Results of Spearman's correlations among auditory hyper-reactivity variables* ***in typically-developing participants only****.*
Note that misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).
Correlation coefficients and their 95% confidence intervals are provided in the lower-left half of the table.
Inferential p*-values are presented in the upper-right half of the table, both in raw form (first line in cells) and with a false discovery rate correction for the 105 comparisons in this table (second line in cells). Cells corresponding to statistically significant associations are shaded either red or blue depending on directionality; effects that remained significant after correction for multiple comparisons have darker shading.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
Within-Construct: Hyper		6. MIST-A Hyperacusis Symptom	.72 [.43, .88]	.50 [.09, .76]	.09 [-.35, .49]	.38 [-.05, .69]	.54 [.16, .78]		.61 .80	.20 .44	.09 .24	.06 .18	.10 .26	.15 .36	.008** .06	.45 .72	.72 .85
	Lab-Rating	7. CDS_{HypA}	.07 [-.36, .48]	.19 [-.25, .57]	.46 [.05, .74]	.08 [-.35, .49]	.11 [-.33, .51]	.12 [-.32, .51]		.47 .72	.40 .68	.23 .45	.54 .78	.99 .99	.78 .89	.97 .98	.60 .80
		8. LDL	.16 [-.28, .55]	.36 [-.07, .68]	.02 [-.40, .44]	-.03 [-.44, .40]	.01 [-.41, .43]	.28 [-.16, .63]	-.16 [-.55, .28]		.72 .85	.41 .68	.79 .89	.82 .90	.68 .85	.22 .44	.38 .67

Supplementary Table A.6 (Upper Rows). *Results of Spearman's correlations among auditory hyper-reactivity variables* ***in typically-developing participants only****.*
Note that misophonia measures (yellow) putatively capture the same construct, as do hyperacusis measures (orange); generalized or other specific forms of auditory hyper-reactivity are also presented for contrast (grey). Measures use multiple methods: self-report questionnaires (blue), lab-based sound rating tasks (pink), and caregiver-report questionnaires (purple).
Correlation coefficients and their 95% confidence intervals are provided in the lower-left half of the table.
Inferential p*-values are presented in the upper-right half of the table, both in raw form (first line in cells) and with a false discovery rate correction for the 105 comparisons in this table (second line in cells). Cells corresponding to statistically significant associations are shaded either red or blue depending on directionality; effects that remained significant after correction for multiple comparisons have darker shading.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
acusis																	

Supplementary Table A.6 (Lower Rows). *See above for table caption.*

			Within-Construct: Misophonia			Within-Construct: Hyperacusis					Other/General Auditory Hyper-Reactivity						
			Self-Report		Lab Rating	Self-Report			Lab Rating		Self-Report					Caregiver-Report	
			1. MIST-A Misophonia	2. DVMSQ	3. CDS_{Miso}	4. MIST-A Loudness Hyperacusis	5. MIST-A Pain Hyperacusis	6. MIST-A Hyperacusis Symptom	7. CDS_{HypA}	8. LDL	9. MIST-A Fear/Panic	10. MIST-A Nonspecific Symptom	11. MIST-A Impairment	12. VADQ Auditory Distraction	13. BBCSS Auditory HYPER	14. BBCSS Auditory HYPER	15. SEQ Auditory HYPER
		9. MIST-A Fear/Panic	.61 [.25, .82]	.13 [-.31, .53]	.01 [-.41, .43]	.50 [.10, .76]	.34 [-.10, .66]	.37 [-.06, .69]	-.19 [-.56, .25]	-.08 [-.49, .35]		.009** .06	.10 .26	.19 .43	.03* .11	.18 .40	.02* .09

Other/General Auditory Hyper-Reactivity	Self-Report	10. MIST-A Nonspecific Symptom	.43 [.01, .72]	.12 [-.32, .51]	-.04 [-.45, .39]	.38 [-.04, .69]	.43 [.01, .72]	.41 [-.02, .71]	-.27 [-.62, .17]	.18 [-.26, .56]	.54 [.15, .78]		.03* .11	.13 .31	.03* .10	.28 .52	.01* .07
		11. MIST-A Impairment	.49 [.08, .75]	.12 [-.31, .52]	-.15 [-.54, .29]	.67 [.35, .85]	.73 [.44, .88]	.36 [-.08, .68]	-.14 [-.53, .30]	-.06 [-.47, .37]	.36 [-.07, .68]	.46 [.05, .74]		<.0001**** .001**	<.0001**** .001**	.10 .26	.32 .58
		12. VADQ Auditory Distraction	.34 [-.10, .67]	.15 [-.29, .54]	-.05 [-.46, .38]	.54 [.16, .79]	.63 [.29, .83]	.31 [-.12, .65]	-.00 [-.42, .42]	-.05 [-.46, .38]	.29 [-.15, .63]	.33 [-.10, .66]	.76 [.50, .89]		.0003*** .005**	.27 .52	.49 .74
		13. BBCSS Auditory HYPER	.43 [-.00, .73]	.28 [-.18, .63]	-.08 [-.50, .36]	.57 [.18, .80]	.67 [.34, .86]	.56 [.17, .80]	-.06 [-.48, .38]	-.10 [-.51, .35]	.47 [.05, .75]	.49 [.07, .76]	.79 [.54, .91]	.71 [.40, .87]		.20 .44	.56 .78
	Caregiver	14. BBCSS Auditory HYPER	.29 [-.18, .65]	.11 [-.35, .53]	.10 [-.36, .52]	.23 [-.23, .61]	.03 [-.42, .47]	-.18 [-.57, .29]	-.01 [-.45, .44]	-.29 [-.65, .18]	.32 [-.15, .67]	.25 [-.21, .63]	.38 [-.07, .71]	.26 [-.21, .63]	.30 [-.17, .67]		.0002*** .004**
		15. SEQ Auditory HYPER	.52 [.12, .77]	.21 [-.23, .58]	.12 [-.31, .52]	.14 [-.30, .53]	.07 [-.36, .48]	.08 [-.35, .49]	-.12 [-.51, .32]	-.19 [-.57, .25]	.49 [.08, .75]	.52 [.13, .77]	.22 [-.22, .59]	.16 [-.28, .54]	.14 [-.31, .54]	.74 [.44, .89]	

1. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) Misophonia scores; 2. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) total scores; 3. Core Discriminant Sounds (CDS) scores for misophonia, based on pleasantness ratings of misophonic trigger sounds, collapsed across intensities; 4. MIST-A (Loudness) Hyperacusis scores; 5. MIST-A Pain (Hyperacusis) scores; 6. MIST-A Hyperacusis Symptom scores; 7. CDS scores for hyperacusis, based on pleasantness ratings of conventionally-pleasant sounds, collapsed across intensities; 8. Loudness Discomfort Levels (LDLs) collapsed across frequencies; 9. MIST-A Fear/Panic scores; 10. MIST-A Systemic Nonspecific Symptom scores; 11. MIST-A impairment scores, reflecting the impact of sound intolerance on quality of life; 12. Vanderbilt Auditory Distractibility Questionnaire (VADQ) total scores; 13. self-report Brain-Body Center Sensory Scales (BBCSS) Auditory Hypersensitivity scores; 14. caregiver-report BBCSS Auditory Hypersensitivity scores; and 15. Sensory Experiences Questionnaire Version 3.0 (SEQ-3.0) Auditory Hyperresponsiveness scores.

Supplementary Table A.7 (**Left Columns, 1-21**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences.***
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Acuity	Misophonia								Hyperacusis					Other/General Auditory Hyper-Reactivity					
			Lab	Self-Report				Lab Rating				Self-Report			Lab Rating		Self-Report					Caregiver
			1. PTA	2. MIST-A Misopho-nia	3. DVMSQ Anger Aggression	4. DVMSQ Distress Avoidance	5. DVMSQ Impair-ment	6. Breath/ Nasal Sounds	7. Mouth Sounds	8. Throat Sounds	9. Repetitive Sounds	10. MIST-A Loud HYP	11. MIST-A Pain HYP	12. MIST-A HYP Symptom	13. LDLs	14. Pleasant Sounds	15. Un-pleasant Sounds	16. MIST-A Fear/Panic	17. MIST-A Nonspeci-fic Sympt.	18. MIST-A Impair-ment	19. VADQ Auditory Distraction	20. BBCSS Auditory HYPER	21. BBCSS Auditory HYPER
Acuity	Lab	1. PTA		.93 .98	.82 .95	.88 .96	.94 .98	.18 .61	.15 .55	.56 .87	.99 >.99	.67 .90	.38 .76	.33 .74	.32 .73	.63 .89	.03* .23	.89 .96	.72 .91	.59 .88	.44 .80	.71 .91	.26 .69
Misophonia	Self-Report	2. MIST-A Misopho-nia	-.01 [-.35, .32]		.003** .06	.001** .04*	.0004*** .02*	.19 .61	.07 .38	.20 .62	.50 .84	.0008*** .03*	.005** .09	<.0001*** .0003***	.84 .95	.46 .82	.17 .59	.002** .06	.04* .27	.02* .22	.003** .07	.006** .10	.21 .63
		3. DVMSQ Anger Aggression	.04 [-.29, .36]	.46 [.17, .74]		<.0001*** <.0001***	<.0001*** <.0001***	.008** .12	.03* .23	.001** .04*	.36 .74	.06 .34	.22 .65	.01* .16	.52 .85	.66 .90	.48 .83	.047* .31	.38 .75	.24 .67	.053 .32	.12 .49	.81 .95
		4. DVMSQ Distress Avoidance	.02 [-.30, .35]	.48 [.20, .76]	.99 [.93, 1.05]		<.0001*** <.0001***	.01* .14	.04* .29	.002** .06	.62 .89	.07 .37	.15 .55	.007** .11	.36 .74	.88 .96	.65 .89	.06 .33	.38 .76	.27 .70	.06 .36	.18 .60	.83 .95
		5. DVMSQ Impair-ment	.01 [-.31, .33]	.52 [.25, .78]	.83 [.66, 1.01]	.82 [.64, 1.00]		.004** .09	.07 .36	.0002*** .01*	.67 .90	.009** .12	.047* .31	.005** .09	.87 .96	.53 .85	.13 .52	.007** .11	.02* .20	.10 .44	.005** .09	.04* .28	.58 .87
	Lab Rating	6. Breath/ Nasal Sounds	.22 [-.11, .55]	.22 [-.11, .55]	.44 [.12, .76]	.42 [.10, .74]	.48 [.16, .79]		<.0001*** <.0001***	<.0001*** <.0001***	<.0001*** .005**	.54 .85	.37 .75	.80 .95	.050 .31	.02* .18	<.0001*** <.0001***	.42 .79	.57 .87	.63 .89	.48 .83	.89 .96	.52 .85
		7. Mouth Sounds	.24 [-.09, .57]	.29 [-.03, .62]	.37 [.04, .70]	.34 [.01, .67]	.32 [-.02, .66]	.86 [.69, 1.03]		<.0001*** <.0001***	<.0001*** .002**	.49 .83	.28 .71	.87 .96	.04* .29	.052 .32	<.0001*** .002**	.78 .94	.35 .74	.70 .91	.34 .74	.52 .84	.59 .87
		8. Throat Sounds	.10 [-.24, .43]	.21 [-.12, .55]	.52 [.22, .83]	.49 [.19, .80]	.60 [.31, .89]	.85 [.69, 1.02]	.80 [.60, 1.00]		.0005*** .02*	.26 .69	.17 .59	.64 .89	.06 .36	.003** .06	<.0001*** .002**	.53 .85	.85 .96	.67 .90	.24 .67	.41 .78	.50 .84
		9. Repetitive Sounds	-.00 [-.34, .33]	.11 [-.22, .45]	.16 [-.19, .50]	.09 [-.26, .43]	.07 [-.28, .43]	.60 [.34, .86]	.63 [.38, .89]	.53 [.25, .81]		.65 .89	.81 .95	.81 .95	.0006*** .02*	.0002*** .01*	.003** .06	.79 .94	.19 .61	.97 .99	.62 .89	.76 .94	.88 .96
Hyperacusis	Self-Report	10. MIST-A Loud HYP	-.06 [-.34, .22]	.43 [.19, .67]	.26 [-.01, .54]	.25 [-.02, .53]	.36 [.10, .63]	.08 [-.19, .35]	.09 [-.18, .37]	.15 [-.12, .42]	.06 [-.21, .34]		.0001*** .01**	.002** .06	.88 .96	.86 .96	.54 .85	.0006*** .02*	.02* .19	<.0001*** .006**	.0001*** .008**	.0004*** .02*	.06 .35
		11. MIST-A Pain HYP	.14 [-.18, .46]	.44 [.14, .73]	.20 [-.13, .53]	.24 [-.09, .56]	.33 [.00, .65]	.14 [-.17, .46]	.17 [-.14, .48]	.22 [-.10, .53]	.04 [-.28, .36]	.67 [.35, .99]		.001** .04*	.56 .86	.76 .94	.61 .88	.03* .24	.01* .17	.002** .050*	.003** .07	.02* .18	.75 .93

Supplementary Table A.7 (**Left Columns, 1-21**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****.*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Acuity	Misophonia								Hyperacusis					Other/General Auditory Hyper-Reactivity					
			Lab	Self-Report				Lab Rating				Self-Report			Lab Rating		Self-Report					Caregiver
			1. PTA	2. MIST-A Misopho-nia	3. DVMSQ Anger Aggression	4. DVMSQ Distress Avoidance	5. DVMSQ Impair-ment	6. Breath/ Nasal Sounds	7. Mouth Sounds	8. Throat Sounds	9. Repetitive Sounds	10. MIST-A Loud HYP	11. MIST-A Pain HYP	12. MIST-A HYP Symptom	13. LDLs	14. Pleasant Sounds	15. Un-pleasant Sounds	16. MIST-A Fear/Panic	17. MIST-A Nonspeci-fic Sympt.	18. MIST-A Impair-ment	19. VADQ Auditory Distraction	20. BBCSS Auditory HYPER	21. BBCSS Auditory HYPER
Lab Rating		12. MIST-A HYP Symptom	-.16 [-.49, .17]	.69 [.44, .94]	.41 [.09, .73]	.44 [.13, .76]	.46 [.15, .78]	-.04 [-.37, .29]	.03 [-.30, .36]	.08 [-.25, .41]	-.04 [-.37, .29]	.58 [.22, .93]	.51 [.21, .81]		.65 .89	.46 .82	.73 .92	.02* .21	.0002*** .01*	.008** .12	.02* .20	.003** .07	.77 .94
	Lab Rating	13. LDLs	-.16 [-.50, .17]	-.03 [-.37, .30]	.11 [-.24, .46]	.16 [-.19, .50]	.03 [-.32, .38]	-.31 [-.63, .00]	-.32 [-.64, -.01]	-.30 [-.62, .02]	-.53 [-.81, -.24]	.03 [-.37, .43]	-.10 [-.44, .24]	.08 [-.26, .41]		.0005*** .02*	.002** .051	.98 .99	.67 .90	.33 .74	.89 .96	.15 .55	.06 .36
		14. Pleasant Sounds	-.08 [-.40, .25]	-.12 [-.44, .20]	.07 [-.26, .41]	.02 [-.31, .36]	.11 [-.23, .44]	.36 [.07, .66]	.30 [-.00, .60]	.45 [.17, .73]	.55 [.28, .81]	-.03 [-.42, .36]	.05 [-.28, .38]	-.12 [-.44, .20]	-.51 [-.78, -.24]		.01* .16	.40 .77	.48 .83	.17 .59	.93 .98	.64 .89	.63 .89
		15. Un-pleasant Sounds	.36 [.04, .68]	.23 [-.10, .56]	.12 [-.23, .47]	.08 [-.27, .43]	.26 [-.08, .61]	.71 [.48, .95]	.64 [.38, .89]	.64 [.38, .90]	.47 [.18, .77]	.12 [-.28, .53]	.09 [-.26, .43]	-.06 [-.39, .28]	-.49 [-.78, -.19]	.41 [.09, .73]		.27 .70	.86 .96	.67 .90	.25 .68	.051 .31	.02* .19
Other/General Auditory Hyper-Reactivity	Self-Report	16. MIST-A Fear/Panic	-.02 [-.34, .30]	.46 [.18, .74]	.32 [.00, .63]	.30 [-.01, .62]	.43 [.12, .73]	.13 [-.19, .44]	.04 [-.27, .36]	.10 [-.21, .41]	-.04 [-.36, .27]	.60 [.28, .93]	.34 [.04, .65]	.35 [.05, .64]	.00 [-.31, .32]	-.14 [-.46, .19]	.17 [-.14, .48]		.002** .051	.02* .21	.004** .09	.03* .25	.21 .63
		17. MIST-A Nonspeci-fic Sympt.	-.06 [-.39, .27]	.33 [.02, .64]	.15 [-.19, .48]	.14 [-.19, .48]	.38 [.06, .70]	-.09 [-.41, .23]	-.15 [-.47, .17]	-.03 [-.35, .29]	-.21 [-.53, .11]	.44 [.08, .81]	.39 [.08, .70]	.55 [.28, .81]	.07 [-.25, .39]	-.12 [-.45, .22]	.03 [-.29, .35]	.50 [.20, .79]		.004** .09	.046* .30	.07 .36	.31 .73
		18. MIST-A Impair-ment	-.08 [-.39, .23]	.34 [.05, .63]	.18 [-.13, .50]	.17 [-.14, .49]	.26 [-.05, .58]	-.07 [-.38, .23]	-.06 [-.36, .25]	.07 [-.24, .37]	-.01 [-.31, .30]	.66 [.36, .96]	.47 [.19, .74]	.39 [.11, .66]	-.15 [-.45, .16]	.21 [-.10, .53]	.06 [-.24, .37]	.36 [.06, .66]	.42 [.14, .71]		.0007*** .03*	<.0001*** .006**	.06 .34
		19. VADQ Auditory Distraction	.12 [-.20, .44]	.45 [.16, .73]	.31 [-.00, .63]	.30 [-.02, .61]	.45 [.15, .75]	.11 [-.20, .42]	.15 [-.16, .46]	.18 [-.13, .49]	-.08 [-.40, .24]	.67 [.36, .99]	.45 [.16, .75]	.36 [.06, .65]	.02 [-.29, .34]	.01 [-.32, .34]	.18 [-.13, .49]	.45 [.15, .75]	.32 [.01, .63]	.54 [.24, .83]		<.0001*** .0003***	.053 .32
		20. BBCSS Auditory HYPER	.05 [-.24, .35]	.38 [.12, .64]	.23 [-.06, .52]	.20 [-.10, .49]	.30 [.02, .59]	.02 [-.28, .32]	.10 [-.20, .39]	.12 [-.18, .42]	.04 [-.25, .34]	.56 [.27, .86]	.34 [.07, .62]	.40 [.14, .65]	-.20 [-.48, .08]	.07 [-.23, .38]	.28 [-.00, .56]	.32 [.03, .60]	.27 [-.02, .55]	.56 [.31, .81]	.63 [.41, .86]		.002** .06
		21. BBCSS Auditory HYPER	.12 [-.09, .33]	.13 [-.08, .34]	.03 [-.19, .24]	.02 [-.19, .24]	.06 [-.16, .28]	.06 [-.14, .27]	.06 [-.15, .26]	.07 [-.14, .27]	.02 [-.19, .23]	.24 [-.01, .49]	.03 [-.19, .26]	-.03 [-.24, .18]	-.19 [-.38, .01]	.05 [-.17, .27]	.23 [.04, .42]	.14 [-.08, .36]	.11 [-.11, .32]	.21 [-.01, .44]	.20 [-.00, .41]	.35 [.13, .56]	
		22. SEQ Auditory HYPER	.04 [-.19, .27]	.21 [-.00, .43]	.10 [-.13, .34]	.10 [-.14, .33]	.15 [-.08, .39]	.08 [-.14, .31]	.05 [-.17, .28]	.07 [-.16, .29]	.08 [-.15, .30]	.24 [-.03, .50]	.08 [-.15, .32]	.13 [-.09, .36]	-.20 [-.42, .02]	.04 [-.20, .27]	.22 [.01, .43]	.25 [.03, .48]	.28 [.06, .49]	.16 [-.08, .40]	.14 [-.10, .37]	.29 [.03, .54]	.82 [.55, 1.08]

Supplementary Table A.7 (**Left Columns, 1-21**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences.***
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Acuity	Misophonia								Hyperacusis					Other/General Auditory Hyper-Reactivity					
			Lab	Self-Report				Lab Rating				Self-Report			Lab Rating		Self-Report					Caregiver
			1. PTA	2. MIST-A Misophonia	3. DVMSQ Anger Aggression	4. DVMSQ Distress Avoidance	5. DVMSQ Impairment	6. Breath/ Nasal Sounds	7. Mouth Sounds	8. Throat Sounds	9. Repetitive Sounds	10. MIST-A Loud HYP	11. MIST-A Pain HYP	12. MIST-A HYP Symptom	13. LDLs	14. Pleasant Sounds	15. Un-pleasant Sounds	16. MIST-A Fear/Panic	17. MIST-A Nonspeci-fic Sympt.	18. MIST-A Impair-ment	19. VADQ Auditory Distraction	20. BBCSS Auditory HYPER	21. BBCSS Auditory HYPER
Auditory Modality	Caregiver-Report	23. SEQ A. Enhanced Perception	-.13 [-.42, .17]	.11 [-.19, .40]	.01 [-.30, .32]	.02 [-.28, .33]	.01 [-.30, .33]	.12 [-.17, .41]	.06 [-.23, .35]	.02 [-.27, .31]	.13 [-.16, .42]	-.13 [-.49, .22]	-.27 [-.56, .02]	.07 [-.23, .36]	-.07 [-.36, .23]	.08 [-.23, .38]	.02 [-.27, .31]	-.11 [-.42, .20]	.02 [-.29, .32]	-.07 [-.39, .25]	-.03 [-.34, .28]	-.12 [-.46, .22]	.23 [-.25, .71]
		24. SEQ Auditory SIRS	-.04 [-.36, .28]	-.02 [-.33, .30]	-.09 [-.42, .23]	-.07 [-.40, .25]	-.15 [-.48, .17]	-.14 [-.44, .17]	-.16 [-.47, .15]	-.21 [-.51, .10]	.04 [-.28, .35]	-.34 [-.70, .02]	-.27 [-.58, .04]	.03 [-.29, .34]	-.07 [-.38, .24]	.01 [-.31, .34]	-.14 [-.45, .16]	-.09 [-.42, .24]	-.05 [-.37, .27]	-.09 [-.42, .25]	-.16 [-.49, .16]	-.22 [-.58, .15]	-.05 [-.57, .48]
		25. SEQ Auditory HYPO	.35 [.06, .63]	.06 [-.25, .37]	.10 [-.22, .42]	.12 [-.20, .44]	-.11 [-.43, .21]	.19 [-.11, .48]	.25 [-.04, .54]	.04 [-.27, .34]	.15 [-.16, .45]	.07 [-.30, .43]	.06 [-.26, .37]	.03 [-.28, .33]	-.08 [-.38, .22]	-.15 [-.47, .16]	.09 [-.21, .39]	-.04 [-.36, .28]	-.06 [-.38, .25]	-.16 [-.49, .17]	-.15 [-.46, .17]	-.06 [-.42, .30]	.26 [-.25, .77]
	Self	26. BBCSS Auditory HYPO Voice	.24 [-.10, .57]	.15 [-.20, .49]	.18 [-.17, .53]	.17 [-.18, .52]	.31 [-.03, .65]	.17 [-.17, .52]	.10 [-.26, .45]	.21 [-.13, .56]	.10 [-.24, .45]	.32 [-.08, .72]	.45 [.13, .76]	.28 [-.05, .60]	-.21 [-.56, .13]	.15 [-.20, .50]	.12 [-.23, .46]	.08 [-.29, .44]	.38 [.05, .70]	.31 [-.05, .67]	.26 [-.10, .63]	.44 [.07, .82]	.26 [-.32, .84]
	Careg.	27. BBCSS Auditory Hypo Voice	.11 [-.13, .35]	.12 [-.12, .36]	.11 [-.14, .36]	.13 [-.11, .38]	.05 [-.20, .30]	.25 [.03, .47]	.20 [-.03, .43]	.11 [-.13, .35]	.14 [-.09, .38]	.08 [-.21, .37]	.12 [-.13, .37]	.13 [-.10, .37]	-.00 [-.24, .24]	-.07 [-.32, .17]	.15 [-.08, .38]	-.02 [-.27, .23]	.10 [-.15, .34]	.01 [-.25, .27]	.06 [-.19, .31]	.13 [-.15, .40]	.04 [-.35, .43]
Vis.	Self	28. BBCSS Visual HYPER	.07 [-.28, .42]	.40 [.08, .73]	.22 [-.12, .57]	.25 [-.09, .59]	.21 [-.14, .56]	-.10 [-.45, .25]	.00 [-.34, .34]	-.05 [-.39, .29]	-.02 [-.37, .32]	.45 [.07, .83]	.58 [.28, .87]	.60 [.33, .87]	-.08 [-.42, .26]	.10 [-.26, .46]	-.08 [-.42, .26]	.11 [-.25, .46]	.25 [-.09, .59]	.50 [.18, .83]	.46 [.15, .78]	.58 [.23, .93]	-.04 [-.62, .54]
Visual Modality	Caregiver-Report	29. BBCSS Visual HYPER	.22 [-.06, .49]	.16 [-.11, .43]	-.08 [-.37, .21]	-.08 [-.36, .21]	-.08 [-.37, .22]	-.06 [-.33, .22]	.01 [-.26, .29]	-.02 [-.30, .25]	.03 [-.25, .31]	.02 [-.33, .36]	.06 [-.23, .35]	-.04 [-.32, .24]	-.39 [-.64, -.15]	.09 [-.21, .39]	.24 [-.02, .50]	.16 [-.13, .46]	.13 [-.15, .41]	.30 [.00, .59]	.23 [-.06, .51]	.29 [-.02, .60]	.61 [.19, 1.02]
		30. SEQ Visual HYPER	.11 [-.13, .36]	.18 [-.06, .42]	.01 [-.25, .26]	.04 [-.22, .29]	.13 [-.13, .38]	.05 [-.19, .29]	.05 [-.19, .29]	.06 [-.18, .30]	.00 [-.24, .25]	.15 [-.14, .44]	.24 [-.00, .48]	.03 [-.21, .28]	-.19 [-.43, .04]	-.01 [-.26, .24]	.23 [.00, .46]	.07 [-.18, .33]	.16 [-.09, .41]	.02 [-.25, .28]	.18 [-.06, .43]	.25 [-.03, .53]	.64 [.30, .99]
		31. SEQ V. Enhanced Perception	-.04 [-.33, .25]	.15 [-.14, .43]	-.06 [-.36, .24]	.00 [-.30, .30]	.04 [-.27, .34]	.04 [-.25, .32]	-.03 [-.31, .26]	.03 [-.26, .31]	-.09 [-.38, .19]	.18 [-.16, .52]	.01 [-.28, .31]	.00 [-.29, .29]	.07 [-.21, .36]	-.05 [-.34, .25]	-.07 [-.36, .21]	.12 [-.19, .42]	.00 [-.29, .30]	-.04 [-.36, .27]	.18 [-.11, .48]	.04 [-.30, .38]	.61 [.17, 1.05]
		32. SEQ Visual SIRS	-.11 [-.33, .12]	.04 [-.19, .26]	.03 [-.20, .26]	.10 [-.13, .33]	-.02 [-.26, .21]	-.03 [-.25, .19]	-.07 [-.29, .15]	-.08 [-.30, .14]	-.07 [-.29, .15]	-.09 [-.36, .18]	.02 [-.21, .25]	.03 [-.19, .25]	.08 [-.14, .30]	-.03 [-.26, .20]	-.08 [-.30, .14]	-.06 [-.29, .18]	-.07 [-.30, .16]	-.11 [-.35, .13]	.05 [-.18, .29]	-.07 [-.33, .19]	.19 [-.18, .56]

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		33. SEQ Visual HYPO	.00 [-.23, .24]	-.13 [-.36, .10]	-.08 [-.32, .16]	-.06 [-.30, .17]	-.26 [-.49, -.04]	-.06 [-.29, .16]	-.00 [-.23, .23]	-.14 [-.37, .08]	-.05 [-.28, .18]	-.11 [-.39, .17]	-.20 [-.42, .03]	-.17 [-.39, .05]	-.00 [-.23, .23]	-.12 [-.36, .11]	-.12 [-.35, .10]	-.06 [-.30, .18]	-.22 [-.45, -.00]	-.15 [-.39, .10]	-.13 [-.37, .11]	-.14 [-.41, .13]	.22 [-.16, .60]
Tactile Modality	Self	34. BBCSS Tactile HYPER	-.00 [-.33, .33]	.36 [.05, .68]	.19 [-.15, .52]	.21 [-.12, .54]	.16 [-.18, .49]	.18 [-.15, .51]	.13 [-.21, .47]	.20 [-.14, .53]	.16 [-.18, .50]	.22 [-.16, .61]	.21 [-.12, .54]	.34 [.04, .65]	-.41 [-.72, -.10]	.16 [-.19, .50]	.17 [-.16, .50]	-.01 [-.35, .34]	-.05 [-.38, .29]	.19 [-.16, .54]	.13 [-.22, .48]	.39 [.03, .75]	.34 [-.19, .87]
	Caregiver	35. BBCSS Tactile HYPER	.26 [.03, .49]	.08 [-.16, .33]	.17 [-.08, .42]	.17 [-.08, .42]	.13 [-.12, .39]	.15 [-.09, .39]	.06 [-.19, .30]	.09 [-.15, .34]	-.02 [-.27, .23]	.00 [-.31, .31]	.03 [-.23, .29]	-.15 [-.39, .09]	-.13 [-.37, .12]	.18 [-.07, .43]	.18 [-.05, .42]	-.02 [-.28, .25]	.01 [-.24, .27]	-.05 [-.33, .23]	.09 [-.17, .35]	-.03 [-.33, .26]	.48 [.10, .86]
		36. SEQ Tactile HYPER	.12 [-.13, .37]	.19 [-.05, .44]	.20 [-.05, .46]	.23 [-.02, .49]	.18 [-.08, .44]	.13 [-.12, .37]	.06 [-.19, .31]	.11 [-.13, .36]	.01 [-.24, .26]	.23 [-.06, .53]	.19 [-.07, .44]	.17 [-.08, .41]	.00 [-.25, .25]	.03 [-.23, .29]	.09 [-.16, .34]	.16 [-.10, .42]	.23 [-.02, .47]	-.01 [-.28, .26]	.17 [-.09, .43]	.12 [-.18, .41]	.42 [.03, .81]
	Self	37. BBCSS Social Touc-h Aversion	.19 [-.17, .55]	.17 [-.22, .56]	.23 [-.13, .58]	.22 [-.14, .57]	.28 [-.07, .63]	.22 [-.15, .59]	.09 [-.28, .46]	.40 [.06, .74]	.08 [-.28, .45]	.37 [-.08, .82]	.28 [-.09, .65]	.25 [-.11, .61]	-.22 [-.58, .15]	.16 [-.22, .53]	.10 [-.26, .46]	.19 [-.19, .56]	.18 [-.19, .55]	.27 [-.12, .66]	.29 [-.09, .66]	.13 [-.29, .55]	.16 [-.43, .75]
	Caregiver-Report	38. BBCSS Social Touc-h Aversion	.30 [-.04, .64]	.24 [-.10, .58]	.37 [.04, .69]	.37 [.05, .70]	.35 [.03, .66]	.39 [.09, .69]	.24 [-.09, .57]	.27 [-.05, .59]	.23 [-.09, .55]	-.01 [-.45, .43]	.03 [-.33, .39]	.02 [-.34, .39]	-.20 [-.53, .12]	.22 [-.11, .55]	.36 [.05, .67]	.19 [-.16, .54]	.11 [-.24, .46]	-.08 [-.45, .29]	.03 [-.34, .41]	-.06 [-.52, .39]	.16 [-.49, .81]
		39. SEQ Tactile SIRS	.18 [-.09, .46]	.17 [-.10, .45]	.03 [-.26, .32]	.09 [-.19, .38]	.07 [-.22, .36]	.05 [-.22, .32]	-.04 [-.31, .23]	-.06 [-.34, .21]	-.15 [-.42, .11]	-.25 [-.57, .07]	-.01 [-.30, .27]	.02 [-.26, .29]	.07 [-.21, .34]	-.13 [-.42, .15]	.17 [-.10, .43]	-.12 [-.40, .17]	.03 [-.25, .32]	-.22 [-.51, .07]	-.09 [-.38, .19]	-.15 [-.47, .17]	.12 [-.35, .58]
		40. SEQ Tactile HYPO	.13 [-.18, .43]	.13 [-.17, .44]	.03 [-.28, .35]	.07 [-.24, .39]	.07 [-.25, .39]	-.03 [-.33, .27]	-.04 [-.34, .26]	-.08 [-.38, .22]	-.15 [-.45, .15]	.07 [-.30, .44]	.26 [-.05, .56]	.03 [-.28, .33]	.14 [-.16, .44]	-.18 [-.49, .13]	-.15 [-.45, .14]	.03 [-.29, .35]	.14 [-.17, .45]	-.07 [-.40, .25]	.11 [-.21, .42]	.00 [-.35, .36]	.17 [-.33, .68]
Taste/Smell	Self	41. BBCSS Selective Eating	.43 [.10, .77]	.18 [-.20, .55]	.09 [-.28, .46]	.06 [-.31, .42]	.11 [-.25, .47]	.21 [-.15, .57]	.28 [-.08, .64]	.19 [-.17, .55]	.07 [-.29, .44]	.41 [-.00, .83]	.44 [.09, .78]	.13 [-.24, .49]	-.28 [-.64, .07]	.37 [.02, .72]	.35 [.00, .69]	.13 [-.26, .51]	.16 [-.20, .53]	.39 [.03, .76]	.32 [-.04, .69]	.46 [.08, .85]	.16 [-.43, .74]
	Careg.	42. BBCSS Selective Eating	.06 [-.21, .33]	-.12 [-.39, .14]	.01 [-.26, .29]	.04 [-.24, .31]	-.05 [-.32, .23]	-.02 [-.28, .24]	-.09 [-.35, .17]	-.01 [-.27, .25]	.05 [-.22, .31]	-.03 [-.38, .33]	.08 [-.21, .36]	-.14 [-.40, .13]	-.18 [-.43, .07]	.36 [.11, .60]	-.00 [-.26, .26]	-.13 [-.41, .15]	.05 [-.22, .31]	.02 [-.27, .32]	-.14 [-.41, .14]	-.19 [-.52, .13]	.39 [-.04, .81]
	Self	43. BBCSS Ingestive Problems	.17 [-.19, .54]	.24 [-.14, .61]	-.04 [-.42, .35]	-.07 [-.46, .31]	.08 [-.29, .45]	.20 [-.18, .59]	.17 [-.23, .56]	.15 [-.24, .53]	.29 [-.07, .65]	.20 [-.30, .69]	.27 [-.11, .66]	.36 [-.00, .71]	-.14 [-.52, .24]	.21 [-.17, .59]	.24 [-.14, .61]	.08 [-.31, .47]	.53 [.21, .85]	-.01 [-.41, .39]	.05 [-.38, .47]	.00 [-.48, .49]	-.15 [-.84, .54]

Supplementary Table A.7 (**Left Columns, 1-21**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences.***
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Acuity	Misophonia								Hyperacusis					Other/General Auditory Hyper-Reactivity					
			Lab	Self-Report				Lab Rating				Self-Report			Lab Rating		Self-Report					Caregiver
			1. PTA	2. MIST-A Misopho-nia	3. DVMSQ Anger Aggression	4. DVMSQ Distress Avoidance	5. DVMSQ Impair-ment	6. Breath/ Nasal Sounds	7. Mouth Sounds	8. Throat Sounds	9. Repetitive Sounds	10. MIST-A Loud HYP	11. MIST-A Pain HYP	12. MIST-A HYP Symptom	13. LDLs	14. Pleasant Sounds	15. Un-pleasant Sounds	16. MIST-A Fear/Panic	17. MIST-A Nonspeci-fic Sympt.	18. MIST-A Impair-ment	19. VADQ Auditory Distracti on	20. BBCSS Auditory HYPER	21. BBCSS Auditory HYPER
Taste/Smell Modalities	Caregiver-Report	44. BBCSS Ingestive Problems	-.15 [-.48, .17]	-.07 [-.38, .25]	-.50 [-.77, -.22]	-.46 [-.74, -.19]	-.39 [-.69, -.09]	-.14 [-.44, .16]	-.04 [-.36, .28]	-.17 [-.48, .15]	.02 [-.30, .33]	.12 [-.27, .52]	.16 [-.16, .49]	.01 [-.31, .33]	-.21 [-.51, .10]	.03 [-.31, .36]	-.04 [-.36, .27]	.02 [-.34, .38]	.15 [-.17, .48]	.05 [-.30, .40]	-.01 [-.34, .32]	.07 [-.29, .44]	.40 [-.07, .88]
	Self	45. BBCSS Digestive Problems	.12 [-.22, .47]	.46 [.15, .78]	.05 [-.31, .41]	.09 [-.27, .45]	.02 [-.34, .38]	-.17 [-.52, .19]	-.14 [-.50, .22]	-.18 [-.53, .18]	-.11 [-.47, .25]	.37 [-.02, .77]	.18 [-.17, .54]	.39 [.07, .71]	.01 [-.36, .38]	-.44 [-.78, -.09]	.04 [-.33, .40]	.29 [-.07, .65]	.17 [-.18, .53]	.26 [-.10, .63]	.38 [.03, .74]	.34 [-.04, .73]	.28 [-.30, .85]
		46. BBCSS Digestive Problems	.25 [-.10, .59]	.19 [-.15, .52]	.04 [-.31, .39]	.07 [-.28, .41]	.05 [-.31, .42]	.11 [-.22, .43]	.05 [-.28, .38]	.14 [-.20, .47]	-.07 [-.41, .27]	.21 [-.21, .63]	.19 [-.16, .53]	.22 [-.11, .55]	-.05 [-.39, .28]	-.17 [-.53, .18]	.32 [-.00, .63]	.15 [-.21, .51]	.21 [-.14, .55]	.08 [-.30, .46]	.29 [-.05, .63]	.29 [-.10, .67]	.46 [-.07, .98]
		47. SEQ Gu-statory/Olf-act. HYPER	.03 [-.26, .32]	-.15 [-.43, .14]	-.10 [-.40, .19]	-.09 [-.38, .21]	-.12 [-.42, .18]	.12 [-.16, .40]	.10 [-.18, .38]	.07 [-.21, .36]	.05 [-.23, .34]	.09 [-.25, .44]	.11 [-.19, .40]	-.21 [-.49, .07]	-.18 [-.46, .10]	.23 [-.06, .52]	.21 [-.06, .49]	-.05 [-.35, .25]	-.05 [-.35, .24]	-.11 [-.42, .20]	.00 [-.30, .30]	.03 [-.31, .37]	.59 [.17, 1.02]
		48. SEQ Gu-statory/Olf-actory EP	.13 [-.17, .43]	.10 [-.20, .40]	.05 [-.26, .36]	.09 [-.21, .40]	.09 [-.22, .41]	-.01 [-.30, .29]	-.04 [-.34, .25]	.01 [-.29, .31]	-.10 [-.40, .19]	.15 [-.21, .50]	-.03 [-.34, .28]	-.06 [-.35, .24]	-.02 [-.32, .27]	-.00 [-.31, .30]	.09 [-.20, .39]	.05 [-.27, .36]	.10 [-.21, .40]	-.20 [-.52, .11]	-.02 [-.33, .29]	.02 [-.33, .38]	.56 [.10, 1.02]
		49. SEQ Gu-statory/Olf-actory SIRS	.09 [-.21, .40]	.28 [-.02, .57]	.31 [.00, .61]	.39 [.09, .68]	.24 [-.08, .55]	.04 [-.27, .34]	-.01 [-.31, .30]	.03 [-.28, .33]	-.14 [-.44, .16]	.07 [-.30, .44]	.18 [-.13, .49]	.32 [.03, .60]	.05 [-.25, .36]	-.16 [-.47, .16]	.04 [-.27, .34]	.14 [-.18, .46]	.15 [-.17, .46]	-.06 [-.39, .27]	.18 [-.13, .50]	.20 [-.15, .55]	.18 [-.33, .69]
		50. SEQ Gu-statory/Olf-act. HYPO	.03 [-.29, .36]	.13 [-.20, .45]	.00 [-.33, .34]	.00 [-.33, .34]	-.18 [-.51, .15]	.04 [-.28, .36]	.23 [-.08, .54]	-.06 [-.38, .26]	.08 [-.24, .40]	-.08 [-.47, .30]	.15 [-.18, .48]	.12 [-.20, .44]	.12 [-.20, .43]	-.23 [-.55, .09]	-.03 [-.35, .28]	.05 [-.29, .39]	.01 [-.32, .34]	-.29 [-.63, .04]	-.06 [-.40, .27]	-.13 [-.50, .25]	-.23 [-.77, .32]
Aut.		51. SCQ Total	-.02 [-.20, .15]	.05 [-.12, .22]	-.05 [-.23, .12]	-.06 [-.23, .12]	.02 [-.16, .20]	-.05 [-.22, .11]	-.04 [-.21, .12]	-.08 [-.25, .09]	.03 [-.14, .20]	.16 [-.03, .36]	-.04 [-.21, .14]	-.06 [-.23, .10]	-.13 [-.29, .03]	.07 [-.11, .24]	.02 [-.15, .18]	.03 [-.14, .21]	.05 [-.12, .22]	.01 [-.17, .19]	-.02 [-.20, .16]	.02 [-.17, .22]	.18 [-.09, .46]
		52. SWAN Inattention	.19 [-.07, .45]	.24 [-.02, .50]	.27 [.00, .53]	.30 [.04, .56]	.21 [-.06, .49]	.03 [-.24, .29]	-.08 [-.35, .18]	-.01 [-.28, .26]	-.24 [-.49, .02]	.02 [-.30, .35]	.15 [-.12, .43]	.25 [-.01, .50]	.03 [-.24, .30]	-.30 [-.56, -.04]	.02 [-.24, .29]	.15 [-.13, .43]	.10 [-.18, .37]	-.07 [-.36, .22]	-.03 [-.31, .25]	.10 [-.21, .41]	.12 [-.33, .57]

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		53. SWAN Hyperactive Impulsive	.15 [-.11, .41]	.24 [-.02, .49]	.36 [.11, .61]	.35 [.10, .60]	.33 [.07, .58]	.12 [-.14, .38]	.07 [-.19, .33]	.06 [-.20, .32]	-.08 [-.35, .18]	.15 [-.16, .47]	.11 [-.16, .38]	.22 [-.03, .48]	-.05 [-.31, .21]	-.19 [-.46, .07]	.01 [-.25, .27]	.12 [-.15, .40]	.10 [-.17, .37]	-.07 [-.35, .22]	.14 [-.14, .41]	.21 [-.09, .51]	-.05 [-.49, .40]
Anxiety	Self	54. ASC-ASD Arousal	.13 [-.20, .45]	.33 [.02, .65]	.04 [-.30, .38]	.04 [-.30, .37]	.07 [-.27, .41]	-.20 [-.52, .12]	-.14 [-.46, .18]	-.17 [-.49, .15]	-.02 [-.36, .31]	.24 [-.14, .62]	.38 [.07, .69]	.40 [.11, .69]	-.09 [-.42, .23]	-.11 [-.46, .23]	.00 [-.33, .33]	.21 [-.12, .54]	.45 [.15, .74]	.47 [.16, .79]	.20 [-.13, .53]	.36 [.02, .71]	.02 [-.50, .54]
Anxiety	Care	55. ASC-ASD Arousal	.24 [-.07, .55]	.28 [-.02, .59]	.25 [-.07, .57]	.30 [-.02, .61]	.15 [-.18, .48]	.10 [-.21, .41]	.10 [-.21, .41]	-.03 [-.34, .29]	.06 [-.25, .38]	.32 [-.05, .69]	.32 [.01, .62]	.22 [-.08, .53]	-.05 [-.36, .27]	-.06 [-.38, .27]	.10 [-.21, .41]	.26 [-.06, .58]	.19 [-.13, .51]	.28 [-.05, .61]	.16 [-.17, .49]	.06 [-.31, .44]	.16 [-.36, .69]
Anxiety	Self	56. ASC-ASD Perfor-mance	.09 [-.25, .43]	.43 [.11, .74]	-.03 [-.38, .32]	.00 [-.35, .35]	.14 [-.22, .49]	-.14 [-.48, .20]	-.13 [-.47, .20]	-.13 [-.47, .21]	-.15 [-.50, .19]	.46 [.09, .84]	.39 [.07, .72]	.27 [-.06, .59]	-.12 [-.46, .22]	-.11 [-.47, .25]	.13 [-.21, .47]	.22 [-.13, .57]	.25 [-.09, .59]	.33 [-.02, .68]	.34 [.00, .67]	.43 [.06, .79]	.32 [-.23, .87]
Anxiety	Careg.	57. ASC-ASD Perfor-mance	.22 [-.05, .49]	.18 [-.09, .46]	.30 [.03, .57]	.31 [.04, .58]	.26 [-.02, .54]	.01 [-.26, .29]	.01 [-.27, .29]	.10 [-.17, .38]	-.12 [-.40, .15]	.13 [-.20, .47]	.02 [-.27, .30]	.02 [-.25, .30]	-.06 [-.34, .21]	-.08 [-.37, .20]	.20 [-.06, .47]	.05 [-.25, .34]	-.02 [-.31, .27]	.14 [-.16, .44]	.20 [-.09, .48]	.22 [-.10, .54]	.62 [.20, 1.04]
Anxiety	Self	58. ASC-ASD Separation	-.12 [-.45, .22]	.34 [.02, .67]	.06 [-.30, .41]	.04 [-.31, .39]	.02 [-.33, .38]	.01 [-.34, .35]	.11 [-.23, .44]	.03 [-.31, .37]	.00 [-.35, .35]	.50 [.13, .88]	.21 [-.13, .56]	.31 [-.02, .63]	.07 [-.27, .41]	-.12 [-.48, .25]	.22 [-.11, .55]	.29 [-.05, .63]	.24 [-.10, .58]	.21 [-.15, .57]	.26 [-.08, .60]	.34 [-.04, .72]	.25 [-.30, .81]
Anxiety	Careg.	59. ASC-ASD Separation	.08 [-.23, .38]	.28 [-.02, .57]	.14 [-.17, .45]	.16 [-.16, .47]	.14 [-.17, .46]	-.01 [-.31, .29]	-.03 [-.34, .27]	.01 [-.29, .31]	-.17 [-.47, .13]	.20 [-.17, .56]	.01 [-.30, .33]	.17 [-.13, .47]	-.17 [-.47, .13]	-.26 [-.56, .05]	.16 [-.14, .45]	.36 [.06, .66]	.08 [-.23, .40]	.08 [-.24, .41]	.26 [-.05, .56]	.28 [-.07, .62]	.47 [-.01, .95]
Anxiety	Self	60. ASC-ASD Uncertainty	.08 [-.25, .41]	.34 [.02, .65]	-.07 [-.41, .28]	-.04 [-.38, .30]	.08 [-.27, .42]	-.16 [-.48, .17]	-.12 [-.45, .20]	-.12 [-.45, .21]	-.14 [-.47, .19]	.50 [.14, .86]	.45 [.14, .75]	.32 [.01, .63]	-.08 [-.41, .25]	-.09 [-.44, .26]	.14 [-.19, .47]	.15 [-.19, .49]	.33 [.01, .65]	.44 [.12, .77]	.36 [.04, .68]	.45 [.10, .80]	.26 [-.28, .80]
Anxiety	Careg.	61. ASC-ASD Uncertainty	.11 [-.15, .38]	.27 [.01, .52]	.06 [-.22, .34]	.08 [-.20, .36]	.11 [-.17, .39]	-.04 [-.31, .23]	.02 [-.25, .29]	.01 [-.26, .27]	-.02 [-.29, .25]	.35 [.05, .66]	.17 [-.11, .44]	.15 [-.11, .41]	-.09 [-.36, .17]	-.14 [-.41, .14]	.23 [-.02, .49]	.16 [-.12, .44]	.15 [-.12, .42]	.27 [-.01, .55]	.22 [-.05, .50]	.32 [.02, .61]	.52 [.11, .94]
		62. WASI Perceptual Reasoning	.03 [-.31, .36]	.11 [-.22, .44]	-.22 [-.56, .11]	-.20 [-.54, .14]	-.23 [-.57, .11]	.11 [-.22, .43]	.16 [-.16, .49]	-.11 [-.44, .21]	.31 [-.00, .62]	-.07 [-.46, .33]	-.02 [-.36, .32]	-.15 [-.47, .18]	-.10 [-.43, .22]	-.05 [-.39, .30]	.00 [-.32, .33]	-.17 [-.51, .17]	-.27 [-.60, .05]	-.08 [-.44, .27]	-.01 [-.35, .34]	-.21 [-.58, .17]	-.22 [-.77, .33]

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			Acuity	Misophonia								Hyperacusis					Other/General Auditory Hyper-Reactivity					
			Lab	Self-Report				Lab Rating				Self-Report			Lab Rating		Self-Report					Caregiver
			1. PTA	2. MIST-A Misopho-nia	3. DVMSQ Anger Aggression	4. DVMSQ Distress Avoidance	5. DVMSQ Impair-ment	6. Breath/ Nasal Sounds	7. Mouth Sounds	8. Throat Sounds	9. Repetitive Sounds	10. MIST-A Loud HYP	11. MIST-A Pain HYP	12. MIST-A HYP Symptom	13. LDLs	14. Pleasant Sounds	15. Un-pleasant Sounds	16. MIST-A Fear/Panic	17. MIST-A Nonspeci-fic Sympt.	18. MIST-A Impair-ment	19. VADQ Auditory Distracti on	20. BBCSS Auditory HYPER	21. BBCSS Auditory HYPER
		63. WASI Verbal Co-mprehend	-.07 [-.39, .25]	.17 [-.15, .48]	.08 [-.26, .41]	.09 [-.24, .42]	.07 [-.27, .41]	.13 [-.19, .44]	.16 [-.15, .47]	.12 [-.20, .43]	.40 [.10, .69]	-.08 [-.47, .31]	-.01 [-.34, .32]	-.12 [-.43, .20]	-.31 [-.61, -.00]	.28 [-.04, .60]	.10 [-.21, .42]	-.07 [-.40, .27]	-.30 [-.62, .01]	-.03 [-.38, .32]	-.08 [-.42, .25]	-.05 [-.43, .33]	-.11 [-.65, .43]

From Left Columns: 1. Pure Tone Average (PTA) hearing thresholds; 2. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) Misophonia scores; 3. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) Anger/Aggression scores; 4. DVMSQ Distress/Avoidance scores; 5. DVMSQ Impairment scores; 6. median ratings (i.e., not CDS scores) of breathing/nasal misophonic trigger sounds (“breath running”, “sniffling”, “snoring”) from the Core Discriminant Sounds (CDS) task; 7. median ratings of mouth trigger sounds (“chewing 1” , “chewing 2”, “slurping”); 8. median ratings of throat trigger sounds (“swallowing”, “throat clearing”); 9. median ratings of repetitive trigger sounds (“keyboard”, “pen clicking”); 10. MIST-A (Loudness) Hyperacusis scores; 11. MIST-A Pain (Hyperacusis) scores; 12. MISTA-A Hyperacusis Symptom scores; 13. Loudness Discomfort Levels (LDLs) averaged across frequencies; 14. median ratings of conventionally-pleasant sounds from the CDS task; 15. median ratings of conventionally-*un*pleasant sounds from the CDS task; 16. MIST-A Fear/Panic scores; 17. MIST-A Systemic Nonspecific Symptom scores; 18. MIST-A Impairment scores, reflecting impacts of sound intolerance on daily life; 19. VADQ Auditory Distractibility scores; 20. Brain-Body Center Sensory Scales (BBCSS) Auditory Hypersensitivity self-report scores; and 21. BBCSS Auditory Hypersensitivity caregiver-report scores.
From Middle Columns: 22. Sensory Experiences Questionnaire, Version 3.0 (SEQ-3.0) Auditory Hyperresponsivity scores; 23. SEQ-3.0 Auditory Enhanced Perception scores; 24. SEQ-3.0 Auditory Sensory Interests, Repetitions, and Seeking (SIRS) scores; 25. SEQ-3.0 Auditory Hyporesponsiveness scores; 26. BBCSS Auditory Hyposensitivity to Voices self-report scores; 27. BBCSS Auditory Hyposensitivity to Voices caregiver-report scores; 28. BBCSS Visual Hypersensitivity self-report scores; 29. BBCSS Visual Hypersensitivity caregiver-report scores; 30. SEQ-3.0 Visual Hyperresponsiveness scores; 31. SEQ-3.0 Visual Enhanced Perception Scores; 32. SEQ-3.0 Visual Sensory Interests, Repetitions, and Seeking (SIRS) scores; 33. SEQ-3.0 Visual Hyporesponsiveness scores; 34. BBCSS Tactile Hypersensitivity self-report scores; 35. BBCSS Tactile Hypersensitivity caregiver-report scores; 36. SEQ-3.0 Tactile Hyperresponsiveness scores; 37. BBCSS Affiliative Touch Aversion self-report scores; 38. BBCSS Affiliative Touch Aversion caregiver-report scores; 39. SEQ-3.0 Tactile Sensory Interests, Repetitions, and Seeking (SIRS) scores; 40. SEQ-3.0 Tactile Hyporesponsiveness scores; 41. BBCSS Selective Eating self-report scores; and 42. BBCSS Selective Eating caregiver-report scores.
From Right Columns: 43. BBCSS Ingestive Problems self-report scores; 44. BBCSS Ingestive Problems caregiver-report scores; 45. BBCSS Digestive Problems self-report scores; 46. BBCSS Digestive Problems caregiver-report scores; 47. SEQ-3.0 Gustatory/Olfactory Hyperresponsiveness scores; 48. SEQ-3.0 Gustatory/Olfactory Enhanced Perception scores; 49. SEQ-3.0 Gustatory/Olfactory Sensory Interests, Repetitions, and Seeking (SIRS) scores; 50. SEQ-3.0 Gustatory/Olfactory Hyporesponsiveness scores; 51. Social Communication Questionnaire (SCQ) total autistic trait scores; 52. Strengths and Weaknesses of ADHD-symptoms and Normal-behavior (SWAN) Inattention scores; 53. SWAN Hyperactivity/Impulsivity scores; 54. Anxiety Scale for Children with Autism Spectrum Disorder (ASC-ASD) Arousal self-report scores; 55. ASC-ASD Arousal caregiver-report scores; 56. ASC-ASD Performance self-report scores; 57. ASC-ASD Performance caregiver-report scores; 58. ASC-ASD Separation self-report scores; 59. ASC-ASD Separation caregiver-report scores; 60. ASC-ASD Uncertainty self-report scores; 61. ASC-ASD Uncertainty caregiver-report scores; 62. Wechsler Abbreviated Scale of Intelligence, 2nd ed. (WASI-II) Perceptual Reasoning scaled scores; and 63. WASI-II Verbal Comprehension scaled scores.

Supplementary Table A.7 (**Middle Columns, 22-42**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****.*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Other A. H.	Other Auditory Modality					Visual Modality						Tactile Modality							Taste/Smell Modality	
			Caregiver-Report				Self-Report	Caregiver	Self-Report	Caregiver-Report					Self-Report	Caregiver-Report		Self-Report	Caregiver-Report			Self-Report	Caregiver
			22. SEQ Auditory HYPER	23. SEQ A. Enhanced Perception	24. SEQ Auditory SIRS	25. SEQ Auditory HYPO	26. BBCSS Auditory HYPO Voice	27. BBCSS Auditory Hypo Voice	28. BBCSS Visual HYPER	29. BBCSS Visual HYPER	30. SEQ Visual HYPER	31. SEQ V. Enhanced Perception	32. SEQ Visual SIRS	33. SEQ Visual HYPO	34. BBCSS Tactile HYPER	35. BBCSS Tactile HYPER	36. SEQ Tactile HYPER	37. BBCSS Social Touch Aversion	38. BBCSS Social Touch Aversion	39. SEQ Tactile SIRS	40. SEQ Tactile HYPO	41. BBCSS Selective Eating	42. BBCSS Selective Eating
Acuity	Lab	1. PTA	.71 .91	.38 .76	.80 .95	.02* .20	.16 .56	.37 .75	.69 .90	.12 .49	.35 .74	.78 .94	.34 .74	.97 .99	.99 >.99	.03* .25	.35 .74	.28 .71	.08 .40	.17 .59	.40 .77	.01* .16	.66 .90
Misophonia	Self-Report	2. MIST-A Misophonia	.055 .32	.47 .83	.91 .97	.71 .91	.38 .76	.34 .74	.02* .18	.24 .67	.13 .52	.30 .73	.74 .93	.26 .69	.02* .22	.50 .84	.12 .50	.37 .75	.15 .56	.20 .62	.38 .75	.34 .74	.35 .74
		3. DVMSQ Anger Aggression	.39 .76	.95 .98	.57 .87	.52 .84	.31 .73	.39 .76	.19 .62	.59 .87	.97 .99	.70 .91	.79 .94	.49 .84	.26 .69	.18 .61	.11 .48	.20 .62	.03* .23	.84 .95	.84 .95	.62 .89	.91 .97
		4. DVMSQ Distress Avoidance	.40 .77	.88 .96	.66 .90	.45 .81	.33 .74	.28 .71	.15 .56	.60 .88	.78 .94	.98 >.99	.36 .75	.59 .88	.21 .63	.18 .61	.07 .36	.22 .64	.03* .23	.51 .84	.65 .89	.76 .93	.79 .94
		5. DVMSQ Impairment	.20 .62	.93 .98	.35 .74	.50 .84	.07 .37	.69 .90	.22 .65	.60 .88	.33 .74	.80 .94	.83 .95	.02* .22	.35 .74	.30 .72	.17 .59	.11 .47	.03* .25	.64 .89	.64 .89	.53 .85	.74 .93
	Lab Rating	6. Breath/ Nasal Sounds	.47 .82	.42 .79	.38 .75	.21 .63	.32 .73	.03* .23	.56 .86	.68 .90	.67 .90	.80 .94	.79 .94	.57 .87	.28 .71	.22 .65	.30 .73	.24 .66	.01* .15	.69 .91	.83 .95	.25 .67	.88 .96
		7. Mouth Sounds	.63 .89	.68 .90	.30 .72	.09 .43	.58 .87	.09 .41	.99 >.99	.94 .98	.66 .90	.86 .96	.53 .85	.99 >.99	.45 .81	.62 .89	.64 .89	.62 .89	.14 .54	.76 .94	.77 .94	.12 .50	.48 .83
		8. Throat Sounds	.55 .86	.89 .96	.17 .59	.80 .94	.22 .65	.35 .74	.77 .94	.87 .96	.63 .89	.85 .96	.49 .83	.21 .63	.24 .67	.44 .80	.36 .74	.02* .21	.10 .44	.64 .89	.60 .88	.29 .72	.91 .97
		9. Repetitive Sounds	.50 .84	.37 .75	.82 .95	.33 .74	.54 .85	.23 .65	.89 .96	.84 .95	.97 .99	.52 .84	.51 .84	.68 .90	.34 .74	.90 .96	.93 .98	.64 .89	.15 .55	.25 .68	.31 .73	.68 .90	.72 .92
		10. MIST-A Loud HYP	.08 .39	.46 .82	.06 .35	.72 .92	.12 .49	.58 .87	.02* .21	.93 .98	.29 .72	.29 .72	.52 .84	.42 .79	.25 .68	.99 >.99	.12 .50	.10 .45	.96 .99	.12 .50	.70 .91	.052 .32	.88 .96

Supplementary Table A.7 (**Middle Columns, 22-42**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****.*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Other A. H.	Other Auditory Modality					Visual Modality						Tactile Modality							Taste/Smell Modality	
			Caregiver-Report				Self-Report	Caregiver	Self-Report	Caregiver-Report					Self-Report	Caregiver-Report		Self-Report	Caregiver-Report			Self-Report	Caregiver
			22. SEQ Auditory HYPER	23. SEQ A. Enhanced Perception	24. SEQ Auditory SIRS	25. SEQ Auditory HYPO	26. BBCSS Auditory HYPO Voice	27. BBCSS Auditory Hypo Voice	28. BBCSS Visual HYPER	29. BBCSS Visual HYPER	30. SEQ Visual HYPER	31. SEQ V. Enhanced Perception	32. SEQ Visual SIRS	33. SEQ Visual HYPO	34. BBCSS Tactile HYPER	35. BBCSS Tactile HYPER	36. SEQ Tactile HYPER	37. BBCSS Social Touch Aversion	38. BBCSS Social Touch Aversion	39. SEQ Tactile SIRS	40. SEQ Tactile HYPO	41. BBCSS Selective Eating	42. BBCSS Selective Eating
		11. MIST-A Pain HYP	.49 .83	.07 .37	.08 .40	.71 .91	.007** .11	.33 .74	.0003*** .02*	.69 .91	.051 .32	.93 .98	.88 .96	.09 .42	.20 .62	.81 .95	.14 .54	.13 .51	.86 .96	.92 .97	.10 .44	.01* .17	.59 .88
		12. MIST-A HYP Symptom	.23 .65	.64 .89	.87 .96	.85 .96	.10 .44	.26 .68	<.0001*** .007**	.78 .94	.79 .94	.99 >.99	.79 .94	.13 .52	.03* .23	.21 .62	.18 .60	.16 .56	.89 .96	.89 .96	.86 .96	.48 .83	.30 .73
	Lab Rating	13. LDLs	.07 .37	.65 .89	.64 .89	.60 .88	.22 .64	.97 .99	.63 .89	.003** .06	.11 .47	.62 .89	.46 .81	.99 >.99	.01* .13	.30 .73	.98 >.99	.23 .66	.20 .62	.62 .89	.34 .74	.11 .49	.16 .56
		14. Pleasant Sounds	.77 .94	.60 .88	.94 .98	.33 .74	.39 .76	.55 .86	.59 .87	.55 .86	.94 .98	.75 .93	.79 .94	.31 .73	.36 .75	.16 .56	.83 .95	.41 .78	.19 .61	.34 .74	.25 .67	.04* .29	.005** .09
		15. Un-pleasant Sounds	.04* .30	.90 .96	.36 .74	.55 .86	.49 .83	.19 .62	.63 .89	.07 .38	.049* .31	.61 .88	.47 .83	.28 .71	.31 .73	.12 .50	.46 .82	.58 .87	.02* .22	.21 .63	.30 .73	.048* .31	.98 >.99
Other/General Auditory Hyper-Reactivity	Self-Report	16. MIST-A Fear/Panic	.03* .23	.48 .83	.58 .87	.80 .95	.67 .90	.87 .96	.55 .86	.27 .71	.57 .87	.44 .80	.63 .89	.60 .88	.97 .99	.88 .96	.23 .65	.32 .73	.28 .71	.42 .79	.85 .95	.51 .84	.36 .74
		17. MIST-A Nonspeci-fic Sympt.	.01* .17	.91 .97	.75 .93	.68 .90	.03* .23	.43 .79	.14 .53	.35 .74	.20 .62	.99 >.99	.52 .84	.050* .31	.77 .94	.93 .98	.07 .37	.32 .73	.54 .85	.81 .95	.38 .75	.37 .75	.72 .92
		18. MIST-A Impair-ment	.19 .62	.68 .90	.61 .88	.33 .74	.09 .42	.97 .99	.003** .08	.049* .31	.90 .96	.77 .94	.38 .75	.23 .65	.27 .71	.72 .92	.95 .98	.17 .58	.65 .89	.13 .50	.65 .89	.03* .26	.88 .96
		19. VADQ Auditory Distraction	.24 .67	.86 .96	.32 .73	.35 .74	.16 .56	.64 .89	.005** .09	.11 .48	.14 .54	.22 .65	.65 .89	.28 .71	.46 .82	.49 .83	.19 .62	.13 .50	.86 .96	.52 .84	.49 .84	.08 .39	.32 .73
		20. BBCSS Auditory HYPER	.03* .23	.48 .83	.23 .65	.74 .93	.02* .21	.37 .75	.002** .051	.07 .36	.07 .38	.81 .95	.59 .88	.30 .73	.03* .25	.83 .95	.42 .79	.54 .85	.77 .94	.34 .74	.99 >.99	.02* .20	.23 .66

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			Caregiver-Report				Self-Report	Caregiver	Self-Report	Caregiver-Report					Self-Report	Caregiver-Report		Self-Report	Caregiver-Report			Self-Report	Caregiver
			22. SEQ Auditory HYPER	23. SEQ A. Enhanced Perception	24. SEQ Auditory SIRS	25. SEQ Auditory HYPO	26. BBCSS Auditory HYPO Voice	27. BBCSS Auditory Hypo Voice	28. BBCSS Visual HYPER	29. BBCSS Visual HYPER	30. SEQ Visual HYPER	31. SEQ V. Enhanced Perception	32. SEQ Visual SIRS	33. SEQ Visual HYPO	34. BBCSS Tactile HYPER	35. BBCSS Tactile HYPER	36. SEQ Tactile HYPER	37. BBCSS Social Touch Aversion	38. BBCSS Social Touch Aversion	39. SEQ Tactile SIRS	40. SEQ Tactile HYPO	41. BBCSS Selective Eating	42. BBCSS Selective Eating
Other Auditory Modality	Caregiver-Report	21. BBCSS Auditory HYPER	<.0001**** <.0001****	.34 .74	.86 .96	.31 .73	.37 .75	.84 .95	.89 .96	.006** .09	.0006*** .02*	.008** .12	.30 .73	.25 .67	.20 .62	.02* .18	.03* .26	.58 .87	.61 .88	.61 .88	.49 .83	.58 .87	.07 .37
		22. SEQ Auditory HYPER		.11 .48	.69 .91	.89 .96	.53 .85	.94 .98	.47 .82	.19 .61	.0001*** .008**	.047* .31	.31 .73	.79 .94	.27 .71	.39 .76	.003** .07	.29 .72	.35 .74	.22 .65	.43 .80	.26 .69	.06 .32
		23. SEQ A. Enhanced Perception	.33 [-.08, .75]		<.0001**** .0002***	.55 .86	.81 .95	.88 .96	.66 .90	.33 .74	.78 .94	.04* .29	.06 .35	.19 .61	.66 .90	.94 .98	.17 .58	.74 .93	.16 .56	.33 .74	.71 .91	.15 .56	.35 .74
		24. SEQ Auditory SIRS	.09 [-.37, .55]	.74 [.49, .99]		.50 .84	.65 .89	.99 >.99	.94 .98	.87 .96	.35 .74	.55 .86	.004** .08	.10 .45	.96 .99	.30 .73	.34 .74	.80 .94	.55 .86	.19 .61	.31 .73	.053 .32	.49 .83
		25. SEQ Auditory HYPO	.03 [-.42, .48]	.10 [-.24, .45]	.11 [-.22, .43]		.31 .73	.0007*** .03*	.58 .87	.83 .95	.90 .96	.63 .89	.81 .95	.10 .44	.38 .76	.20 .62	.21 .62	.58 .87	.88 .96	.83 .95	.14 .53	.34 .74	.32 .73
	Self	26. BBCSS Auditory HYPO Voice	.16 [-.34, .65]	.05 [-.38, .48]	.09 [-.31, .49]	.20 [-.19, .59]		.04* .29	.005** .09	.59 .87	.30 .72	.58 .87	.88 .96	.37 .75	.04* .29	.78 .94	.58 .87	.054 .32	.48 .83	.53 .85	.12 .49	.02* .21	.47 .83
	Careg.	27. BBCSS Auditory Hypo Voice	-.01 [-.36, .34]	-.02 [-.29, .25]	-.00 [-.26, .25]	.41 [.18, .63]	.25 [.01, .48]		.08 .40	.59 .87	.64 .89	.76 .93	.07 .37	.38 .75	.81 .95	.92 .98	.57 .87	.37 .75	.93 .98	.02* .22	.22 .64	.26 .69	.68 .90
Vis.	Self	28. BBCSS Visual HYPER	.18 [-.32, .67]	-.09 [-.47, .30]	-.01 [-.37, .35]	.10 [-.27, .48]	.48 [.16, .80]	.42 [-.06, .89]		.89 .96	.20 .62	.87 .96	.56 .86	.28 .72	.01* .17	.66 .90	.31 .73	.39 .76	.43 .80	.77 .94	.39 .76	.0002*** .01*	.83 .95
		29. BBCSS Visual HYPER	.26 [-.13, .66]	-.15 [-.46, .16]	-.02 [-.32, .27]	.03 [-.27, .33]	.08 [-.22, .38]	.11 [-.29, .51]	.02 [-.28, .32]		.010** .13	.43 .79	.72 .92	.73 .92	.29 .72	.04* .27	.57 .87	.56 .86	.45 .81	.30 .72	.95 .99	.58 .87	.15 .56
		30. SEQ Visual HYPER	.62 [.33, .91]	-.04 [-.31, .24]	-.12 [-.38, .14]	-.02 [-.28, .25]	.13 [-.12, .39]	.08 [-.26, .42]	.16 [-.09, .41]	.38 [.10, .66]		.03* .24	.04* .30	.84 .95	.29 .72	.21 .63	.006** .09	.98 >.99	.35 .74	.007** .11	.11 .49	.67 .90	.03* .26

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Visual Modality	Caregiver-Report	31. SEQ V. Enhanced Perception	.40 [.01, .80]	.32 [.01, .63]	.09 [-.21, .39]	.08 [-.24, .39]	.08 [-.22, .38]	.06 [-.34, .46]	-.02 [-.32, .27]	.14 [-.22, .51]	.41 [.04, .78]		.007** .11	.41 .78	.70 .91	.31 .73	.006** .10	.74 .93	.97 .99	.32 .73	.02* .20	.34 .74	.053 .32
		32. SEQ Visual SIRS	.16 [-.16, .48]	.23 [-.01, .47]	.32 [.11, .53]	.03 [-.21, .27]	.02 [-.22, .25]	.27 [-.02, .57]	.07 [-.16, .29]	.05 [-.23, .33]	.30 [.01, .58]	.33 [.10, .56]		.051 .31	.61 .88	.84 .95	.32 .73	.12 .49	.74 .93	.0006*** .02*	.82 .95	.04* .30	.04* .29
		33. SEQ Visual HYPO	.05 [-.29, .38]	.17 [-.09, .42]	.20 [-.04, .43]	.20 [-.04, .44]	-.10 [-.34, .13]	.14 [-.18, .45]	-.13 [-.36, .11]	.05 [-.24, .34]	.03 [-.28, .34]	.11 [-.15, .37]	.32 [-.00, .65]		.73 .92	.83 .95	.45 .81	.19 .61	.58 .87	.23 .66	.23 .65	.23 .65	.73 .92
Tactile Modality	Self	34. BBCSS Tactile HYPER	.26 [-.21, .73]	.09 [-.31, .48]	.01 [-.36, .38]	.16 [-.21, .53]	.32 [.01, .63]	.06 [-.42, .53]	.39 [.08, .70]	.20 [-.18, .59]	.23 [-.20, .67]	.07 [-.32, .46]	-.13 [-.62, .37]	.08 [-.39, .55]		.11 .47	.20 .62	.02* .19	.15 .55	.89 .96	.16 .56	.16 .56	.50 .84
	Caregiver	35. BBCSS Tactile HYPER	.15 [-.21, .51]	-.01 [-.29, .27]	-.13 [-.40, .13]	.17 [-.09, .43]	.04 [-.23, .31]	-.02 [-.37, .34]	-.06 [-.31, .20]	.30 [.02, .59]	.21 [-.12, .54]	.14 [-.14, .43]	-.04 [-.41, .33]	.04 [-.32, .40]	.22 [-.05, .48]		.001** .04*	.49 .83	.0004*** .02*	.15 .55	.03* .23	.16 .56	.0009*** .03*
		36. SEQ Tactile HYPER	.51 [.18, .84]	.19 [-.08, .47]	-.13 [-.39, .14]	.17 [-.10, .44]	.07 [-.20, .34]	.10 [-.25, .45]	.13 [-.13, .39]	.09 [-.23, .41]	.45 [.14, .76]	.38 [.12, .64]	.19 [-.19, .56]	.14 [-.23, .50]	.17 [-.10, .45]	.51 [.22, .81]		.35 .74	<.0001*** .008**	.13 .52	.008** .12	.22 .64	.001** .04*
	Self	37. BBCSS Social Touch-h Aversion	.27 [-.24, .78]	-.07 [-.50, .36]	-.05 [-.44, .34]	-.12 [-.53, .30]	.36 [-.01, .72]	-.23 [-.74, .28]	.16 [-.21, .53]	.12 [-.31, .56]	.00 [-.48, .49]	.07 [-.35, .49]	-.41 [-.93, .11]	-.33 [-.82, .17]	.44 [.08, .80]	.17 [-.32, .65]	.21 [-.25, .68]		.56 .86	.08 .38	.37 .75	.42 .79	.69 .90
		38. BBCSS Social Touch-h Aversion	.26 [-.30, .82]	.26 [-.11, .63]	.11 [-.27, .49]	.03 [-.38, .44]	.13 [-.25, .51]	.02 [-.46, .50]	-.15 [-.53, .23]	.16 [-.27, .60]	.23 [-.27, .74]	-.01 [-.41, .40]	.09 [-.46, .64]	.15 [-.40, .70]	.33 [-.12, .78]	.89 [.43, 1.34]	.89 [.49, 1.29]	.12 [-.30, .54]		.03* .25	.40 .77	.68 .90	.049* .31
		39. SEQ Tactile SIRS	.24 [-.15, .63]	.15 [-.16, .45]	.19 [-.10, .47]	.03 [-.27, .33]	-.09 [-.37, .20]	.41 [.06, .77]	-.04 [-.32, .24]	.18 [-.16, .52]	.48 [.14, .82]	.16 [-.16, .47]	.65 [.30, 1.00]	.23 [-.16, .62]	-.02 [-.32, .28]	.27 [-.10, .64]	.27 [-.09, .62]	-.27 [-.58, .03]	.35 [.03, .66]		.20 .62	.68 .90	.12 .50

Supplementary Table A.7 (**Middle Columns, 22-42**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****.*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Other A. H.	Other Auditory Modality					Visual Modality						Tactile Modality							Taste/Smell Modality	
			Caregiver-Report				Self-Report	Caregiver	Self-Report	Caregiver-Report					Self-Report	Caregiver-Report		Self-Report	Caregiver-Report			Self-Report	Caregiver
			22. SEQ Auditory HYPER	23. SEQ A. Enhanced Perception	24. SEQ Auditory SIRS	25. SEQ Auditory HYPO	26. BBCSS Auditory HYPO Voice	27. BBCSS Auditory Hypo Voice	28. BBCSS Visual HYPER	29. BBCSS Visual HYPER	30. SEQ Visual HYPER	31. SEQ V. Enhanced Perception	32. SEQ Visual SIRS	33. SEQ Visual HYPO	34. BBCSS Tactile HYPER	35. BBCSS Tactile HYPER	36. SEQ Tactile HYPER	37. BBCSS Social Touch Aversion	38. BBCSS Social Touch Aversion	39. SEQ Tactile SIRS	40. SEQ Tactile HYPO	41. BBCSS Selective Eating	42. BBCSS Selective Eating
	Caregiver	40. SEQ Tactile HYPO	.17 [-.27, .61]	-.06 [-.41, .28]	-.16 [-.48, .16]	.24 [-.08, .56]	.24 [-.06, .55]	.25 [-.16, .67]	.13 [-.18, .45]	-.01 [-.37, .35]	.32 [-.08, .72]	.39 [.07, .72]	-.05 [-.50, .40]	.26 [-.17, .69]	.23 [-.10, .55]	.44 [.05, .82]	.50 [.14, .87]	.16 [-.20, .52]	.15 [-.21, .51]	.23 [-.13, .59]		.25 .68	.44 .80
Taste/Smell	Self	41. BBCSS Selective Eating	.28 [-.22, .79]	-.31 [-.73, .12]	-.38 [-.76, .00]	.19 [-.21, .60]	.41 [.07, .75]	.29 [-.22, .80]	.60 [.32, .89]	.12 [-.32, .56]	.10 [-.38, .58]	-.20 [-.61, .22]	-.55 [-1.09, -.02]	-.32 [-.85, .21]	.27 [-.11, .66]	.34 [-.14, .82]	.28 [-.18, .74]	.15 [-.22, .52]	.08 [-.33, .50]	-.09 [-.53, .35]	.22 [-.16, .59]		.30 .73
	Careg.	42. BBCSS Selective Eating	.40 [-.01, .82]	.14 [-.16, .44]	.10 [-.19, .38]	.15 [-.15, .44]	.10 [-.19, .40]	-.08 [-.45, .30]	.03 [-.25, .31]	.23 [-.09, .55]	.40 [.03, .77]	.29 [-.00, .58]	.38 [.02, .75]	.06 [-.31, .44]	.10 [-.21, .42]	.53 [.24, .83]	.60 [.25, .95]	-.06 [-.37, .25]	.27 [.00, .54]	.24 [-.07, .54]	.12 [-.19, .42]	.15 [-.14, .45]	
Taste/Smell Modalities	Self	43. BBCSS Ingestive Problems	.25 [-.37, .87]	.33 [-.12, .77]	.30 [-.14, .73]	.19 [-.28, .65]	.42 [.06, .78]	.39 [-.11, .90]	.11 [-.29, .50]	-.02 [-.49, .45]	.04 [-.52, .61]	-.06 [-.49, .37]	-.02 [-.60, .55]	-.37 [-.92, .18]	-.10 [-.56, .36]	.07 [-.43, .57]	.27 [-.26, .79]	.21 [-.20, .62]	.21 [-.22, .64]	.18 [-.27, .64]	-.04 [-.46, .37]	.13 [-.28, .54]	.20 [-.29, .69]
	Careg.	44. BBCSS Ingestive Problems	.52 [.11, .93]	-.00 [-.37, .36]	-.11 [-.45, .24]	-.12 [-.46, .21]	-.03 [-.38, .32]	-.28 [-.75, .19]	-.03 [-.37, .32]	.11 [-.27, .49]	.29 [-.12, .69]	.34 [-.02, .70]	.28 [-.30, .86]	.02 [-.52, .55]	-.02 [-.42, .39]	-.19 [-.62, .23]	.09 [-.33, .52]	-.14 [-.53, .25]	-.29 [-.66, .08]	-.17 [-.57, .23]	-.05 [-.43, .32]	.00 [-.37, .37]	.19 [-.20, .59]
	Self	45. BBCSS Digestive Problems	.19 [-.31, .69]	.23 [-.18, .63]	.42 [.05, .79]	.23 [-.16, .63]	.27 [-.07, .61]	.27 [-.23, .77]	.33 [-.03, .69]	.28 [-.14, .71]	.04 [-.43, .52]	.07 [-.33, .48]	.38 [-.16, .92]	.15 [-.37, .68]	.44 [.08, .81]	.03 [-.47, .52]	.20 [-.25, .65]	.34 [-.03, .71]	.18 [-.22, .59]	.10 [-.33, .53]	.10 [-.29, .49]	.00 [-.37, .37]	-.25 [-.71, .20]
	Caregiver-Report	46. BBCSS Digestive Problems	.20 [-.29, .68]	-.07 [-.47, .33]	-.07 [-.44, .30]	-.03 [-.39, .34]	.00 [-.37, .37]	-.02 [-.53, .49]	-.10 [-.44, .24]	.34 [-.06, .74]	.41 [-.04, .85]	.05 [-.36, .45]	.21 [-.40, .82]	.14 [-.41, .70]	.37 [.00, .74]	.30 [-.14, .74]	.50 [.07, .92]	.37 [.02, .71]	.41 [.06, .76]	.23 [-.19, .65]	.04 [-.35, .44]	-.20 [-.56, .17]	-.05 [-.50, .40]
		47. SEQ Gustatory/Olf-act. HYPER	.59 [.22, .96]	-.00 [-.32, .32]	-.17 [-.47, .13]	.10 [-.21, .41]	.01 [-.30, .31]	.03 [-.37, .43]	.03 [-.26, .33]	.05 [-.31, .41]	.53 [.18, .88]	.29 [-.02, .61]	.46 [.06, .85]	.28 [-.12, .69]	-.01 [-.33, .32]	.41 [.04, .77]	.60 [.28, .92]	-.17 [-.49, .15]	.17 [-.15, .49]	.20 [-.14, .54]	.13 [-.18, .44]	.28 [-.03, .59]	.61 [.32, .90]
		48. SEQ Gustatory/Olf-actory EP	.50 [.09, .90]	.22 [-.11, .54]	.04 [-.27, .36]	.17 [-.15, .49]	.11 [-.20, .42]	-.04 [-.45, .37]	-.14 [-.45, .16]	.26 [-.11, .62]	.45 [.08, .83]	.55 [.26, .84]	.42 [-.00, .84]	.06 [-.37, .49]	.06 [-.27, .40]	.55 [.18, .92]	.68 [.36, 1.00]	-.10 [-.44, .25]	.43 [.13, .73]	.39 [.05, .72]	.20 [-.12, .52]	.06 [-.28, .40]	.73 [.43, 1.03]

Supplementary Table A.7 (**Middle Columns, 22-42**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****.*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Other A. H.	Other Auditory Modality					Visual Modality						Tactile Modality							Taste/Smell Modality	
			Caregiver-Report				Self-Report	Caregiver	Self-Report	Caregiver-Report					Self-Report	Caregiver-Report		Self-Report	Caregiver-Report			Self-Report	Caregiver
			22. SEQ Auditory HYPER	23. SEQ A. Enhanced Perception	24. SEQ Auditory SIRS	25. SEQ Auditory HYPO	26. BBCSS Auditory HYPO Voice	27. BBCSS Auditory Hypo Voice	28. BBCSS Visual HYPER	29. BBCSS Visual HYPER	30. SEQ Visual HYPER	31. SEQ V. Enhanced Perception	32. SEQ Visual SIRS	33. SEQ Visual HYPO	34. BBCSS Tactile HYPER	35. BBCSS Tactile HYPER	36. SEQ Tactile HYPER	37. BBCSS Social Touch-h Aversion	38. BBCSS Social Touch-h Aversion	39. SEQ Tactile SIRS	40. SEQ Tactile HYPO	41. BBCSS Selective Eating	42. BBCSS Selective Eating
		49. SEQ Gustatory/Olfactory SIRS	.48 [.07, .90]	.22 [-.11, .56]	.29 [-.02, .60]	.13 [-.20, .46]	.10 [-.23, .42]	.44 [.04, .84]	.26 [-.04, .56]	.12 [-.27, .50]	.51 [.13, .89]	.14 [-.21, .50]	.70 [.30, 1.09]	.23 [-.20, .67]	.19 [-.15, .52]	.04 [-.38, .47]	.48 [.11, .85]	.16 [-.18, .50]	.30 [-.05, .65]	.60 [.29, .91]	.20 [-.13, .53]	.04 [-.30, .37]	.14 [-.26, .55]
		50. SEQ Gustatory/Olf-act. HYPO	.01 [-.46, .48]	-.20 [-.56, .15]	-.16 [-.50, .18]	.25 [-.09, .59]	-.03 [-.38, .32]	.40 [-.03, .82]	.06 [-.28, .39]	-.18 [-.58, .23]	-.08 [-.52, .35]	-.30 [-.66, .05]	.16 [-.31, .64]	.47 [.03, .91]	-.11 [-.47, .25]	-.11 [-.55, .33]	.03 [-.40, .45]	-.18 [-.57, .20]	-.08 [-.47, .32]	.14 [-.25, .53]	.16 [-.18, .51]	.08 [-.27, .42]	-.29 [-.73, .15]
Aut.		51. SCQ Total	.23 [-.00, .47]	.04 [-.15, .23]	.04 [-.14, .22]	.05 [-.13, .23]	.05 [-.12, .21]	.02 [-.22, .25]	-.01 [-.18, .17]	.06 [-.15, .27]	.13 [-.09, .36]	.10 [-.09, .30]	.07 [-.18, .32]	.13 [-.11, .37]	-.01 [-.19, .17]	.10 [-.13, .33]	.10 [-.12, .32]	-.08 [-.25, .10]	.16 [-.03, .35]	.10 [-.10, .30]	.11 [-.07, .29]	.12 [-.05, .30]	.20 [-.02, .42]
ADHD Traits		52. SWAN Inattention	.16 [-.23, .55]	-.05 [-.35, .25]	.09 [-.19, .38]	.32 [.05, .59]	.23 [-.03, .49]	.29 [-.07, .65]	.23 [-.04, .50]	-.06 [-.40, .28]	.10 [-.26, .47]	.02 [-.29, .33]	.16 [-.24, .55]	.01 [-.38, .40]	.36 [.09, .62]	.30 [-.05, .66]	.22 [-.12, .57]	.20 [-.09, .50]	.02 [-.29, .34]	.23 [-.08, .55]	.19 [-.09, .48]	.09 [-.20, .39]	-.05 [-.41, .30]
		53. SWAN Hyperactive Impulsive	.02 [-.36, .41]	-.14 [-.44, .15]	-.03 [-.31, .25]	.21 [-.07, .49]	.27 [.02, .53]	.36 [.02, .71]	.19 [-.07, .45]	.05 [-.28, .39]	.04 [-.32, .40]	.02 [-.28, .33]	.15 [-.24, .54]	-.26 [-.63, .12]	.15 [-.12, .43]	.08 [-.28, .44]	-.01 [-.36, .34]	.08 [-.20, .36]	.02 [-.32, .37]	.07 [-.25, .39]	-.05 [-.34, .24]	.13 [-.16, .42]	-.05 [-.42, .31]
Anxiety	Self	54. ASC-ASD Arousal	.03 [-.44, .50]	-.24 [-.59, .12]	.08 [-.26, .42]	.11 [-.25, .47]	.27 [-.05, .60]	.35 [-.10, .81]	.33 [.02, .64]	.40 [.03, .76]	.09 [-.35, .53]	-.34 [-.70, .02]	-.11 [-.60, .38]	-.42 [-.87, .02]	-.07 [-.41, .27]	-.28 [-.69, .14]	-.27 [-.69, .16]	.26 [-.07, .60]	-.21 [-.61, .19]	-.06 [-.46, .34]	-.14 [-.49, .22]	.08 [-.27, .43]	-.27 [-.68, .14]
Anxiety	Care	55. ASC-ASD Arousal	.39 [-.05, .83]	.04 [-.32, .39]	.21 [-.12, .54]	.10 [-.24, .44]	.09 [-.24, .42]	.28 [-.15, .71]	.21 [-.11, .53]	.30 [-.08, .69]	.22 [-.21, .64]	-.08 [-.44, .29]	.37 [-.08, .83]	-.05 [-.51, .40]	-.07 [-.42, .29]	.05 [-.39, .48]	.05 [-.37, .46]	.16 [-.20, .52]	.21 [-.19, .61]	.29 [-.08, .67]	-.09 [-.44, .25]	.15 [-.20, .50]	.20 [-.24, .64]
Anxiety	Self	56. ASC-ASD Performance	.16 [-.33, .65]	.12 [-.26, .50]	.20 [-.15, .55]	-.07 [-.45, .30]	.31 [-.04, .66]	-.13 [-.62, .36]	.16 [-.18, .50]	.41 [.01, .82]	.25 [-.20, .71]	.13 [-.27, .52]	.26 [-.24, .77]	-.55 [-1.00, -.09]	.10 [-.27, .47]	.11 [-.35, .58]	-.04 [-.49, .41]	.07 [-.30, .45]	.04 [-.38, .45]	.11 [-.31, .52]	-.22 [-.59, .15]	.08 [-.27, .43]	.13 [-.33, .59]
Anxiety	Careg.	57. ASC-ASD Performance	.26 [-.14, .66]	.07 [-.24, .39]	.14 [-.15, .44]	.04 [-.26, .34]	-.09 [-.38, .19]	-.07 [-.45, .32]	-.13 [-.41, .16]	.34 [.01, .67]	.24 [-.14, .61]	-.03 [-.35, .29]	.33 [-.07, .73]	.05 [-.36, .45]	.00 [-.31, .31]	.36 [-.01, .72]	.05 [-.32, .41]	.05 [-.28, .39]	.20 [-.12, .53]	.36 [.04, .67]	-.17 [-.47, .13]	-.11 [-.42, .21]	.21 [-.18, .59]
Anxiety	Self	58. ASC-ASD Separation	.05 [-.44, .55]	-.12 [-.49, .26]	-.20 [-.55, .16]	-.02 [-.40, .36]	.02 [-.33, .37]	-.16 [-.64, .33]	-.08 [-.42, .26]	.22 [-.20, .64]	-.00 [-.47, .46]	-.17 [-.56, .22]	-.11 [-.62, .40]	-.31 [-.79, .17]	.04 [-.32, .41]	.01 [-.45, .48]	-.12 [-.57, .33]	.10 [-.27, .46]	-.13 [-.56, .30]	-.30 [-.71, .10]	-.43 [-.77, -.08]	-.12 [-.47, .24]	-.21 [-.67, .25]

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			Other A. H.	Other Auditory Modality					Visual Modality						Tactile Modality							Taste/Smell Modality	
				Caregiver-Report			Self-Report	Caregiver	Self-Report	Caregiver-Report					Self-Report	Caregiver-Report		Self-Report	Caregiver-Report			Self-Report	Caregiver
			22. SEQ Auditory HYPER	23. SEQ A. Enhanced Perception	24. SEQ Auditory SIRS	25. SEQ Auditory HYPO	26. BBCSS Auditory HYPO Voice	27. BBCSS Auditory Hypo Voice	28. BBCSS Visual HYPER	29. BBCSS Visual HYPER	30. SEQ Visual HYPER	31. SEQ V. Enhanced Perception	32. SEQ Visual SIRS	33. SEQ Visual HYPO	34. BBCSS Tactile HYPER	35. BBCSS Tactile HYPER	36. SEQ Tactile HYPER	37. BBCSS Social Touch Aversion	38. BBCSS Social Touch Aversion	39. SEQ Tactile SIRS	40. SEQ Tactile HYPO	41. BBCSS Selective Eating	42. BBCSS Selective Eating
Careg.	59. ASC-ASD Separation	.41 [-.01, .84]	.09 [-.25, .43]	.21 [-.11, .53]	-.03 [-.36, .30]	-.07 [-.38, .23]	.05 [-.37, .47]	-.10 [-.41, .22]	.53 [.19, .86]	.37 [-.02, .77]	.23 [-.12, .57]	.43 [-.01, .86]	.11 [-.33, .55]	.06 [-.28, .39]	-.05 [-.47, .36]	-.02 [-.42, .38]	.17 [-.18, .52]	.04 [-.35, .42]	.28 [-.08, .64]	-.25 [-.57, .08]	-.24 [-.57, .08]	-.05 [-.48, .37]
Self	60. ASC-ASD Uncertainty	-.06 [-.54, .42]	-.23 [-.59, .13]	-.11 [-.46, .23]	-.14 [-.50, .23]	.34 [.01, .68]	-.02 [-.49, .46]	.32 [.01, .63]	.42 [.03, .81]	.36 [-.07, .79]	-.12 [-.50, .26]	-.02 [-.51, .48]	-.45 [-.90, -.01]	.16 [-.19, .52]	.11 [-.34, .55]	-.01 [-.45, .43]	.21 [-.15, .57]	.09 [-.32, .50]	-.10 [-.50, .31]	-.12 [-.48, .24]	.11 [-.24, .46]	-.07 [-.53, .38]
Careg.	61. ASC-ASD Uncertainty	.36 [-.01, .73]	.08 [-.22, .38]	.02 [-.26, .31]	-.08 [-.37, .21]	-.06 [-.34, .22]	-.19 [-.56, .18]	-.07 [-.33, .20]	.37 [.05, .69]	.31 [-.05, .66]	-.04 [-.35, .27]	.07 [-.33, .47]	-.12 [-.51, .26]	.03 [-.26, .32]	.17 [-.19, .54]	.17 [-.18, .52]	.04 [-.27, .34]	.23 [-.09, .56]	.15 [-.17, .47]	-.16 [-.45, .13]	-.05 [-.34, .23]	.02 [-.35, .40]
Cognition/IQ — Clinical Assess.	62. WASI Perceptual Reasoning	-.11 [-.59, .36]	.22 [-.15, .58]	.22 [-.13, .56]	.06 [-.29, .42]	-.25 [-.57, .08]	.31 [-.14, .75]	-.13 [-.46, .20]	.14 [-.28, .55]	.06 [-.39, .51]	.06 [-.32, .44]	.31 [-.17, .79]	.35 [-.11, .82]	-.05 [-.41, .30]	-.20 [-.64, .25]	-.17 [-.60, .27]	-.39 [-.72, -.06]	.16 [-.24, .55]	.40 [.03, .78]	.09 [-.27, .45]	-.16 [-.51, .19]	-.05 [-.50, .41]
	63. WASI Verbal Comprehend	.08 [-.39, .54]	-.07 [-.43, .29]	.05 [-.29, .39]	-.13 [-.48, .21]	-.28 [-.61, .04]	-.22 [-.66, .22]	-.13 [-.46, .20]	.30 [-.09, .69]	.19 [-.24, .63]	.02 [-.35, .40]	.07 [-.41, .55]	-.38 [-.83, .06]	.10 [-.26, .45]	-.00 [-.44, .44]	-.18 [-.60, .24]	.06 [-.31, .44]	.19 [-.23, .61]	.08 [-.31, .46]	-.16 [-.50, .19]	-.14 [-.50, .23]	.15 [-.29, .60]

From Left Columns: 1. Pure Tone Average (PTA) hearing thresholds; 2. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) Misophonia scores; 3. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) Anger/Aggression scores; 4. DVMSQ Distress/Avoidance scores; 5. DVMSQ Impairment scores; 6. median ratings (i.e., not CDS scores) of breathing/nasal misophonic trigger sounds (“breath running”, “sniffling”, “snoring”) from the Core Discriminant Sounds (CDS) task; 7. median ratings of mouth trigger sounds (“chewing 1” , “chewing 2”, “slurping”); 8. median ratings of throat trigger sounds (“swallowing”, “throat clearing”); 9. median ratings of repetitive trigger sounds (“keyboard”, “pen clicking”); 10. MIST-A (Loudness) Hyperacusis scores; 11. MIST-A Pain (Hyperacusis) scores; 12. MISTA-A Hyperacusis Symptom scores; 13. Loudness Discomfort Levels (LDLs) averaged across frequencies; 14. median ratings of conventionally-pleasant sounds from the CDS task; 15. median ratings of conventionally-*un*pleasant sounds from the CDS task; 16. MIST-A Fear/Panic scores; 17. MIST-A Systemic Nonspecific Symptom scores; 18. MIST-A Impairment scores, reflecting impacts of sound intolerance on daily life; 19. VADQ Auditory Distractibility scores; 20. Brain-Body Center Sensory Scales (BBCSS) Auditory Hypersensitivity self-report scores; and 21. BBCSS Auditory Hypersensitivity caregiver-report scores.
From Middle Columns: 22. Sensory Experiences Questionnaire, Version 3.0 (SEQ-3.0) Auditory Hyperresponsivity scores; 23. SEQ-3.0 Auditory Enhanced Perception scores; 24. SEQ-3.0 Auditory Sensory Interests, Repetitions, and Seeking (SIRS) scores; 25. SEQ-3.0 Auditory Hyporesponsiveness scores; 26. BBCSS Auditory Hyposensitivity to Voices self-report scores; 27. BBCSS Auditory Hyposensitivity to Voices caregiver-report scores; 28. BBCSS Visual Hypersensitivity self-report scores; 29. BBCSS Visual Hypersensitivity caregiver-report scores; 30. SEQ-3.0 Visual Hyperresponsiveness scores; 31. SEQ-3.0 Visual Enhanced Perception Scores; 32. SEQ-3.0 Visual Sensory Interests, Repetitions, and Seeking (SIRS) scores; 33. SEQ-3.0 Visual Hyporesponsiveness scores; 34. BBCSS Tactile Hypersensitivity self-report scores; 35. BBCSS Tactile Hypersensitivity caregiver-report scores; 36. SEQ-3.0 Tactile Hyperresponsiveness scores; 37. BBCSS Affiliative Touch Aversion self-report scores; 38. BBCSS Affiliative Touch Aversion caregiver-report scores; 39. SEQ-3.0 Tactile Sensory Interests, Repetitions, and Seeking (SIRS) scores; 40. SEQ-3.0 Tactile Hyporesponsiveness scores; 41. BBCSS Selective Eating self-report scores; and 42. BBCSS Selective Eating caregiver-report scores.
From Right Columns: 43. BBCSS Ingestive Problems self-report scores; 44. BBCSS Ingestive Problems caregiver-report scores; 45. BBCSS Digestive Problems self-report scores; 46. BBCSS Digestive Problems caregiver-report scores; 47. SEQ-3.0 Gustatory/Olfactory Hyperresponsiveness scores; 48. SEQ-3.0 Gustatory/Olfactory Enhanced Perception scores; 49. SEQ-3.0 Gustatory/Olfactory Sensory Interests, Repetitions, and Seeking (SIRS) scores; 50. SEQ-3.0 Gustatory/Olfactory Hyporesponsiveness scores; 51. Social Communication Questionnaire (SCQ) total autistic trait scores; 52. Strengths and Weaknesses of ADHD-symptoms and Normal-behavior (SWAN) Inattention scores; 53. SWAN Hyperactivity/Impulsivity scores; 54. Anxiety Scale for Children with Autism Spectrum Disorder (ASC-ASD) Arousal self-report scores; 55. ASC-ASD Arousal caregiver-report scores; 56. ASC-ASD Performance self-report scores; 57. ASC-ASD Performance caregiver-report scores; 58. ASC-ASD Separation self-report scores; 59. ASC-ASD Separation caregiver-report scores; 60. ASC-ASD Uncertainty self-report scores; 61. ASC-ASD Uncertainty caregiver-report scores; 62. Wechsler Abbreviated Scale of Intelligence, 2nd ed. (WASI-II) Perceptual Reasoning scaled scores; and 63. WASI-II Verbal Comprehension scaled scores.

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Supplementary Table A.7 (**Right Columns, 43-63**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences.***
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Taste/Smell Modalities								Autism	ADHD Traits		Anxiety								Cognition/IQ	
			Self-Report	Caregiver	Self-Report	Caregiver-Report								Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Clinical Assessment	
			43. BBCSS Ingestive Problems	44. BBCSS Ingestive Problems	45. BBCSS Digestive Problems	46. BBCSS Digestive Problems	47. SEQ Gu-statory/Olf-act. HYPER	48. SEQ Gu-statory/Olf-actory EP	49. SEQ Gu-statory/Olf-actory SIRS	50. SEQ Gu-statory/Olf-act. HYPO	51. SCQ Total	52. SWAN Inattention	53. SWAN Hyperactive Impulsive	54. ASC-ASD Arousal	55. ASC-ASD Arousal	56. ASC-ASD Perfor-mance	57. ASC-ASD Perfor-mance	58. ASC-ASD Separation	59. ASC-ASD Separation	60. ASC-ASD Uncertainty	61. ASC-ASD Uncertainty	62. WASI Perceptual Reasoning	63. WASI Verbal Co-mprehend
Acuit	Lab	1. PTA	.34 .74	.33 .74	.48 .83	.16 .56	.84 .95	.39 .76	.54 .85	.84 .95	.77 .94	.15 .56	.25 .68	.44 .80	.12 .50	.59 .87	.10 .46	.50 .84	.61 .88	.64 .89	.39 .76	.88 .96	.67 .90
Misophonia	Self-Report	2. MIST-A Misophonia	.20 .62	.66 .90	.005** .09	.27 .70	.30 .73	.51 .84	.06 .36	.43 .80	.54 .86	.07 .38	.07 .36	.04* .27	.07 .36	.010** .13	.18 .61	.04* .29	.06 .35	.04* .27	.04* .29	.50 .84	.30 .73
		3. DVMSQ Anger Aggression	.85 .95	.0008*** .03*	.79 .94	.82 .95	.49 .83	.73 .92	.048* .31	.99 >.99	.56 .86	.050* .31	.006** .10	.81 .95	.13 .50	.86 .96	.03* .25	.75 .93	.37 .75	.70 .91	.67 .90	.19 .61	.64 .89
		4. DVMSQ Distress Avoidance	.69 .91	.002** .051	.62 .89	.69 .90	.56 .86	.54 .85	.01* .14	.98 >.99	.51 .84	.02* .22	.007** .11	.83 .95	.06 .35	.99 >.99	.02* .22	.81 .95	.32 .73	.82 .95	.57 .87	.24 .66	.58 .87
		5. DVMSQ Impair-ment	.66 .90	.01* .15	.91 .97	.76 .94	.41 .78	.55 .86	.13 .52	.28 .71	.82 .95	.13 .51	.01* .17	.69 .91	.36 .74	.44 .80	.07 .36	.89 .96	.36 .75	.65 .89	.44 .80	.17 .59	.69 .90
	Lab Rating	6. Breath/ Nasal Sounds	.29 .72	.35 .74	.35 .74	.51 .84	.40 .77	.97 .99	.81 .95	.81 .95	.51 .84	.84 .95	.36 .74	.21 .63	.51 .84	.41 .78	.92 .98	.97 .99	.94 .98	.33 .74	.77 .94	.50 .84	.42 .79
		7. Mouth Sounds	.40 .77	.81 .95	.43 .79	.75 .93	.48 .83	.77 .94	.96 .99	.14 .52	.61 .88	.53 .85	.58 .87	.37 .75	.51 .84	.42 .79	.94 .98	.52 .84	.82 .95	.45 .81	.87 .96	.31 .73	.30 .73
		8. Throat Sounds	.45 .81	.29 .72	.32 .73	.42 .79	.60 .88	.95 .98	.87 .96	.70 .91	.34 .74	.94 .98	.65 .89	.29 .72	.85 .96	.45 .81	.46 .82	.85 .96	.95 .98	.45 .81	.96 .99	.49 .84	.47 .82
		9. Repetitive Sounds	.10 .46	.92 .97	.53 .85	.67 .90	.70 .91	.48 .83	.36 .75	.61 .88	.70 .91	.07 .37	.52 .84	.89 .96	.68 .90	.38 .75	.37 .75	.99 >.99	.26 .69	.40 .77	.88 .96	.050 .31	.009** .12
Hyperacusis	Self-Report	10. MIST-A Loud HYP	.42 .79	.53 .85	.06 .36	.31 .73	.58 .87	.40 .77	.71 .91	.66 .90	.10 .44	.89 .96	.34 .74	.21 .63	.08 .41	.02* .19	.42 .79	.009** .12	.28 .71	.007** .11	.02* .22	.74 .93	.69 .90
		11. MIST-A Pain HYP	.15 .56	.31 .73	.30 .72	.28 .71	.46 .82	.84 .95	.25 .68	.36 .75	.67 .90	.26 .69	.43 .80	.02* .18	.046* .30	.02* .20	.91 .97	.22 .65	.94 .98	.005** .09	.22 .65	.90 .96	.95 .99

Supplementary Table A.7 (**Right Columns, 43-63**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences.***
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Taste/Smell Modalities								Autism	ADHD Traits		Anxiety								Cognition/IQ	
			Self-Report	Caregiver	Self-Report	Caregiver-Report								Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Clinical Assessment	
			43. BBCSS Ingestive Problems	44. BBCSS Ingestive Problems	45. BBCSS Digestive Problems	46. BBCSS Digestive Problems	47. SEQ Gu-statory/Olf-act. HYPER	48. SEQ Gu-statory/Olf-actory EP	49. SEQ Gu-statory/Olf-actory SIRS	50. SEQ Gu-statory/Olf-act. HYPO	51. SCQ Total	52. SWAN Inattention	53. SWAN Hyperactive Impulsive	54. ASC-ASD Arousal	55. ASC-ASD Arousal	56. ASC-ASD Perfor-mance	57. ASC-ASD Perfor-mance	58. ASC-ASD Separation	59. ASC-ASD Separation	60. ASC-ASD Uncertainty	61. ASC-ASD Uncertainty	62. WASI Perceptual Reasoning	63. WASI Verbal Co-mprehend
Other/General Auditory Hyper-Reactivity	Lab Rating	12. MIST-A HYP Symptom	.051 .31	.94 .98	.02* .20	.18 .61	.14 .52	.70 .91	.03* .25	.45 .81	.45 .81	.055 .32	.08 .40	.008** .12	.15 .55	.10 .46	.86 .96	.06 .35	.25 .68	.04* .29	.25 .68	.37 .75	.46 .82
		13. LDLs	.45 .81	.18 .60	.95 .98	.75 .93	.20 .62	.88 .96	.73 .92	.46 .82	.12 .49	.81 .95	.69 .90	.56 .86	.77 .94	.47 .82	.65 .89	.68 .90	.26 .69	.62 .89	.49 .83	.53 .85	.048* .31
		14. Pleasant Sounds	.27 .70	.88 .96	.01* .17	.33 .74	.11 .48	.98 >.99	.32 .73	.16 .56	.43 .79	.03* .23	.15 .56	.51 .84	.72 .92	.55 .86	.56 .86	.52 .84	.09 .44	.61 .88	.31 .73	.79 .94	.08 .40
		15. Un-pleasant Sounds	.21 .63	.77 .94	.84 .95	.050 .31	.13 .51	.51 .84	.81 .95	.83 .95	.83 .95	.87 .96	.95 .99	>.99 >.99	.53 .85	.44 .80	.13 .51	.19 .61	.29 .72	.39 .76	.07 .37	.99 >.99	.51 .84
	Self-Report	16. MIST-A Fear/Panic	.67 .90	.91 .97	.11 .47	.41 .78	.75 .93	.77 .94	.39 .76	.76 .94	.71 .91	.28 .71	.38 .75	.21 .63	.11 .48	.21 .63	.75 .93	.09 .42	.02* .20	.38 .76	.25 .68	.32 .73	.69 .91
		17. MIST-A Nonspeci-fic Sympt.	.002** .052	.34 .74	.32 .73	.23 .66	.72 .92	.53 .85	.35 .74	.97 .99	.55 .86	.47 .82	.47 .83	.004** .09	.23 .65	.15 .56	.89 .96	.15 .56	.59 .87	.04* .30	.27 .70	.10 .44	.06 .34
		18. MIST-A Impair-ment	.96 .99	.78 .94	.15 .55	.67 .90	.47 .82	.20 .62	.71 .91	.08 .40	.91 .97	.64 .89	.63 .89	.004** .08	.09 .43	.07 .36	.34 .74	.24 .67	.61 .88	.008** .12	.054 .32	.64 .89	.86 .96
		19. VADQ Auditory Distraction	.83 .95	.96 .99	.03* .25	.09 .42	.97 .99	.90 .96	.24 .67	.70 .91	.82 .95	.81 .95	.32 .73	.23 .65	.32 .73	.048* .31	.17 .59	.13 .52	.10 .44	.03* .23	.10 .45	.97 .99	.62 .89
		20. BBCSS Auditory HYPER	>.99 >.99	.68 .90	.08 .39	.14 .53	.84 .95	.89 .96	.26 .69	.51 .84	.81 .95	.51 .84	.16 .56	.04* .29	.73 .92	.02* .22	.18 .59	.08 .39	.11 .48	.01* .17	.04* .28	.28 .71	.78 .94
		21. BBCSS Auditory HYPER	.65 .89	.09 .44	.33 .74	.09 .41	.007** .11	.02* .20	.48 .83	.40 .77	.19 .61	.59 .88	.83 .95	.94 .98	.53 .85	.25 .67	.005** .09	.36 .74	.06 .33	.34 .74	.02* .18	.42 .79	.67 .90
		22. SEQ Auditory HYPER	.41 .79	.01* .17	.45 .81	.42 .79	.003** .06	.02* .18	.02* .22	.97 .99	.050 .31	.41 .78	.90 .96	.90 .96	.08 .40	.52 .84	.19 .61	.83 .95	.06 .32	.80 .95	.06 .34	.63 .89	.74 .93

Supplementary Table A.7 (**Right Columns, 43-63**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences.***
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Taste/Smell Modalities								Autism	ADHD Traits		Anxiety								Cognition/IQ	
			Self-Report	Caregiver	Self-Report	Caregiver-Report								Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Clinical Assessment	
			43. BBCSS Ingestive Problems	44. BBCSS Ingestive Problems	45. BBCSS Digestive Problems	46. BBCSS Digestive Problems	47. SEQ Gu-statory/Olf-act. HYPER	48. SEQ Gu-statory/Olf-actory EP	49. SEQ Gu-statory/Olf-actory SIRS	50. SEQ Gu-statory/Olf-act. HYPO	51. SCQ Total	52. SWAN Inattention	53. SWAN Hyperactive Impulsive	54. ASC-ASD Arousal	55. ASC-ASD Arousal	56. ASC-ASD Perfor-mance	57. ASC-ASD Perfor-mance	58. ASC-ASD Separation	59. ASC-ASD Separation	60. ASC-ASD Uncertainty	61. ASC-ASD Uncertainty	62. WASI Perceptual Reasoning	63. WASI Verbal Co-mprehend
Other Auditory Modality	Caregiver-Report	23. SEQ A. Enhanced Perception	.15 .55	.98 >.99	.26 .69	.71 .91	.99 >.99	.19 .61	.19 .61	.26 .69	.70 .91	.74 .93	.33 .74	.18 .60	.83 .95	.52 .84	.63 .89	.54 .85	.60 .88	.20 .62	.60 .88	.24 .66	.70 .91
		24. SEQ Auditory SIRS	.18 .59	.53 .85	.03* .23	.71 .91	.27 .70	.79 .94	.07 .36	.34 .74	.68 .90	.51 .84	.82 .95	.63 .89	.20 .62	.25 .68	.32 .73	.26 .69	.18 .61	.50 .84	.87 .96	.21 .63	.75 .93
		25. SEQ Auditory HYPO	.41 .78	.46 .82	.23 .66	.87 .96	.54 .85	.29 .72	.44 .80	.15 .55	.57 .87	.02* .21	.14 .54	.54 .85	.55 .86	.70 .91	.79 .94	.92 .97	.84 .95	.45 .81	.57 .87	.72 .91	.44 .80
	Self	26. BBCSS Auditory HYPO Voice	.02* .22	.86 .96	.11 .48	.99 >.99	.97 .99	.48 .83	.55 .86	.86 .96	.58 .87	.09 .41	.04* .27	.10 .44	.58 .87	.08 .40	.51 .84	.89 .96	.63 .89	.04* .30	.67 .90	.13 .52	.09 .41
	Careg.	27. BBCSS Auditory Hypo Voice	.12 .50	.24 .67	.28 .71	.93 .98	.88 .96	.85 .96	.03* .25	.07 .36	.87 .96	.11 .48	.04* .29	.12 .50	.19 .61	.59 .88	.73 .92	.52 .84	.81 .95	.94 .98	.31 .73	.17 .58	.31 .73
Vis.	Self	28. BBCSS Visual HYPER	.58 .87	.88 .96	.07 .38	.57 .87	.81 .95	.35 .74	.09 .42	.74 .93	.95 .99	.09 .42	.15 .55	.04* .29	.19 .61	.34 .74	.37 .75	.64 .89	.54 .85	.04* .30	.62 .89	.44 .80	.44 .80
Visual Modality	Caregiver-Report	29. BBCSS Visual HYPER	.92 .98	.55 .86	.18 .61	.09 .42	.79 .94	.16 .57	.55 .86	.38 .76	.59 .87	.73 .92	.76 .93	.03* .26	.12 .50	.047* .31	.04* .29	.29 .72	.003** .07	.03* .26	.02* .22	.50 .84	.13 .51
		30. SEQ Visual HYPER	.88 .96	.16 .57	.85 .96	.07 .37	.004** .08	.02* .20	.010** .13	.70 .91	.24 .67	.57 .87	.84 .95	.67 .90	.31 .73	.27 .70	.21 .63	.99 >.99	.06 .36	.10 .44	.09 .41	.78 .94	.37 .75
		31. SEQ V. Enhanced Perception	.79 .94	.06 .35	.71 .91	.82 .95	.07 .37	.0005*** .02*	.41 .78	.09 .43	.28 .71	.88 .96	.87 .96	.06 .35	.68 .90	.52 .84	.84 .95	.39 .76	.19 .61	.53 .85	.80 .94	.73 .92	.89 .96
		32. SEQ Visual SIRS	.94 .98	.34 .74	.16 .56	.48 .83	.03* .23	.052 .32	.0009*** .03*	.49 .83	.56 .86	.43 .79	.43 .80	.65 .89	.11 .47	.30 .73	.10 .46	.65 .89	.053 .32	.94 .98	.72 .91	.20 .62	.77 .94

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		33. SEQ Visual HYPO	.18 .60	.94 .98	.55 .86	.60 .88	.17 .58	.78 .94	.29 .72	.04* .27	.29 .72	.97 .99	.17 .59	.06 .35	.81 .95	.02* .20	.82 .95	.20 .62	.63 .89	.047* .31	.52 .84	.13 .51	.09 .42
Tactile Modality	Self	34. BBCSS Tactile HYPER	.65 .89	.93 .98	.02* .20	.049* .31	.96 .99	.69 .91	.26 .69	.53 .85	.91 .97	.010** .13	.27 .70	.68 .90	.70 .91	.60 .88	.99 >.99	.81 .95	.73 .92	.35 .74	.84 .95	.75 .93	.58 .87
	Caregiver	35. BBCSS Tactile HYPER	.78 .94	.36 .74	.91 .97	.18 .60	.03* .24	.004** .09	.84 .95	.62 .89	.39 .76	.09 .42	.64 .89	.18 .61	.83 .95	.62 .89	.054 .32	.95 .99	.80 .94	.63 .89	.35 .74	.38 .75	.99 >.99
		36. SEQ Tactile HYPER	.31 .73	.66 .90	.37 .75	.02* .21	.0006*** .02*	.0001*** .009**	.01* .15	.90 .96	.37 .75	.20 .62	.97 .99	.21 .63	.83 .95	.86 .96	.80 .94	.60 .88	.91 .97	.97 .99	.33 .74	.44 .80	.39 .77
	Self	37. BBCSS Social Touc-h Aversion	.31 .73	.47 .82	.07 .37	.04* .29	.29 .72	.57 .87	.36 .74	.34 .74	.40 .77	.17 .59	.56 .86	.12 .50	.38 .75	.69 .90	.74 .93	.58 .87	.33 .74	.24 .66	.81 .95	.02* .21	.74 .93
	Caregiver-Report	38. BBCSS Social Touc-h Aversion	.32 .73	.12 .49	.35 .74	.02* .21	.29 .72	.006** .10	.09 .41	.70 .91	.10 .44	.88 .96	.89 .96	.29 .72	.29 .72	.85 .96	.20 .62	.54 .85	.85 .96	.66 .90	.15 .56	.43 .79	.36 .74
		39. SEQ Tactile SIRS	.42 .79	.39 .76	.65 .89	.27 .71	.23 .66	.03* .23	.0004*** .02*	.47 .82	.32 .73	.15 .55	.65 .89	.77 .94	.12 .49	.61 .88	.03* .23	.14 .53	.12 .50	.63 .89	.36 .74	.04* .27	.70 .91
		40. SEQ Tactile HYPO	.83 .95	.78 .94	.61 .88	.82 .95	.40 .77	.22 .64	.23 .65	.35 .74	.23 .65	.18 .60	.71 .91	.44 .80	.59 .88	.23 .65	.27 .70	.02* .18	.13 .51	.51 .84	.27 .70	.63 .89	.37 .75
Taste/Smell	Self	41. BBCSS Selective Eating	.52 .84	.99 >.99	.98 >.99	.28 .71	.07 .38	.71 .91	.82 .95	.64 .89	.16 .56	.52 .84	.36 .74	.65 .89	.38 .75	.65 .89	.50 .84	.50 .84	.14 .53	.52 .84	.70 .91	.36 .74	.44 .80
	Careg.	42. BBCSS Selective Eating	.41 .78	.32 .73	.26 .69	.83 .95	.0001*** .009**	<.0001*** .002**	.48 .83	.19 .62	.07 .37	.76 .94	.77 .94	.20 .62	.36 .74	.57 .87	.28 .71	.36 .74	.79 .94	.75 .93	.91 .97	.83 .95	.49 .83
	Self	43. BBCSS Ingestive Problems		.55 .86	.51 .84	.39 .76	.55 .86	.49 .83	.59 .88	.13 .51	.42 .79	.82 .95	.68 .90	.02* .18	.66 .90	.19 .61	.48 .83	.12 .50	.77 .94	.48 .83	.51 .84	.63 .89	.35 .74

Supplementary Table A.7 (**Right Columns, 43-63**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences.***

Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Taste/Smell Modalities								Autism	ADHD Traits		Anxiety								Cognition/IQ	
			Self-Report	Caregiver	Self-Report	Caregiver-Report								Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Clinical Assessment	
			43. BBCSS Ingestive Problems	44. BBCSS Ingestive Problems	45. BBCSS Digestive Problems	46. BBCSS Digestive Problems	47. SEQ Gu-statory/Olf-act. HYPER	48. SEQ Gu-statory/Olf-actory EP	49. SEQ Gu-statory/Olf-actory SIRS	50. SEQ Gu-statory/Olf-act. HYPO	51. SCQ Total	52. SWAN Inattention	53. SWAN Hyperactive Impulsive	54. ASC-ASD Arousal	55. ASC-ASD Arousal	56. ASC-ASD Perfor-mance	57. ASC-ASD Perfor-mance	58. ASC-ASD Separation	59. ASC-ASD Separation	60. ASC-ASD Uncertainty	61. ASC-ASD Uncertainty	62. WASI Perceptual Reasoning	63. WASI Verbal Co-mprehend
Taste/Smell Modality	Careg.	44. BBCSS Ingestive Problems	.12 [-.29, .53]		.60 .88	.73 .92	.005** .09	.20 .62	.32 .73	.45 .81	.30 .73	.09 .42	.28 .71	.50 .84	.79 .94	.42 .79	.07 .38	.24 .66	.75 .93	.79 .94	.55 .86	.31 .73	.88 .96
	Self	45. BBCSS Digestive Problems	.13 [-.26, .52]	-.11 [-.51, .30]		.005** .09	.53 .85	.54 .85	.04* .29	.46 .82	.51 .84	.004** .09	.17 .59	.07 .38	.24 .67	.01* .13	.13 .51	.10 .44	.03* .23	.009** .12	.01* .15	.94 .98	.52 .85
	Caregiver-Report	46. BBCSS Digestive Problems	.18 [-.24, .59]	.07 [-.34, .48]	.50 [.17, .84]		.72 .92	.41 .78	.14 .53	.72 .92	.21 .63	.17 .59	.99 >.99	.37 .75	.65 .89	.23 .65	.03* .23	.03* .22	.03* .25	.004** .08	.003** .06	.73 .92	.47 .82
		47. SEQ Gu-statory/Olf-act. HYPER	-.09 [-.40, .22]	.47 [.15, .79]	-.10 [-.43, .23]	.05 [-.25, .36]		.001** .04*	.56 .86	.35 .74	.008** .12	.95 .99	.97 .99	.009** .12	.97 .99	.76 .94	.97 .99	.62 .89	.75 .93	.62 .89	.59 .88	.75 .93	.77 .94
		48. SEQ Gu-statory/Olf-actory EP	.12 [-.23, .47]	.24 [-.14, .62]	.10 [-.23, .44]	.14 [-.19, .47]	.52 [.22, .82]		.04* .29	.33 .74	.002** .052	.69 .90	.47 .82	.04* .28	.58 .87	.03* .23	.10 .44	.70 .91	.15 .55	.88 .96	.055 .32	.86 .96	.53 .85
		49. SEQ Gu-statory/Olf-actory SIRS	.09 [-.26, .44]	-.18 [-.54, .18]	.33 [.02, .64]	.24 [-.08, .56]	.10 [-.25, .46]	.34 [.01, .66]		.62 .89	.87 .96	.04* .27	.29 .72	.46 .82	.004** .08	.34 .74	.06 .32	.75 .93	.002** .054	.79 .94	.17 .58	.60 .88	.42 .79
		50. SEQ Gu-statory/Olf-act. HYPO	.28 [-.09, .64]	.14 [-.24, .53]	.12 [-.21, .46]	-.06 [-.43, .30]	.17 [-.20, .54]	-.17 [-.53, .18]	.09 [-.26, .43]		.77 .94	.43 .79	.74 .93	.69 .91	.92 .97	.12 .50	.27 .70	.34 .74	.31 .73	.18 .61	.18 .60	.82 .95	.13 .50
Aut.		51. SCQ Total	.07 [-.11, .25]	.11 [-.11, .33]	.06 [-.12, .24]	-.11 [-.29, .07]	.25 [.07, .42]	.27 [.11, .44]	.01 [-.17, .20]	.03 [-.15, .20]		.42 .79	.65 .89	.51 .84	.93 .98	.49 .83	.90 .96	.36 .74	.92 .97	.90 .96	.79 .94	.25 .68	.25 .68
ADHD Traits		52. SWAN Inattention	.04 [-.27, .34]	-.27 [-.58, .04]	.40 [.13, .66]	.19 [-.09, .46]	.01 [-.30, .32]	.06 [-.24, .36]	.29 [.02, .57]	.11 [-.17, .39]	-.21 [-.73, .31]		.0003*** .02*	.32 .73	.76 .93	.43 .79	.21 .63	.95 .98	.16 .57	.60 .88	.89 .96	.007** .11	.07 .37
		53. Hyperactivity/Impulsivity	.06 [-.25, .37]	-.18 [-.52, .16]	.19 [-.09, .47]	-.00 [-.30, .29]	-.01 [-.31, .30]	.11 [-.19, .40]	.15 [-.13, .43]	.05 [-.23, .32]	.12 [-.40, .63]	.54 [.27, .82]		.23 .65	.32 .73	.10 .44	.35 .74	.40 .77	.01* .17	.38 .76	.75 .93	.24 .67	.82 .95

Supplementary Table A.7 (**Right Columns, 43-63**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****.*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Taste/Smell Modalities								Autism	ADHD Traits		Anxiety								Cognition/IQ	
			Self-Report	Caregiver	Self-Report	Caregiver-Report								Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Clinical Assessment	
			43. BBCSS Ingestive Problems	44. BBCSS Ingestive Problems	45. BBCSS Digestive Problems	46. BBCSS Digestive Problems	47. SEQ Gu-statory/Olf-act. HYPER	48. SEQ Gu-statory/Olf-actory EP	49. SEQ Gu-statory/Olf-actory SIRS	50. SEQ Gu-statory/Olf-act. HYPO	51. SCQ Total	52. SWAN Inattention	53. SWAN Hyperactive Impulsive	54. ASC-ASD Arousal	55. ASC-ASD Arousal	56. ASC-ASD Perfor-mance	57. ASC-ASD Perfor-mance	58. ASC-ASD Separation	59. ASC-ASD Separation	60. ASC-ASD Uncertainty	61. ASC-ASD Uncertainty	62. WASI Perceptual Reasoning	63. WASI Verbal Co-mprehend
Anxiety	Self	54. ASC-ASD Arousal	.43 [.09, .77]	-.13 [-.52, .26]	.30 [-.03, .63]	.15 [-.19, .49]	-.46 [-.80, -.12]	-.36 [-.70, -.02]	.13 [-.22, .48]	.07 [-.27, .40]	-.20 [-.84, .43]	.20 [-.20, .59]	.25 [-.16, .65]		.01* .14	.009** .12	.31 .73	.045* .30	.23 .66	.0003*** .02*	.29 .72	.46 .82	.84 .95
Anxiety	Care	55. ASC-ASD Arousal	.08 [-.28, .44]	-.05 [-.46, .35]	.20 [-.14, .54]	.08 [-.28, .44]	-.01 [-.38, .36]	.10 [-.26, .45]	.47 [.16, .77]	-.02 [-.34, .31]	.03 [-.60, .65]	.06 [-.33, .45]	.19 [-.20, .59]	.40 [.10, .71]		.003** .08	.01* .13	.16 .57	.02* .18	.02* .18	.0005*** .02*	.15 .56	.08 .41
Anxiety	Self	56. ASC-ASD Perfor-mance	.25 [-.13, .62]	.16 [-.24, .57]	.44 [.11, .77]	.22 [-.15, .59]	-.06 [-.45, .33]	.40 [.04, .75]	.17 [-.19, .54]	-.27 [-.60, .07]	.23 [-.43, .89]	.16 [-.25, .58]	.35 [-.07, .77]	.44 [.12, .76]	.49 [.17, .81]		.006** .09	.0004*** .02*	.008** .12	<.0001*** .0003***	<.0001*** .001**	.97 .99	.29 .72
Anxiety	Careg.	57. ASC-ASD Perfor-mance	-.12 [-.45, .22]	-.29 [-.62, .03]	.23 [-.07, .53]	.33 [.04, .63]	-.01 [-.33, .32]	.25 [-.05, .55]	.28 [-.01, .57]	-.16 [-.44, .13]	-.04 [-.58, .51]	.21 [-.12, .55]	.16 [-.18, .51]	.15 [-.14, .44]	.36 [.09, .63]	.37 [.11, .62]		.23 .65	.0009*** .03*	.11 .47	<.0001*** .0005***	.68 .90	.67 .90
Anxiety	Self	58. ASC-ASD Separation	.29 [-.08, .66]	.24 [-.17, .65]	.29 [-.06, .64]	.39 [.05, .74]	-.10 [-.49, .30]	.07 [-.31, .45]	-.06 [-.43, .31]	.17 [-.18, .51]	-.30 [-.96, .36]	.01 [-.40, .43]	.18 [-.25, .61]	.34 [.01, .68]	.24 [-.10, .59]	.55 [.26, .83]	.24 [-.16, .64]		.03* .23	.0004*** .02*	.003** .06	.20 .62	.99 >.99
Anxiety	Careg.	59. ASC-ASD Separation	-.05 [-.42, .32]	.06 [-.33, .45]	.36 [.05, .68]	.35 [.03, .66]	-.06 [-.41, .30]	.24 [-.09, .57]	.48 [.19, .77]	-.16 [-.47, .15]	-.03 [-.63, .57]	.26 [-.11, .63]	.45 [.10, .80]	.19 [-.13, .51]	.37 [.07, .66]	.39 [.11, .67]	.56 [.25, .87]	.33 [.04, .62]		.14 .54	.004** .08	.74 .93	.22 .64
Anxiety	Self	60. ASC-ASD Uncertainty	.13 [-.24, .49]	.05 [-.35, .46]	.44 [.12, .76]	.49 [.17, .82]	-.09 [-.47, .28]	.03 [-.34, .39]	.05 [-.31, .41]	-.22 [-.55, .11]	-.04 [-.68, .60]	.11 [-.30, .51]	.18 [-.23, .60]	.56 [.28, .85]	.40 [.08, .72]	.67 [.43, .90]	.31 [-.07, .68]	.53 [.26, .80]	.26 [-.09, .60]		<.0001*** .005**	.42 .79	>.99 >.99
Anxiety	Careg.	61. ASC-ASD Uncertainty	-.10 [-.41, .21]	.10 [-.23, .43]	.34 [.08, .61]	.42 [.16, .68]	.08 [-.23, .39]	.28 [-.01, .57]	.20 [-.09, .48]	-.18 [-.46, .09]	.07 [-.46, .60]	-.02 [-.36, .31]	-.05 [-.39, .29]	.15 [-.13, .42]	.45 [.21, .69]	.51 [.31, .71]	.65 [.41, .89]	.37 [.14, .61]	.40 [.14, .66]	.50 [.28, .71]		.44 .80	.23 .66
Cognition/IQ	Clinical Assess.	62. WASI Perceptual Reasoning	-.09 [-.45, .28]	.21 [-.21, .63]	.01 [-.34, .37]	-.06 [-.43, .31]	-.06 [-.44, .32]	-.03 [-.40, .34]	.09 [-.26, .45]	.04 [-.30, .38]	.37 [-.27, 1.00]	-.52 [-.89, -.15]	-.24 [-.65, .17]	-.13 [-.47, .22]	.24 [-.10, .58]	-.01 [-.34, .32]	-.08 [-.47, .31]	-.21 [-.53, .11]	.06 [-.30, .42]	-.14 [-.47, .20]	.15 [-.25, .56]		.005** .09
Cognition/IQ	Clinical Assess.	63. WASI Verbal Co-mprehend	-.19 [-.59, .21]	.03 [-.38, .44]	-.11 [-.48, .25]	-.13 [-.49, .23]	-.05 [-.43, .32]	.11 [-.25, .47]	.14 [-.21, .48]	-.25 [-.57, .07]	.36 [-.26, .98]	-.35 [-.73, .03]	.05 [-.36, .45]	.04 [-.31, .38]	.28 [-.04, .61]	.17 [-.15, .49]	.08 [-.30, .46]	.00 [-.32, .33]	.21 [-.13, .56]	-.00 [-.34, .34]	.23 [-.16, .62]	.43 [.14, .72]	

Supplementary Table A.7 (**Right Columns, 43-63**). *Results of scaled, ranked regression analyses examining how study variables are associated with one another,* ***collapsed across groups but controlling for any potential diagnostic group differences****.*
Coefficients and their 95% confidence intervals are presented in the lower-left half of the table, and are based on models in which the predictor variables are those above the cells displaying the coefficients. Inferential p*-values are presented in the upper-right half of the table, both in raw form (above) and with a false discovery rate correction for the 1953 comparisons in this table (below). In contrast to coefficients,* p*-values do not vary based on which variable is the predictor. Cells corresponding to statistically significant associations are shaded either red or blue (depending on directionality); effects that remained significant after correction for multiple comparisons have darker shading.*

			Taste/Smell Modalities								Autism	ADHD Traits		Anxiety								Cognition/IQ	
			Self-Report	Caregiver	Self-Report	Caregiver-Report								Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Self-Report	Caregiver	Clinical Assessment	
			43. BBCSS Ingestive Problems	44. BBCSS Ingestive Problems	45. BBCSS Digestive Problems	46. BBCSS Digestive Problems	47. SEQ Gu-statory/Olf-act. HYPER	48. SEQ Gu-statory/Olf-actory EP	49. SEQ Gu-statory/Olf-actory SIRS	50. SEQ Gu-statory/Olf-act. HYPO	51. SCQ Total	52. SWAN Inattention	53. SWAN Hyperactive Impulsive	54. ASC-ASD Arousal	55. ASC-ASD Arousal	56. ASC-ASD Perfor-mance	57. ASC-ASD Perfor-mance	58. ASC-ASD Separation	59. ASC-ASD Separation	60. ASC-ASD Uncertainty	61. ASC-ASD Uncertainty	62. WASI Perceptual Reasoning	63. WASI Verbal Co-mprehend

From Left Columns: 1. Pure Tone Average (PTA) hearing thresholds; 2. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) Misophonia scores; 3. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) Anger/Aggression scores; 4. DVMSQ Distress/Avoidance scores; 5. DVMSQ Impairment scores; 6. median ratings (i.e., not CDS scores) of breathing/nasal misophonic trigger sounds (“breath running”, “sniffling”, “snoring”) from the Core Discriminant Sounds (CDS) task; 7. median ratings of mouth trigger sounds (“chewing 1” , “chewing 2”, “slurping”); 8. median ratings of throat trigger sounds (“swallowing”, “throat clearing”); 9. median ratings of repetitive trigger sounds (“keyboard”, “pen clicking”); 10. MIST-A (Loudness) Hyperacusis scores; 11. MIST-A Pain (Hyperacusis) scores; 12. MISTA-A Hyperacusis Symptom scores; 13. Loudness Discomfort Levels (LDLs) averaged across frequencies; 14. median ratings of conventionally-pleasant sounds from the CDS task; 15. median ratings of conventionally-*un*pleasant sounds from the CDS task; 16. MIST-A Fear/Panic scores; 17. MIST-A Systemic Nonspecific Symptom scores; 18. MIST-A Impairment scores, reflecting impacts of sound intolerance on daily life; 19. VADQ Auditory Distractibility scores; 20. Brain-Body Center Sensory Scales (BBCSS) Auditory Hypersensitivity self-report scores; and 21. BBCSS Auditory Hypersensitivity caregiver-report scores.
From Middle Columns: 22. Sensory Experiences Questionnaire, Version 3.0 (SEQ-3.0) Auditory Hyperresponsivity scores; 23. SEQ-3.0 Auditory Enhanced Perception scores; 24. SEQ-3.0 Auditory Sensory Interests, Repetitions, and Seeking (SIRS) scores; 25. SEQ-3.0 Auditory Hyporesponsiveness scores; 26. BBCSS Auditory Hyposensitivity to Voices self-report scores; 27. BBCSS Auditory Hyposensitivity to Voices caregiver-report scores; 28. BBCSS Visual Hypersensitivity self-report scores; 29. BBCSS Visual Hypersensitivity caregiver-report scores; 30. SEQ-3.0 Visual Hyperresponsiveness scores; 31. SEQ-3.0 Visual Enhanced Perception Scores; 32. SEQ-3.0 Visual Sensory Interests, Repetitions, and Seeking (SIRS) scores; 33. SEQ-3.0 Visual Hyporesponsiveness scores; 34. BBCSS Tactile Hypersensitivity self-report scores; 35. BBCSS Tactile Hypersensitivity caregiver-report scores; 36. SEQ-3.0 Tactile Hyperresponsiveness scores; 37. BBCSS Affiliative Touch Aversion self-report scores; 38. BBCSS Affiliative Touch Aversion caregiver-report scores; 39. SEQ-3.0 Tactile Sensory Interests, Repetitions, and Seeking (SIRS) scores; 40. SEQ-3.0 Tactile Hyporesponsiveness scores; 41. BBCSS Selective Eating self-report scores; and 42. BBCSS Selective Eating caregiver-report scores.
From Right Columns: 43. BBCSS Ingestive Problems self-report scores; 44. BBCSS Ingestive Problems caregiver-report scores; 45. BBCSS Digestive Problems self-report scores; 46. BBCSS Digestive Problems caregiver-report scores; 47. SEQ-3.0 Gustatory/Olfactory Hyperresponsiveness scores; 48. SEQ-3.0 Gustatory/Olfactory Enhanced Perception scores; 49. SEQ-3.0 Gustatory/Olfactory Sensory Interests, Repetitions, and Seeking (SIRS) scores; 50. SEQ-3.0 Gustatory/Olfactory Hyporesponsiveness scores; 51. Social Communication Questionnaire (SCQ) total autistic trait scores; 52. Strengths and Weaknesses of ADHD-symptoms and Normal-behavior (SWAN) Inattention scores; 53. SWAN Hyperactivity/Impulsivity scores; 54. Anxiety Scale for Children with Autism Spectrum Disorder (ASC-ASD) Arousal self-report scores; 55. ASC-ASD Arousal caregiver-report scores; 56. ASC-ASD Performance self-report scores; 57. ASC-ASD Performance caregiver-report scores; 58. ASC-ASD Separation self-report scores; 59. ASC-ASD Separation caregiver-report scores; 60. ASC-ASD Uncertainty self-report scores; 61. ASC-ASD Uncertainty caregiver-report scores; 62. Wechsler Abbreviated Scale of Intelligence, 2nd ed. (WASI-II) Perceptual Reasoning scaled scores; and 63. WASI-II Verbal Comprehension scaled scores.

Supplementary Table A.8. *Results of Spearman's correlations examining how caregiver-report SEQ Auditory Enhanced Perception is predicted by hearing thresholds and by various measures of sound intolerance in* ***autistic participants only****. Correlation coefficients and their confidence intervals, representing the effect of each predictor variable on SEQ Auditory EP scores, are presented above uncorrected* p*-values.*

	Threshold	Sound Intolerance							
		Lab Rating			Self-Report				Caregiver
	2. PTA	3. LDL	4. CDS_{Miso}	5. CDS_{HypA}	6. MIST-A Total	7. DVMSQ Total	8. VADQ Auditory Distract	9. BBCSS Auditory HYPER	10. BBCSS Auditory HYPER
1. SEQ Auditory EP (caregiver) (n=18)	-.10 [-.54, .39] .69	-.04 [-.50, .43] .86	.15 [-.34, .58] .56	.07 [-.41, .52] .79	.17 [-.32, .59] .49	.16 [-.51, .42] .32	.04 [-.43, .50] .87	.23 [-.27, .63] .37	.36 [-.13, .71] .14

1. Caregiver-report Sensory Experiences Questionnaire (SEQ) Auditory Enhanced Perception scores; 2. Pure Tone Average (PTA) hearing thresholds, as averaged across both ears and all frequencies; 3. Loudness Discomfort Levels (LDLs) collapsed across frequencies; 4. Core Discriminant Sounds (CDS) scores for misophonia, based on pleasantness ratings of misophonic trigger sounds, collapsed across intensities; 5. CDS scores for hyperacusis, based on pleasantness ratings of conventionally-pleasant sounds, collapsed across intensities; 6. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) total scores, summed across all subscales; 7. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) total scores; 8. Vanderbilt Auditory Distractibility Questionnaire (VADQ) total scores; 9. self-report Brain-Body Center Sensory Scales (BBCSS) Auditory Hypersensitivity scores; and 10. caregiver-report BBCSS Auditory Hypersensitivity scores.

1581

Supplementary Table A.9. *Results of Spearman's correlations examining how caregiver-report SEQ Auditory Enhanced Perception is predicted by hearing thresholds and by various measures of sound intolerance in* ***typically-developing participants only****. Correlation coefficients and their confidence intervals, representing the effect of each predictor variable on SEQ Auditory EP scores, are presented above uncorrected* p*-values.*

	Threshold	Sound Intolerance							
		Lab Rating			Self-Report				Caregiver
	2. PTA	3. LDL	4. CDS_{Miso}	5. CDS_{HypA}	6. MIST-A Total	7. DVMSQ Total	8. VADQ Auditory Distract	9. BBCSS Auditory HYPER	10. BBCSS Auditory HYPER
1. SEQ Auditory EP (caregiver) (n=22)	-.12 [-.52, .32] .59	-.04 [-.46, .39] .85	.13 [-.31, .52] .57	.10 [-.34, .50] .67	-.20 [-.58, .24] .36	.13 [-.31, .52] .57	-.10 [-.50, .33] .64	-.36 [-.69, .08] .10	-.09 [-.51, .37] .72

1. Caregiver-report Sensory Experiences Questionnaire (SEQ) Auditory Enhanced Perception scores; 2. Pure Tone Average (PTA) hearing thresholds, as averaged across both ears and all frequencies; 3. Loudness Discomfort Levels (LDLs) collapsed across

frequencies; 4. Core Discriminant Sounds (CDS) scores for misophonia, based on pleasantness ratings of misophonic trigger sounds, collapsed across intensities; 5. CDS scores for hyperacusis, based on pleasantness ratings of conventionally-pleasant sounds, collapsed across intensities; 6. Multidimensional Inventory of Sound Tolerance-Adult (MIST-A) total scores, summed across all subscales; 7. Duke-Vanderbilt Misophonia Screening Questionnaire (DVMSQ) total scores; 8. Vanderbilt Auditory Distractibility Questionnaire (VADQ) total scores; 9. self-report Brain-Body Center Sensory Scales (BBCSS) Auditory Hypersensitivity scores; and 10. caregiver-report BBCSS Auditory Hypersensitivity scores.

1582

Supplementary Table A.10. Results of Wilcoxon-Mann-Whitney tests comparing autistic and non-autistic comparison participants' sensory phenotypes on all measures obtained in the present study. A false discovery rate correction for 50 comparisons was applied.

	Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
	M (SD)	Range	n	M (SD)	Range	n		
Pure Tone Average (PTA) Hearing Thresholds	1.76 (5.19)	-6.79 to 11.79	18	3.90 (5.40)	-1.79 to 18.21	22	.22 .30	-.23 [-.54, .13]
MIST-A Misophonia	0.67 (0.70)	0.00 to 2.38	18	0.35 (0.31)	0.00 to 1.00	22	.21 .29	.23 [-.15, .55]
DVMSQ Anger/ Aggression	1.12 (1.26)	0.00 to 3.75	18	0.32 (0.66)	0.00 to 2.25	22	.049* .09	.32 [-.02, .59]
DVMSQ Distress/ Avoidance	0.97 (1.11)	0.00 to 2.80	18	0.31 (0.62)	0.00 to 2.40	22	.06 .09	.31 [-.03, .59]
DVMSQ Impairment	0.48 (0.75)	0.00 to 2.71	18	0.10 (0.26)	0.00 to 0.86	22	.03* .06	.32 [.02, .57]
Breathing/ Nasal Sounds Median Rating (from CDS task)	70.65 (19.85)	40.17 to 100.00	18	72.50 (21.77)	24.08 to 100.00	22	.82 .83	-.05 [-.39, .31]
Mouth Sounds Median Rating	76.27 (22.71)	43.08 to 100.00	18	79.09 (22.99)	28.33 to 100.00	22	.67 .70	-.08 [-.42, .28]

Supplementary Table A.10. Results of Wilcoxon-Mann-Whitney tests comparing autistic and non-autistic comparison participants' sensory phenotypes on all measures obtained in the present study. A false discovery rate correction for 50 comparisons was applied.

	Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
	M (SD)	Range	n	M (SD)	Range	n		
(from CDS task)								
Throat Sounds Median Rating (from CDS task)	67.20 (21.86)	37.25 to 100.00	18	71.37 (23.72)	21.75 to 100.00	22	.50 .56	-.13 [-.46, .24]
Repetitive Sounds Median Rating (from CDS task)	57.73 (31.51)	0.00 to 100.00	18	48.93 (24.07)	4.92 to 100.00	22	.41 .50	.16 [-.22, .50]
MIST-A (Loudness) Hyperacusis	0.78 (0.50)	0.00 to 1.56	18	0.22 (0.23)	0.00 to 0.78	22	.0003*** .002**	.66 [.30, .86]
MIST-A Pain (Hyperacusis)	0.62 (0.59)	0.00 to 2.25	18	0.33 (0.41)	0.00 to 1.50	22	.08 .11	.32 [-.04, .61]
MIST-A Hyperacusis Symptoms	0.47 (0.61)	0.00 to 2.50	18	0.28 (0.27)	0.00 to 0.75	22	.45 .52	.14 [-.22, .47]
Loudness Discomfort Levels (LDLs)	73.21 (18.27)	37.29 to 96.25	18	78.52 (9.78)	58.33 to 93.33	22	.49 .55	-.13 [-.49, .26]
Pleasant Sounds Median Rating (from CDS task)	37.95 (25.60)	0.00 to 89.42	18	22.35 (16.94)	0.00 to 57.83	22	.07 .10	.34 [-.04, .64]
Unpleasant Sounds Median Rating (from CDS task)	70.46 (26.43)	4.33 to 100.00	18	72.12 (21.27)	23.67 to 100.00	22	.92 .92	-.02 [-.38, .34]
MIST-A Fear/ Panic	0.96 (0.68)	0.00 to	18	0.52 (0.50)	0.00 to	22	.03*	.39 [.03, .66]

Supplementary Table A.10. Results of Wilcoxon-Mann-Whitney tests comparing autistic and non-autistic comparison participants' sensory phenotypes on all measures obtained in the present study. A false discovery rate correction for 50 comparisons was applied.

	Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
	M (SD)	Range	n	M (SD)	Range	n		
		2.33			1.67		.07	
MIST-A Systemic Nonspecific Symptom	0.48 (0.59)	0.00 to 1.86	18	0.16 (0.24)	0.00 to 1.00	22	.09 .13	.30 [-.06, .60]
MIST-A Impairment/ Quality of Life Impact	0.41 (0.46)	0.00 to 1.50	18	0.13 (0.25)	0.00 to 1.00	22	.01* .03*	.45 [.09, .70]
VADQ Auditory Distractibility	2.40 (1.12)	0.57 to 4.29	18	1.65 (0.90)	0.00 to 3.29	22	.04* .08	.38 [.01, .66]
BBCSS Self-Report Auditory HYPER	1.98 (0.53)	1.00 to 2.88	18	1.41 (0.44)	1.00 to 2.89	21	.002** .005**	.60 [.27, .80]
BBCSS Caregiver-Report Auditory HYPER	2.42 (0.68)	1.50 to 3.56	18	1.28 (0.36)	1.00 to 2.00	20	<.0001**** <.0001****	.91 [.73, .97]
SEQ Caregiver-Report Auditory HYPER	2.50 (0.99)	1.00 to 4.50	18	1.19 (0.27)	1.00 to 1.75	22	<.0001**** <.0001****	.83 [.55, .95]
SEQ Caregiver-Report Auditory Enhanced Perception	2.43 (0.98)	1.00 to 5.00	18	1.59 (0.60)	1.00 to 3.25	22	.003** .009**	.55 [.19, .78]
SEQ Caregiver-Report Auditory SIRS	2.47 (1.32)	1 to 5	18	1.59 (0.97)	1 to 5	22	.02* .05*	.41 [.03, .68]

Supplementary Table A.10. Results of Wilcoxon-Mann-Whitney tests comparing autistic and non-autistic comparison participants' sensory phenotypes on all measures obtained in the present study. A false discovery rate correction for 50 comparisons was applied.

	Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
	M (SD)	Range	n	M (SD)	Range	n		
SEQ Caregiver-Report Auditory HYPO	2.22 (1.07)	1.00 to 4.50	18	1.45 (0.58)	1.00 to 2.50	22	.010** .02*	.46 [.11, .71]
BBCSS Self-Report Auditory HYPO to Voice	1.63 (0.43)	1.00 to 2.40	18	1.61 (0.56)	1.00 to 2.80	19	.65 .69	.09 [-.25, .42]
BBCSS Caregiver-Report Auditory HYPO to Voice	2.14 (0.68)	1.20 to 3.25	18	1.25 (0.24)	1.00 to 1.80	22	<.0001*** .0001***	.81 [.55, .92]
BBCSS Self-Report Visual HYPER	1.81 (0.50)	1.00 to 2.78	18	1.70 (0.59)	1.00 to 2.88	20	.41 .50	.16 [-.20, .48]
BBCSS Caregiver-Report Visual HYPER	1.82 (0.61)	1.00 to 3.33	18	1.23 (0.35)	1.00 to 2.25	20	.0005*** .002**	.66 [.32, .85]
SEQ Caregiver-Report Visual HYPER	2.61 (0.93)	1.00 to 4.00	18	1.32 (0.50)	1.00 to 2.50	22	<.0001*** .0002***	.77 [.49, .91]
SEQ Caregiver-Report Visual Enhanced Perception	2.93 (1.07)	1.00 to 4.33	18	1.79 (0.52)	1.00 to 3.00	22	.001** .005**	.60 [.20, .83]
SEQ Caregiver-Report Visual SIRS	1.91 (0.59)	1.00 to 3.00	18	1.10 (0.15)	1.00 to 1.50	22	<.0001*** <.0001***	.85 [.56, .96]

Supplementary Table A.10. Results of Wilcoxon-Mann-Whitney tests comparing autistic and non-autistic comparison participants' sensory phenotypes on all measures obtained in the present study. A false discovery rate correction for 50 comparisons was applied.

	Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
	M (SD)	Range	n	M (SD)	Range	n		
SEQ Caregiver-Report Visual HYPO	1.86 (0.47)	1.00 to 2.75	18	1.12 (0.21)	1.00 to 1.75	22	<.0001*** <.0001***	.81 [.50, .94]
BBCSS Self-Report Tactile HYPER	1.88 (0.55)	1.00 to 3.50	18	1.68 (0.69)	1.00 to 4.00	19	.06 .09	.37 [.01, .65]
BBCSS Caregiver-Report Tactile HYPER	2.42 (0.65)	1.50 to 3.50	18	1.36 (0.64)	1.00 to 3.75	21	<.0001*** .0002***	.78 [.57, .89]
SEQ Caregiver-Report Tactile HYPER	2.63 (1.03)	1.09 to 4.27	18	1.37 (0.34)	1.09 to 2.45	22	<.0001*** .0002***	.77 [.43, .91]
BBCSS Self-Report Affiliative Touch Aversion	1.74 (0.84)	1.00 to 3.67	17	1.40 (0.47)	1.00 to 2.33	16	.30 .38	.21 [-.19, .55]
BBCSS Caregiver-Report Affiliative Touch Aversion	1.94 (1.18)	1.00 to 4.00	17	1.13 (0.25)	1.00 to 1.67	15	.03* .06	.41 [.04, .68]
SEQ Caregiver-Report Tactile SIRS	2.17 (0.70)	1.14 to 3.29	18	1.40 (0.35)	1.00 to 2.14	22	.0003*** .002**	.67 [.34, .85]
SEQ Caregiver-Report Tactile HYPO	1.82 (0.65)	1.00 to 3.25	18	1.31 (0.33)	1.00 to 2.00	22	.007** .02*	.49 [.12, .74]
BBCSS Self-Report Selective	1.86 (0.58)	1.00 to	18	2.02 (0.72)	1.00 to	16	.63	-.10 [-.46,

Supplementary Table A.10. Results of Wilcoxon-Mann-Whitney tests comparing autistic and non-autistic comparison participants' sensory phenotypes on all measures obtained in the present study. A false discovery rate correction for 50 comparisons was applied.

	Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
	M (SD)	Range	n	M (SD)	Range	n		
Eating		3.20			4.00		.68	.29]
BBCSS Caregiver-Report Selective Eating	2.44 (0.67)	1.00 to 3.67	17	1.44 (0.46)	1.00 to 2.67	20	<.0001*** * .0006***	.75 [.41, .91]
BBCSS Self-Report Ingestive Problems	1.18 (0.29)	1 to 2	17	1.26 (0.35)	1 to 2	14	.44 .52	-.15 [-.49, .23]
BBCSS Caregiver-Report Ingestive Problems	1.33 (0.42)	1.00 to 2.33	17	1.02 (0.08)	1.00 to 1.33	17	.006** .02*	.44 [.13, .67]
BBCSS Self-Report Digestive Problems	1.63 (0.57)	1.00 to 2.75	18	1.42 (0.44)	1.00 to 2.50	17	.28 .37	.21 [-.18, .55]
BBCSS Caregiver-Report Digestive Problems	1.54 (0.57)	1 to 3	17	1.25 (0.31)	1 to 2	19	.13 .19	.28 [-.11, .60]
SEQ Caregiver-Report Gustatory/Olfactory HYPER	2.71 (1.06)	1.00 to 4.60	18	1.61 (0.59)	1.00 to 3.00	22	.001** .004**	.61 [.25, .82]
SEQ Caregiver-Report Gustatory/Olfactory Enhanced Perception	3.08 (1.35)	1.00 to 5.00	18	1.80 (0.88)	1.00 to 4.50	22	.003** .01*	.54 [.15, .78]
SEQ Caregiver-Report Gustatory/Olfacto	1.91 (0.76)	1.00 to 3.29	18	1.32 (0.38)	1.00 to 2.00	22	.01* .02*	.47 [.11, .73]

Supplementary Table A.10. Results of Wilcoxon-Mann-Whitney tests comparing autistic and non-autistic comparison participants' sensory phenotypes on all measures obtained in the present study. A false discovery rate correction for 50 comparisons was applied.

	Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
	M (SD)	Range	n	M (SD)	Range	n		
ry SIRS								
SEQ Caregiver-Report Gustatory/Olfactory HYPO	1.31 (0.55)	1 to 3	18	1.07 (0.23)	1 to 2	22	.06 .10	.24 [-.03, .48]

Supplementary Table A.11. Results of Wilcoxon-Mann-Whitney tests comparing autistic and non-autistic comparison participants' misophonia CDS scores per intensity and sound type (including only the misophonic triggers with sufficient variability in ratings, as reflected by 75% quantiles in controls from Supplementary Table A.3). A false discovery rate correction for 14 comparisons was applied.

		Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
		M (SD)	Range	n	M (SD)	Range	n		
Breathing/ Nasal	50 dB	13.74 (25.24)	0.00 to 85.52	18	14.28 (21.63)	0.00 to 66.67	22	.61 .92	-.09 [-.40, .24]
	60 dB	22.24 (35.08)	0.00 to 100.00	18	20.48 (32.91)	0.00 to 100.00	22	.72 .92	.06 [-.26, .36]
	Average	17.14 (28.90)	0.00 to 91.31	18	16.76 (25.00)	0.00 to 80.00	22	.93 .99	-.02 [-.34, .31]
Mouth	50 dB	11.90 (29.48)	0.00 to 100.00	18	19.09 (37.43)	0.00 to 100.00	22	.91 .99	.02 [-.26, .29]
Repetitive	50 dB	12.00 (19.81)	0.00 to 55.80	18	7.43 (17.54)	0.00 to 79.85	22	.72 .92	.05 [-.25, .36]
	60 dB	22.24 (31.04)	0.00 to 100.00	18	10.15 (23.45)	0.00 to 100.00	22	.08 .59	.30 [-.05, .58]
	70 dB	29.18 (40.47)	0.00 to 100.00	18	12.48 (27.15)	0.00 to 100.00	22	.26 .91	.18 [-.15, .48]
	80 dB	38.21 (43.50)	0.00 to 100.00	18	18.60 (33.67)	0.00 to 100.00	22	.06 .59	.31 [-.03, .59]
	Average	25.41 (31.71)	0.00 to 88.95	18	12.17 (23.65)	0.00 to 94.96	22	.15 .68	.26 [-.08, .54]
Throat	50 dB	8.97 (26.54)	0.00 to 100.00	18	5.78 (12.21)	0.00 to 34.47	22	.99 .99	-.01 [-.27, .27]

Supplementary Table A.11. Results of Wilcoxon-Mann-Whitney tests comparing autistic and non-autistic comparison participants' misophonia CDS scores per intensity and sound type (including only the misophonic triggers with sufficient variability in ratings, as reflected by 75% quantiles in controls from Supplementary Table A.3). A false discovery rate correction for 14 comparisons was applied.

		Autistic			Comparison			Wilcoxon *p*	Cliff's δ [95% CI]
		M (SD)	Range	n	M (SD)	Range	n		
	60 dB	12.01 (32.24)	0.00 to 100.00	18	13.33 (29.09)	0.00 to 100.00	22	.70 .92	-.05 [-.31, .21]
	70 dB	26.53 (44.29)	0.00 to 100.00	18	20.18 (38.80)	0.00 to 100.00	22	.67 .92	.06 [-.22, .34]
	80 dB	37.97 (49.08)	0.00 to 100.00	18	27.27 (45.58)	0.00 to 100.00	22	.58 .92	.09 [-.22, .38]
	Average	21.37 (32.60)	0.00 to 100.00	18	16.64 (28.48)	0.00 to 82.13	22	.61 .92	.09 [-.24, .40]

Supplementary Table A.12. Responses to the DVMSQ item regarding individual triggers of misophonia:

Are there specific sounds that you are **extremely** bothered by, **even if they are not loud**? (No/Yes)

Examples include: chewing, slurping, crunching, throat clearing, finger tapping, foot shuffling, keyboard tapping, rustling, nasal sounds, pen clicking, appliance humming, clock ticking, and animal sounds.

These sounds should cause significant emotional distress (e.g., extreme irritation, anger, disgust, rage, anxiety, or panic). Do NOT count sounds that bother you only because you find them too loud or physically painful.

Please list the sounds that you are extremely bothered by, even when they are soft:

Sounds mentioned are categorized based on whether they were included in the Core Discriminant Sounds task's battery of misophonic trigger sounds or canonically-unpleasant sounds. Some sounds were mentioned by multiple participants.

	Autistic Group	Non-Autistic Group
Included in CDS Task Misophonic Trigger Sounds	Chewing/crunching (n=3) Throat clearing (n=3) Slurping (n=2) Heavy breathing "Some" computer keyboards	Chewing/crunching/ people eating (n=5) Throat clearing (n=2) Slurping (n=2)
Included in CDS Task Canonically-Unpleasant Sounds	Screeching[2] Silverware clinking[3] Loud clapping[1]	Screeching[2] Nails on chalkboard
Other Sounds	Puking Fire crackling Electronic buzzing or moving R2D2's robot sounds Console beeping Metal falling on ground Keys making sounds High-pitched noises High-pitched voices Crying babies[1] Babies laughing Dogs barking Cats meowing Cardboard noises Shoe screeching "Some" footsteps	Barfing Gagging Wheezing

	Bangs Basketballs hitting blackboard Drums Clicks[4] Loud engines[1] Singing (n=2) Yelling (generic)[1] Crowds yelling Kids screaming Arguing, fighting “Various” noises “repeatedly” made by sibling Mother talking	

1. Included in responses despite instructions to focus on bothersome SOFT sounds.
2. Included as “female scream.”
3. Included as “fork scratch plate” and “knife hit glass.”
4. Keyboard or pen click noises, presented as misophonic trigger sounds, could be considered to match this response.

1585

Supplementary Table A.13. Comparison of self-report and caregiver-report responses on the Brain-Body Center Sensory Scales (BBCSS). The results of cumulative link multilevel regression models are presented, examining fixed effects of diagnostic group (autistic vs. comparison), reporter (self vs. caregiver), and their interaction, covarying for age and nonverbal cognitive ability, and allowing varying (random) intercepts for participants. All *p*-values are presented both in uncorrected form (above) and with a false discovery rate correction for 8 multiple comparisons (below), except *post-hoc* paired Wilcoxon tests, where the correction is for 16 multiple comparisons. Estimates of *r*, based on *z*-values, are given as effect sizes for the paired Wilcoxon tests (Kassambara, 2022). **Statistical results are only presented when at least 12 participants in each group had <u>both</u> caregiver- and self-report data available.**
Descriptive statistics (means, standard deviations, and number of observations) are also provided; these are based on the raw data, not the rank-transformed data.
Finally, results of scaled, ranked regression analyses, examining how caregiver-report scores were predicted by child-report scores while controlling for diagnostic group, are presented; this provides a measure of the degree to which self-report and caregiver-report scores are associated with one another.

	Descriptive Statistics (Raw Data)										Analysis of Data										Convergence of Reporters: Scaled, Ranked Regression	
	Autistic					Comparison					Omnibus Cumulative Link Model Effects						Wilcoxon tests: Effects of Reporter					
	Caregiver		Self		Pairs	Caregiver		Self		Pairs	Diagnostic Group		Reporter		Interaction		Autistic Group		Comparison Group			
	Mean (SD)	n	Mean (SD)	n		Mean (SD)	n	Mean (SD)	n		χ^2	p_{raw} p_{cor}	χ^2	p_{raw} p_{cor}	χ^2	p_{raw} p_{cor}	*r* [95% CI]	p_{raw} p_{cor}	*r* [95% CI]	p_{raw} p_{cor}	Coefficient [95% CI]	p_{raw} p_{cor}
BBCSS Auditory HYPER	2.42 (0.68)	18	1.98 (0.53)	18	18	1.28 (0.36)	20	1.41 (0.44)	21	19	30.46	<.0001**** <.0001****	0.18	.68 .96	7.60	.006** .009**	.59 [.22, .84]	.01* .04*	.28 [.02, .65]	.21 .26	.35 [.13, .56]	.002** .02*
BBCSS HYPO to Voice	2.14 (0.68)	18	1.63 (0.43)	18	18	1.25 (0.24)	22	1.61 (0.56)	19	19	12.31	.0005*** .001**	0.03	.87 .96	13.92	.0002*** .0007***	.71 [.41, .85]	.002** .04*	.52 [.13, .78]	.02* .04*	.25 [.01, .48]	.04* .11
BBCSS Visual HYPER	1.82 (0.61)	18	1.81 (0.50)	18	18	1.23 (0.35)	20	1.70 (0.59)	20	18	8.85	.003** .006**	5.62 .09	.02* .14	4.89	.03* .04*	.03 [.01, .52]	.92 .92	.57 [.17, .83]	.02* .04*	.02 [-.28, .32]	.89 .89
BBCSS Tactile HYPER	2.42 (0.65)	18	1.88 (0.55)	18	18	1.36 (0.64)	21	1.68 (0.69)	19	18	18.67	<.0001**** <.0001****	0.00	.96 .96	13.25	.0003*** .0007***	.63 [.30, .85]	.006** .04*	.51 [.09, .82]	.04* .07	.22 [-.05, .48]	.11 .21
BBCSS Social Touch Aversion	1.94 (1.18)	17	1.74 (0.84)	17	16	1.13 (0.25)	15	1.40 (0.47)	16	11												
BBCSS Selective Eating	2.44 (0.67)	17	1.86 (0.58)	18	17	1.44 (0.46)	20	2.02 (0.72)	16	15	7.42	.006** .01*	0.00	.96 .96	17.63	<.0001**** .0002***	.60 [.23, .85]	.02* .04*	.59 [.18, .85]	.02* .052	.15 [-.14, .45]	.30 .48
BBCSS Ingestive Problems	1.33 (0.42)	17	1.18 (0.29)	17	16	1.02 (0.08)	17	1.26 (0.35)	14	10												

BBCSS Digestive Problems	1.54 (0.57)	17	1.63 (0.57)	18	17	1.25 (0.31)	19	1.42 (0.44)	17	14	3.87	.049* .056	2.95	.09 .34	0.06	.80 .80	.37 [.03, .78]	.33 .38	.47 [.05, .84]	.12 .18	.50 [.17, .84]	.005** .02*

586

Supplementary Table A.14. Sensitivity analysis for comparison of self-report and caregiver-report responses on the Brain-Body Center Sensory Scales (BBCSS), **including only participants who had responses to at least two-thirds of relevant BBCSS items for a given subscale**. The results of cumulative link multilevel regression models are presented, examining fixed effects of diagnostic group (autistic vs. comparison), reporter (self vs. caregiver), and their interaction, covarying for age and nonverbal cognitive ability, and allowing varying (random) intercepts for participants. All *p*-values are presented both in uncorrected form (above) and with a false discovery rate correction for 8 multiple comparisons (below), except *post-hoc* paired Wilcoxon tests, where the correction is for 16 multiple comparisons. Estimates of *r*, based on *z*-values, are given as effect sizes for the paired Wilcoxon tests (Kassambara, 2022). **Statistical results are only presented when at least 8 participants in each group had both caregiver- and self-report data available.**
Descriptive statistics (means, standard deviations, and number of observations) are also provided; these are based on the raw data, not the rank-transformed data.
Finally, results of scaled, ranked regression analyses, examining how caregiver-report scores were predicted by child-report scores while controlling for diagnostic group, are presented; this provides a measure of the degree to which self-report and caregiver-report scores are associated with one another.

	Descriptive Statistics (Raw Data)										Analysis of Data										Convergence of Reporters: Scaled, Ranked Regression	
	Autistic					Comparison					Omnibus Cumulative Link Model Effects						Wilcoxon tests: Effects of Reporter					
	Caregiver		Self		Pairs	Caregiver		Self		Pairs	Diagnostic Group		Reporter		Interaction		Autistic Group		Comparison Group			
	Mean (SD)	n	Mean (SD)	n		Mean (SD)	n	Mean (SD)	n		χ^2	p_{raw} p_{cor}	χ^2	p_{raw} p_{cor}	χ^2	p_{raw} p_{cor}	*r* [95% CI]	p_{raw} p_{cor}	*r* [95% CI]	p_{raw} p_{cor}	Coefficient [95% CI]	p_{raw} p_{cor}
BBCSS Auditory HYPER	2.42 (0.68)	18	2.03 (0.48)	17	17	1.29 (0.34)	15	1.47 (0.45)	17	12	31.91	<.0001**** <.0001****	0.02	.89 .96	6.27	.01* .02*	.58 [.19, .83]	.02* .07	.41 [.03, .86]	.18 .24	.23 [-.03, .49]	.08 .30
BBCSS HYPO to Voice	2.17 (0.69)	17	1.76 (0.36)	14	14	1.29 (0.21)	17	1.66 (0.57)	17	13	13.31	.0003*** .0007***	0.04	.84 .96	9.58	.002** .004**	.69 [.31, .87]	.01** .07	.49 [.04, .83]	.055 .10	.22 [-.10, .54]	.17 .46
BBCSS Visual HYPER	1.88 (0.69)	13	1.83 (0.48)	16	12	1.26 (0.38)	14	1.83 (0.58)	15	9	4.36	.04* .04*	4.85	.03* .22	7.06	.008** .01*	.31 [.01, .80]	.31 .35	.81 [.54, .90]	.02* .07	.22 [-.17, .62]	.25 .50
BBCSS Tactile HYPER	2.57 (0.61)	13	1.95 (0.54)	15	12	1.18 (0.27)	12	1.41 (0.26)	11	5												
BBCSS Social Touch Aversion	2.00 (1.19)	16	1.83 (0.85)	15	15	1.14 (0.25)	14	1.40 (0.47)	16	10	5.55	.02* .03*	1.05	.31 .73	0.97	.33 .37	.05 [.01, .59]	.80 .80	.41 [.02, .81]	.20 .25	.09 [-.36, .55]	.67 .74

BBCSS Selective Eating	2.46 (0.68)	16	1.97 (0.52)	16	15	1.31 (0.32)	13	1.90 (0.35)	12	8	12.66	.0004*** .0007***	0.00	.96 .96	21.35	<.0001*** <.0001***	.58 [.15, .87]	.03* .07	.87 [.77, .90]	.02* .07	.05 [-.27, .38]	.74 .74
BBCSS Ingestive Problems	1.38 (0.43)	15	1.12 (0.21)	16	14	1.03 (0.09)	13	1.26 (0.35)	14	8	1.14	.29 .29	0.00	.95 .96	10.09	.001** .004**	.59 [.21, .81]	.04* .08	.78 [N/A]	.048* .10	.11 [-.38, .60]	.64 .74
BBCSS Digestive Problems	1.60 (0.61)	13	1.74 (0.56)	14	10	1.24 (0.26)	16	1.35 (0.33)	12	9	5.06	.02* .03*	2.67	.10 .41	0.00	.99 .99	.42 [.03, .85]	.40 .43	.59 [.08, .88]	.09 .14	.51 [.03, 1.00]	.04 .30

587