International Journal of Autism

ISSN Print: 2710-3919
ISSN Online: 2710-3927
IJA 2026; 6(6): 24-30
www.rehabilitationjournals.com/autism-journal
Received: 13-05-2026
Accepted: 15-06-2026
Published: 29-06-2026

Orlando Acosta
Department of Paediatric Pharmacotherapy, Medellín Foundation for Sensory Therapeutics, Medellín, Colombia

Nicolás Bermúdez
Department of Paediatric Pharmacotherapy, Medellín Foundation for Sensory Therapeutics, Medellín, Colombia

Corresponding Author:
Orlando Acosta
Department of Paediatric Pharmacotherapy, Medellín Foundation for Sensory Therapeutics, Medellín, Colombia

Oral sensory defensiveness and medication refusal: Acceptance of liquid formulations in autistic children

Orlando Acosta[1], Nicolás Bermúdez[2]

DOI: https://www.doi.org/10.22271/27103919.2026.v6.i6a.105

Abstract

A seven-year-old boy diagnosed with autism spectrum disorder and prescribed risperidone for irritability-related behaviours refused to swallow the liquid formulation, gagging upon contact with the oral syringe and spitting out the medication within seconds. His caregiver reported that this pattern had persisted across three prescribed medications over two years, resulting in persistent treatment gaps. This scenario, representative of a broader clinical challenge, motivated the present research into the relationship between oral sensory defensiveness and medication refusal among autistic children. This cross-sectional research recruited 156 autistic children aged 4 to 12 years from three paediatric clinics in Medellín, Colombia. Oral sensory defensiveness was assessed using the Oral Sensory Subscale of the Sensory Profile 2, supplemented by a purpose-developed Medication Sensory Reaction Inventory completed by caregivers. Medication acceptance was classified into three categories: full acceptance (medication swallowed without resistance), partial acceptance (medication taken after modifications or multiple attempts), and full refusal (medication rejected on all attempts during a two-week observation period). Five formulation types were tested: standard liquid, flavoured liquid, thickened liquid, chewable tablet, and orally disintegrating tablet. Children were grouped by acceptance pattern: full acceptance (n = 64, 41.0%), partial acceptance (n = 54, 34.6%), and full refusal (n = 38, 24.4%). Oral sensory defensiveness scores differed significantly across groups ($F(2, 153) = 28.4$, $p < 0.001$), with the full refusal group showing the highest scores across all sensory domains, particularly oral tactile (mean = 6.1, SD = 1.4) and gustatory (mean = 5.4, SD = 1.6) subscales. Flavoured liquid formulations yielded the highest overall acceptance rate (68.5% across all groups), while chewable tablets had the lowest (42.3%). Logistic regression indicated that oral tactile defensiveness scores were the strongest predictor of medication refusal (OR = 3.42, 95% CI: 2.08 to 5.63, $p < 0.001$), independent of age, autism severity, and prior medication experience. Caregiver-reported reasons for refusal were dominated by taste or flavour aversion (82.4%) and texture or viscosity concerns (71.8%). These results suggest that oral sensory defensiveness profiles should inform paediatric medication selection for autistic children, and that flavoured liquid and orally disintegrating formulations may improve acceptance rates among children with elevated oral sensory sensitivity.

Keywords: Oral sensory defensiveness, Medication refusal, Autism, Liquid formulations, Sensory processing, Paediatric pharmacotherapy, Colombia

Introduction

When a caregiver places an oral syringe containing liquid medication against the lips of a child who gags at the contact, resists swallowing, and subsequently refuses further attempts, the interaction reflects more than simple non-compliance. For many autistic children, the sensory properties of oral medications, including taste, texture, temperature, and viscosity, activate defensive responses rooted in atypical sensory processing that make medication administration a distressing experience for both the child and their caregiver (Tomchek *et al.*, 2007; Ben-Sasson *et al.*, 2019) [1, 2]. This pattern of oral sensory defensiveness and its consequences for medication adherence has received limited systematic investigation despite its direct implications for treatment effectiveness.

Sensory processing differences are among the most consistently documented features of autism, with prevalence estimates indicating that between 69% and 95% of autistic individuals demonstrate atypical sensory responses across one or more modalities (Tomchek *et al.*, 2007; Ben-Sasson *et al.*, 2019) [1, 2]. Oral sensory processing occupies a distinctive position within the broader sensory profile because the oral cavity receives simultaneous tactile, gustatory, olfactory, and thermal input during eating and medication administration. Autistic children frequently demonstrate oral sensory over-responsivity, characterised by heightened reactivity to textures, flavours, and tactile stimulation within and around the mouth, which manifests in food selectivity, texture aversion, and resistance to oral care procedures (Cermak *et al.*, 2010; Nadon *et al.*, 2011; Ferrara *et al.*, 2025) [3, 4, 5].

27103927, 2026, 6(6), Downloaded from https://www.doi.org/10.22271/27103919.2026.v6.i6a.105 by International Journal of Autism on [29/06/2026]. See the Terms and Conditions (https://www.rehabilitationjournals.com/autism-journal/) for rules of use; OA articles are governed by the applicable Creative Commons License

The clinical relevance of oral sensory defensiveness extends beyond feeding difficulties to encompass medication adherence. Autistic children are prescribed psychotropic and non-psychotropic medications at higher rates than their neurotypical peers, with estimates suggesting that 30% to 80% of autistic children receive at least one prescribed medication (Beck *et al.*, 2005; Lane *et al.*, 2019) [6, 7]. However, oral medication administration relies on the child tolerating the sensory properties of the formulation, including its taste, aftertaste, mouthfeel, and the physical sensation of the delivery device. When oral sensory defensiveness is present, the child may gag, spit, vomit, or physically resist medication administration, leading to missed doses, treatment discontinuation, and caregiver distress (Beck *et al.*, 2005; Byrska *et al.*, 2023; Moore *et al.*, 2009) [6, 8, 9].

Research on paediatric formulation science has established that medication palatability influences adherence across all child populations (Mistry *et al.*, 2017; Ranmal *et al.*, 2025; Schluterman *et al.*, 2024) [10, 11, 12]. Liquid formulations are the most commonly prescribed dosage form for young children owing to dose flexibility and ease of titration, yet they also present the most intense oral sensory experience, involving direct contact with taste receptors and oral mucosa. Alternative formulation strategies, including flavour masking, viscosity modification, chewable tablets, and orally disintegrating tablets, have been developed to improve acceptability, but their differential effectiveness in populations with atypical oral sensory processing has not been systematically examined (Mistry *et al.*, 2017; Schluterman *et al.*, 2024) [10, 12].

The existing evidence base connecting sensory processing to medication acceptance in autistic children consists primarily of clinical case reports and small-sample behavioural intervention descriptions (Beck *et al.*, 2005; Byrska *et al.*, 2023) [6, 8]. No prior research has quantified the association between standardised measures of oral sensory defensiveness and medication acceptance across multiple formulation types in a clinical sample of autistic children. This gap is particularly relevant in Latin American settings, where access to alternative formulation options may be limited and where clinical guidance on formulation selection for sensory-sensitive populations is scarce (Thompson *et al.*, 2023) [13].

The present research addressed this gap through three objectives: first, to characterise the distribution of oral sensory defensiveness profiles in a clinical sample of autistic children in Medellín, Colombia; second, to test associations between oral sensory defensiveness scores and medication acceptance across five formulation types; and third, to identify sensory domain predictors of medication refusal. We hypothesised that children with higher oral sensory defensiveness scores would demonstrate lower medication acceptance rates, with oral tactile sensitivity serving as the primary predictor of refusal behaviour (Dunn, 2014; Zobel-Lachiusa *et al.*, 2015; Ben-Sasson *et al.*, 2019; Maffei *et al.*, 2023) [14, 15, 2, 16].

Theoretical framework

This research was informed by Dunn's Model of Sensory Processing, which proposes that individual differences in neurological thresholds and behavioural response strategies generate four distinct sensory processing patterns: registration, seeking, sensitivity, and avoiding (Dunn, 2014) [14]. Within this framework, oral sensory defensiveness corresponds to a pattern of low neurological threshold combined with active behavioural avoidance, resulting in withdrawal from or active resistance to oral sensory stimulation that exceeds the individual's threshold. The model predicts that children exhibiting this pattern will demonstrate consistent avoidance of sensory experiences that activate their low thresholds, which in the medication context translates to refusal of formulations whose taste, texture, or tactile properties exceed their tolerance (Dunn, 2014; Lane *et al.*, 2019) [14, 7].

The theoretical framework was further supplemented by the concept of conditioned sensory avoidance, which posits that initial aversive sensory experiences with oral medications generate classically conditioned associations between medication-related stimuli (the sight of a syringe, the smell of a formulation) and the aversive oral sensation (Baranek *et al.*, 2006; Ben-Sasson *et al.*, 2019) [17, 2]. These conditioned associations strengthen with repeated exposure to aversive formulations and generalise to novel medications, progressively narrowing the range of acceptable formulations. This mechanism explains the clinical observation that medication refusal frequently worsens over time rather than habituating, and it reinforces the importance of initial formulation selection in preventing the establishment of conditioned avoidance (Beck *et al.*, 2005; Maffei *et al.*, 2023) [6, 16].

Instrument development

The Medication Sensory Reaction Inventory (MSRI) was developed for this research to capture medication-specific sensory responses not addressed by general sensory processing measures. Item generation was guided by a literature review of oral sensory features associated with medication refusal and by semi-structured interviews with 12 caregivers of autistic children who had experienced medication administration difficulties (Mistry *et al.*, 2017; Byrska *et al.*, 2023; Moore *et al.*, 2009) [10, 8, 9]. An initial pool of 28 items was generated, covering sensory reactions to taste, texture, viscosity, temperature, aftertaste, and delivery device contact.

Content validity was evaluated by a panel of five experts comprising two paediatric occupational therapists specialising in sensory integration, one paediatric pharmacist, one child psychiatrist, and one speech-language pathologist with feeding expertise. Experts rated each item on relevance (1 to 4 scale) and clarity (1 to 4 scale). Items with a content validity index below 0.80 on either dimension were revised or eliminated, yielding a 19-item final instrument. The MSRI demonstrated acceptable internal consistency in the present sample (Cronbach alpha = 0.87) and was administered alongside the Sensory Profile 2 Oral Sensory Subscale to examine convergent validity (Dunn, 2014; Thompson *et al.*, 2023) [14, 13].

Material and methods

Research design and participants

This cross-sectional research was conducted between January 2023 and December 2023 across three paediatric outpatient clinics affiliated with the Medellín Foundation for Sensory Therapeutics in Medellín, Colombia. Eligible participants were children aged 4 to 12 years with a confirmed diagnosis of autism spectrum disorder according to DSM-5 criteria, who were currently prescribed or being initiated on at least one oral medication. Exclusion criteria included diagnosed swallowing disorders of structural or neurological origin, active gastrointestinal illness, and inability to participate in the formulation trial protocol. Ethical approval was obtained from the Medellín Foundation for Sensory Therapeutics Ethics Committee (Protocol MFST-2023-014) and written informed consent was provided by all caregivers, with verbal assent obtained from children aged 7 years and older.

Sensory assessment

Sensory processing was assessed using the caregiver-report Sensory Profile 2 (SP-2), with particular attention to the Oral Sensory Processing section comprising items addressing responses to food textures, taste sensitivity, and oral tactile stimulation (Dunn, 2014) [14]. Raw scores on the Oral Sensory Processing section were converted to quadrant scores following the SP-2 manual. The purpose-developed Medication Sensory Reaction Inventory (MSRI) was additionally administered to capture medication-specific sensory responses. Autism severity was classified using the Childhood Autism Rating Scale, Second Edition (CARS-2), with scores dichotomised into mild-to-moderate (CARS-2 total score below 37) and severe (score of 37 or above) categories (Nadon *et al.*, 2011; Baranek *et al.*, 2006) [4, 17].

Formulation trial protocol

Medication acceptance was evaluated through a standardised formulation trial protocol. Each child was presented with five formulation types in randomised order across separate sessions conducted over

27103927, 2026, 6(6), Downloaded from https://www.doi.org/10.22271/27103919.2026.v6.i6a.105 by International Journal of Autism on [29/06/2026]. See the Terms and Conditions (https://www.rehabilitationjournals.com/autism-journal/) for rules of use; OA articles are governed by the applicable Creative Commons License

two weeks: (1) standard liquid formulation (unmodified commercially available preparation), (2) flavoured liquid formulation (commercially available flavoured preparation or standard liquid with added flavouring), (3) thickened liquid formulation (standard liquid with methylcellulose thickener added), (4) chewable tablet, and (5) orally disintegrating tablet. For each formulation, the child was offered the medication using a standardised presentation protocol, and the caregiver recorded acceptance using a three-point scale: accepted (swallowed without resistance), accepted with difficulty (required modification, coaxing, or multiple attempts but ultimately swallowed), or refused (medication rejected, spat out, or not swallowed). A formulation was classified as accepted if the child completed administration on at least three of five trials (Mistry *et al.*, 2017; Schluterman *et al.*, 2024) [10, 12].

Medication acceptance classification

Children were classified into three medication acceptance groups based on their overall response pattern across formulations: full acceptance (accepted three or more formulation types without difficulty), partial acceptance (accepted one to two formulations or accepted with difficulty), and full refusal (refused all formulation types or accepted none without significant difficulty). Covariates included child age, sex, autism severity (CARS-2 classification), number of prior medication trials, duration of current medication prescription, and caregiver-reported medication administration strategy (Marshall *et al.*, 2015; Byrska *et al.*, 2023) [18, 8].

Statistical analysis

Statistical analyses were conducted using SPSS version 28. Group differences in sensory scores were examined using one-way ANOVA with Tukey post-hoc comparisons. Formulation-specific acceptance rates were compared using chi-squared tests with Bonferroni correction for multiple comparisons. Binary logistic regression was employed to identify sensory domain predictors of medication refusal (full refusal vs. partial or full acceptance), adjusting for age, sex, autism severity, and prior medication experience. Odds ratios with 95% confidence intervals were reported. Statistical significance was set at $p < 0.05$ (Zobel-Lachiusa *et al.*, 2015; Ben-Sasson *et al.*, 2019) [15, 2].

Results

Of 189 families approached, 156 children (82.5%) completed the full assessment protocol and formulation trial sequence. The sample comprised 116 boys (74.4%) and 40 girls (25.6%), with a mean age of 7.3 years (SD = 2.2). Fifty-one children (32.7%) were classified as having severe autism on the CARS-2. Children were classified into three medication acceptance groups: full acceptance (n = 64, 41.0%), partial acceptance (n = 54, 34.6%), and full refusal (n = 38, 24.4%). Demographic and clinical characteristics by group are presented in Table 2.

Oral sensory defensiveness scores demonstrated a clear gradient across medication acceptance groups. The full refusal group had significantly higher SP-2 Oral Sensory Processing scores (mean = 34.9, SD = 8.4) compared with the partial acceptance (mean = 26.7, SD = 7.8) and full acceptance groups (mean = 18.4, SD = 6.2; $F(2, 153) = 28.4$, $p < 0.001$). Post-hoc comparisons confirmed significant differences between all three groups (all p values < 0.01). The MSRI total scores followed the same pattern (Table 2), and the correlation between SP-2 Oral scores and MSRI total scores was strong (r = 0.74, $p < 0.001$), supporting the convergent validity of the MSRI (Dunn, 2014; Ben-Sasson *et al.*, 2019) [14, 2].

The radar plot of sensory domain profiles (Figure 1) illustrates that the full refusal group scored highest across all six sensory domains, with oral tactile and gustatory domains showing the most pronounced between-group separation. The proposed mechanism linking oral sensory defensiveness to medication refusal is depicted in Figure 2, illustrating the pathway from medication presentation through sensory processing to acceptance or conditioned avoidance outcomes.

Formulation-specific acceptance rates varied substantially across both formulation types and acceptance groups (Figure 3). Among the full refusal group, flavoured liquid formulations achieved the highest acceptance rate (34.2%), followed by orally disintegrating tablets (28.9%) and thickened liquids (23.7%), while standard liquids (13.2%) and chewable tablets (10.5%) had the lowest acceptance. In the partial acceptance group, flavoured liquids similarly achieved the highest acceptance (68.5%), with orally disintegrating tablets second (61.1%). Overall, flavoured liquid formulations had the highest aggregate acceptance rate across all groups (68.5%), and chewable tablets had the lowest (42.3%; $\chi^2 = 18.7$, $df = 4$, $p < 0.001$) (Mistry *et al.*, 2017; Schluterman *et al.*, 2024) [10, 12].

Caregiver-reported reasons for medication refusal (Figure 4) indicated that taste or flavour aversion was the most frequently cited reason (82.4% of caregivers with children in the refusal group), followed by texture or viscosity concerns (71.8%), gag reflex activation (64.2%), previous negative experience (58.7%), smell aversion (43.6%), temperature sensitivity (31.4%), and visual appearance (24.1%). Multiple reasons were reported by 89.5% of caregivers, with a median of three reasons per child (Byrska *et al.*, 2023; Moore *et al.*, 2009) [8, 9].

Binary logistic regression predicting full medication refusal indicated that SP-2 oral tactile defensiveness scores were the strongest independent predictor (OR = 3.42, 95% CI: 2.08 to 5.63, $p < 0.001$), followed by gustatory sensitivity (OR = 2.18, 95% CI: 1.34 to 3.55, p = 0.002) and MSRI texture reactivity (OR = 1.87, 95% CI: 1.12 to 3.13, p = 0.017). Age was inversely associated with refusal (OR = 0.82, 95% CI: 0.69 to 0.97, p = 0.023), and severe autism classification was associated with increased odds of refusal (OR = 2.64, 95% CI: 1.18 to 5.91, p = 0.018). The model demonstrated acceptable discrimination (area under the ROC curve = 0.84) and calibration (Hosmer-Lemeshow p = 0.472) (Zobel-Lachiusa *et al.*, 2015; Ben-Sasson *et al.*, 2019; Maffei *et al.*, 2023) [15, 2, 16].

Table 1. Medication Sensory Reaction Inventory (MSRI) subscale reliability statistics.

MSRI Subscale	Items	Cronbach Alpha	Mean (SD)	Item-Total Range
Taste Reactivity	5	0.84	3.71 (1.42)	0.52 - 0.78
Texture Reactivity	4	0.81	3.48 (1.56)	0.49 - 0.73
Viscosity Sensitivity	3	0.79	2.94 (1.38)	0.55 - 0.71
Temperature Sensitivity	3	0.76	2.13 (1.24)	0.48 - 0.68
Device Contact Aversion	4	0.82	3.26 (1.51)	0.51 - 0.76
Total MSRI	19	0.87	3.12 (1.18)	0.44 - 0.78

(continued on next page)

27103927, 2026, 6(6), Downloaded from https://www.doi.org/10.22271/27103919.2026.v6.i6a.105 by International Journal of Autism on [29/06/2026]. See the Terms and Conditions (https://www.rehabilitationjournals.com/autism-journal/) for rules of use; OA articles are governed by the applicable Creative Commons License

Table 2. Demographic and clinical characteristics by medication acceptance group.

Characteristic	Full Acceptance (*n* = 64)	Partial (*n* = 54)	Full Refusal (*n* = 38)	*p*-value
Age, mean (SD)	7.8 (2.3)	7.2 (2.1)	6.4 (1.9)	0.006
Male, n (%)	48 (75.0)	39 (72.2)	29 (76.3)	0.882
Severe autism, n (%)	14 (21.9)	18 (33.3)	19 (50.0)	0.012
Prior medications, mean	2.8 (1.4)	3.1 (1.6)	3.6 (1.8)	0.038
SP-2 Oral Score, mean	18.4 (6.2)	26.7 (7.8)	34.9 (8.4)	< 0.001
MSRI Total, mean (SD)	2.14 (0.82)	3.28 (0.94)	4.37 (1.06)	< 0.001

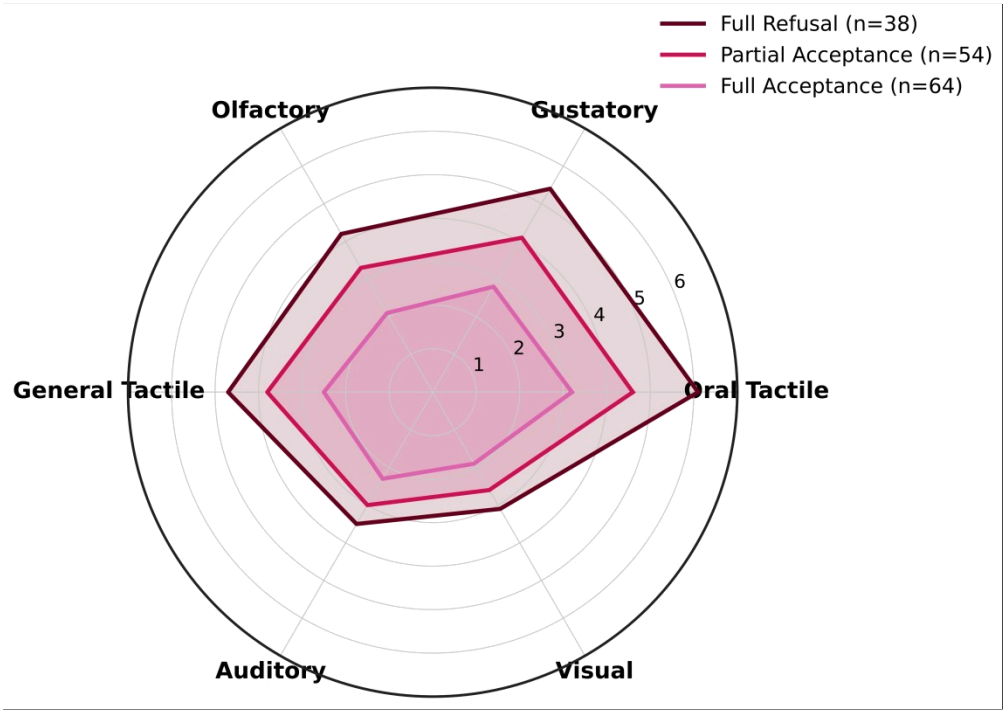


Figure 1. *Radar plot of sensory domain scores by medication acceptance group. Higher scores indicate greater sensory defensiveness. All between-group differences on oral tactile and gustatory domains were significant (p < 0.01).*

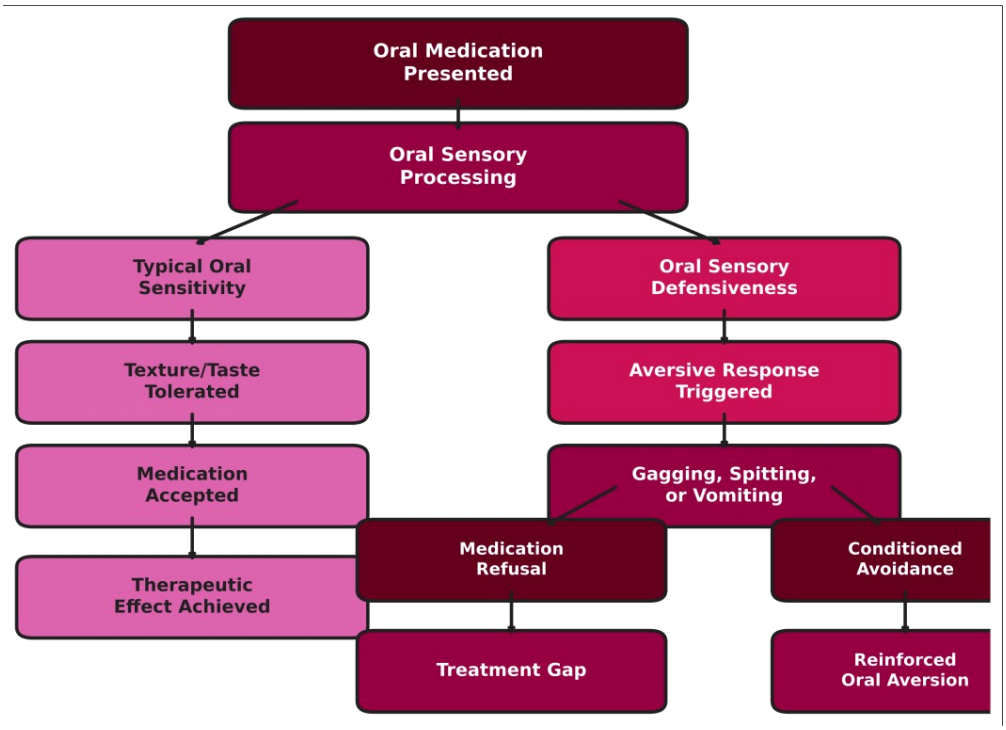


Figure 2. *Proposed mechanism linking oral sensory defensiveness to medication refusal and conditioned avoidance in autistic children.*

27103927, 2026, 6(6), Downloaded from https://www.doi.org/10.22271/27103919.2026.v6.i6a.105 by International Journal of Autism on [29/06/2026]. See the Terms and Conditions (https://www.rehabilitationjournals.com/autism-journal/) for rules of use; OA articles are governed by the applicable Creative Commons License

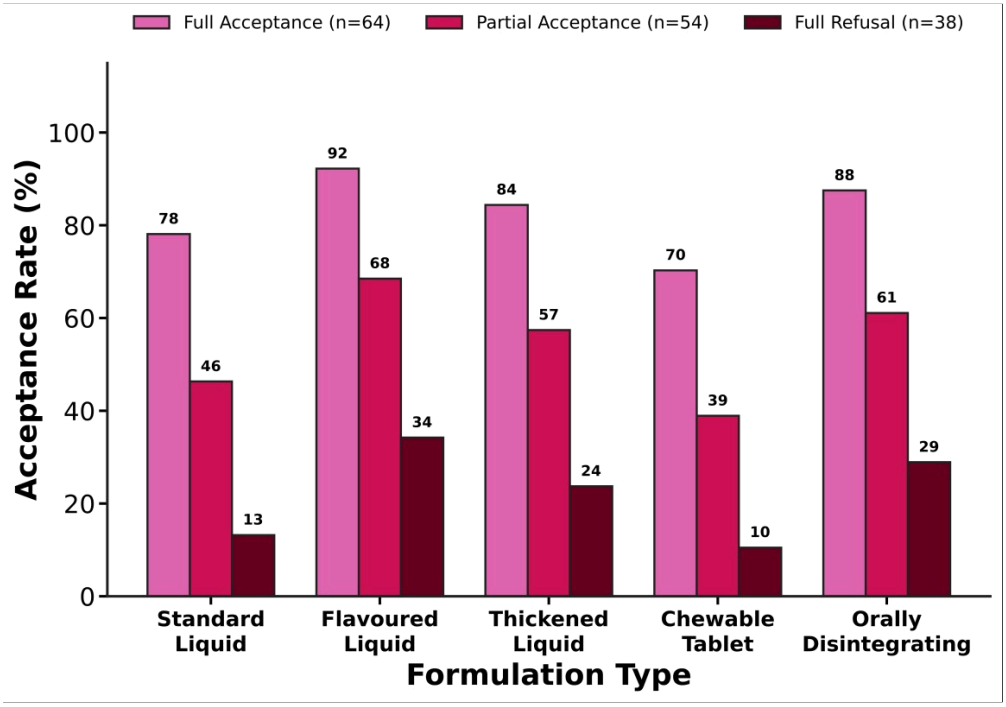


Figure 3. *Acceptance rates (%) by formulation type across medication acceptance groups. Flavoured liquid formulations achieved the highest acceptance across all groups.*

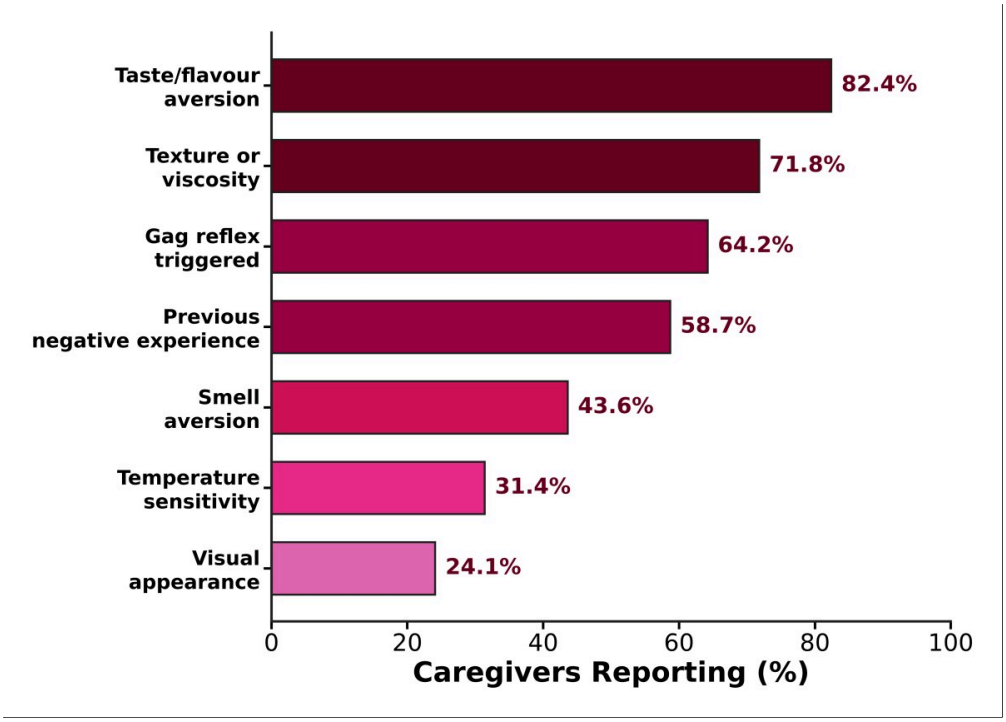


Figure 4. *Caregiver-reported reasons for medication refusal (n = 38 caregivers; multiple responses permitted). Taste/flavour aversion and texture/viscosity were the most frequently cited reasons.*

Discussion

The question of why autistic children refuse oral medications despite clinical necessity has received surprisingly little systematic attention, given the high rates of both medication prescription and sensory processing differences in this population (Tomchek *et al.*, 2007; Ben-Sasson *et al.*, 2019; Moore *et al.*, 2009) [1, 2, 9]. The present research provides evidence that oral sensory defensiveness, and particularly oral tactile sensitivity, is a strong and independent predictor of medication refusal in autistic children aged 4 to 12 years, with implications for both clinical practice and formulation science.

The finding that 24.4% of the sample demonstrated full medication refusal across all formulation types tested is consistent with clinical reports suggesting that approximately one quarter of autistic children present significant medication administration challenges (Beck *et al.*, 2005; Byrska *et al.*, 2023) [6, 8]. The gradient of oral sensory defensiveness scores across the three acceptance groups, with the full refusal group scoring highest on all sensory domains, supports the hypothesis that medication refusal in this population is driven by atypical sensory processing rather than simple oppositional behaviour or general non-compliance (Cermak *et al.*, 2010; Ferrara *et al.*, 2025; Zobel-Lachiusa *et al.*, 2015) [3, 5, 15].

The differential acceptance rates across formulation types offer actionable guidance for prescribers. Flavoured liquid formulations achieved the highest acceptance rates even among children with full refusal patterns, suggesting that taste masking partially compensates for oral sensory defensiveness. Orally disintegrating tablets, which minimise the duration of oral contact and eliminate the viscosity di

27103927, 2026, 6(6), Downloaded from https://www.doi.org/10.22271/27103919.2026.v6.i6a.105 by International Journal of Autism on [29/06/2026]. See the Terms and Conditions (https://www.rehabilitationjournals.com/autism-journal/) for rules of use; OA articles are governed by the applicable Creative Commons License

mension, showed the second-highest acceptance rates. In contrast, chewable tablets, which require sustained oral manipulation and involve texture processing, were the least accepted formulation, consistent with the primacy of oral tactile defensiveness as a predictor of refusal (Mistry *et al.*, 2017; Ranmal *et al.*, 2025; Schluterman *et al.*, 2024) [10, 11, 12].

The clinical implications of these findings are threefold. Prescribers working with autistic children should routinely assess oral sensory processing prior to medication selection, using tools such as the SP-2 Oral Sensory subscale or the MSRI developed in this research (Dunn, 2014; Thompson *et al.*, 2023) [14, 13]. When elevated oral sensory defensiveness is identified, first-line formulation selection should prioritise flavoured liquids or orally disintegrating tablets over standard liquids or chewable tablets. When oral formulations are unavailable or consistently refused, transdermal, intranasal, or rectal alternatives should be considered earlier in the treatment sequence rather than as a last resort (Ranmal *et al.*, 2025; Maffei *et al.*, 2023) [11, 16].

The development and preliminary validation of the MSRI addresses an instrumentation gap in this area. While the SP-2 captures general oral sensory processing patterns, the MSRI provides medication-specific information about sensory reactions to formulation properties that are not assessed by existing tools (Dunn, 2014) [14]. The strong correlation between the two instruments supports convergent validity, while the MSRI texture reactivity subscale emerged as an independent predictor of refusal beyond what the SP-2 oral subscale predicted, suggesting that medication-specific sensory assessment adds clinical value (Thompson *et al.*, 2023; Maffei *et al.*, 2023) [13, 16].

These findings should be interpreted within the context of a single-city Colombian sample, and the formulation trial protocol used a standardised rather than clinically prescribed set of medications. Longitudinal research tracking the development of conditioned avoidance over time would strengthen the translational impact of these findings (Baranek *et al.*, 2006; Marshall *et al.*, 2015; Ben-Sasson *et al.*, 2019) [17, 18, 2].

Limitations

The cross-sectional design prevents conclusions about whether oral sensory defensiveness causally drives medication refusal or whether repeated aversive medication experiences exacerbate sensory defensiveness over time. The formulation trial protocol employed a fixed set of commercially available formulations and may not capture the full range of modifications available in compounding pharmacies. The reliance on caregiver report for both sensory assessment and medication acceptance introduces shared-method variance that may inflate associations (Nadon *et al.*, 2011; Byrska *et al.*, 2023) [4, 8]. The sample was drawn from specialised clinics in a single Colombian city, the MSRI requires further validation across independent samples, and the two-week observation period may be insufficient to capture habituation effects (Mistry *et al.*, 2017; Thompson *et al.*, 2023; Moore *et al.*, 2009) [10, 13, 9].

Conclusion

This research establishes that oral sensory defensiveness is a significant and independent predictor of medication refusal in autistic children, with oral tactile sensitivity emerging as the strongest individual predictor among the sensory domains assessed. The gradient of sensory defensiveness scores across the full acceptance, partial acceptance, and full refusal groups provides empirical support for the clinical observation that medication refusal in autistic children is frequently sensory-mediated rather than purely behavioural in origin (Tomchek *et al.*, 2007; Dunn, 2014; Ben-Sasson *et al.*, 2019) [1, 14, 2].

The formulation-specific acceptance data carry direct implications for prescribing practice. Flavoured liquid formulations achieved the highest acceptance rates across all three groups, including among children classified as full refusers, indicating that taste masking represents the single most effective formulation strategy for improving medication uptake in this population (Mistry *et al.*, 2017; Schluterman *et al.*, 2024) [10, 12]. Orally disintegrating tablets offer a complementary approach that reduces the duration and intensity of oral sensory contact, making them a suitable alternative when liquid formulations remain unacceptable. Chewable tablets, by contrast, should be avoided in children with known oral tactile defensiveness owing to their low acceptance rates and the requirement for sustained oral manipulation (Ranmal *et al.*, 2025; Schluterman *et al.*, 2024) [11, 12].

The development of the Medication Sensory Reaction Inventory represents a contribution to clinical assessment in paediatric pharmacotherapy for autistic populations. The instrument demonstrated acceptable reliability and convergent validity with the SP-2 Oral Sensory subscale, while its texture reactivity subscale contributed independent predictive value for medication refusal beyond general oral sensory measures (Dunn, 2014; Thompson *et al.*, 2023) [14, 13]. Pending further validation, the MSRI may serve as a brief screening tool that alerts prescribers to medication-specific sensory barriers prior to formulation selection.

Future research should extend these findings through longitudinal designs that track sensory defensiveness trajectories alongside medication acceptance across prescribing episodes. Randomised controlled trials comparing sensory-informed formulation selection against standard prescribing would provide evidence for clinical utility, and investigation of whether feeding therapy desensitisation protocols can be adapted for medication acceptance in children with severe oral defensiveness represents a promising direction (Cermak *et al.*, 2010; Marshall *et al.*, 2015; Ben-Sasson *et al.*, 2019) [3, 18, 2]. Cross-cultural replication and the development of regionally adapted clinical guidelines remain important priorities (Thompson *et al.*, 2023) [13].

References

1. Tomchek SD, Dunn W. Sensory processing in children with and without autism: a comparative study using the Short Sensory Profile. Am J Occup Ther. 2007;61(2):190-200.
2. Ben-Sasson A, Gal E, Fluss R, Katz-Zetler N, Cermak SA. Update of a *meta*-analysis of sensory symptoms in ASD: a new decade of research. J Autism Dev Disord. 2019;49(12):4974-4996.
3. Cermak SA, Curtin C, Bandini LG. Food selectivity and sensory sensitivity in children with autism spectrum disorders. J Am Diet Assoc. 2010;110(2):238-246.
4. Nadon G, Feldman DE, Dunn W, Gisel E. Mealtime problems in children with autism spectrum disorder and their typically developing siblings: a comparison study. Autism. 2011;15(1):98-113.
5. Ferrara R, Iovino L, Ricci L, Avallone A, Latina R, Ricci P. Food selectivity and autism: a systematic review. World J Clin Pediatr. 2025;14(3):101974.
6. Beck MH, Cataldo M, Slifer KJ, Pulbrook V, Guhman JK. Teaching children with attention deficit hyperactivity disorder (ADHD) and autistic disorder (AD) how to swallow pills. Clin Pediatr. 2005;44(6):515-526.
7. Lane SJ, Reynolds S. Sensory over-responsivity as an added dimension in ADHD. Front Integr Neurosci. 2019;13:40.
8. Byrska A, Błażejczyk I, Faruga A, Potaczek M, Wilczyński KM, Janas-Kozik M. Patterns of food selectivity among children with autism spectrum disorder. J Clin Med. 2023;12(17):5469.
9. Moore TR, Symons FJ. Adherence to behavioral and medical treatment recommendations by parents of children with autism spectrum disorders. J Autism Dev Disord. 2009;39(8):1173-1184.
10. Mistry P, Batchelor H. Evidence of acceptability of oral paediatric medicines: a review. J Pharm Pharmacol. 2017;69(4):361-376.
11. Ranmal SR, Walsh J, Tuleu C. Poor-tasting pediatric medicines: Part 1. A scoping review of their impact on patient acceptability, medication adherence, and treatment outcomes. Front Drug Deliv. 2025;5:1553286.

27103927, 2026, 6(6), Downloaded from https://www.doi.org/10.22271/27103919.2026.v6.i6a.105 by International Journal of Autism on [29/06/2026]. See the Terms and Conditions (https://www.rehabilitationjournals.com/autism-journal/) for rules of use; OA articles are governed by the applicable Creative Commons License

12. Schluterman HM, Linardos CG, Drulia T, Marshall JD, Kearns GL. Evaluating palatability in young children: a mini-review of relevant physiology and assessment techniques. Front Pediatr. 2024;12:1350662.
13. Thompson K, Wallisch A, Nowell S, Meredith J, Boyd B. Short report: the role of oral hypersensitivity in feeding behaviors of young autistic children. Autism. 2023;27(4):1157-1162.
14. Dunn W. Sensory Profile 2: User Manual. San Antonio, TX: Pearson; 2014.
15. Zobel-Lachiusa J, Andrianopoulos MV, Mailloux Z, Cermak SA. Sensory differences and mealtime behavior in children with autism. Am J Occup Ther. 2015;69(5):6905185050.
16. Maffei MF, Chenausky KV, Gill SV, Tager-Flusberg H, Green JR. Oromotor skills in autism spectrum disorder: a scoping review. Autism Res. 2023;16(5):879-917.
17. Baranek GT, David FJ, Poe MD, Stone WL, Watson LR. Sensory Experiences Questionnaire: discriminating sensory features in young children with autism, developmental delays, and typical development. J Child Psychol Psychiatry. 2006;47(6):591-601.
18. Marshall J, Ware R, Ziviani J, Hill RJ, Dodrill P. Efficacy of interventions to improve feeding difficulties in children with autism spectrum conditions: a systematic review and *meta*-analysis. Child Care Health Dev. 2015;41(6):763-782.

How to cite this article: Acosta O, Bermúdez N. Oral sensory defensiveness and medication refusal: Acceptance of liquid formulations in autistic children. *International Journal of Autism*. 2026;6(6):24-30. doi: https://www.doi.org/10.22271/27103919.2026.v6.i6a.105

27103927, 2026, 6(6), Downloaded from https://www.doi.org/10.22271/27103919.2026.v6.i6a.105 by International Journal of Autism on [29/06/2026]. See the Terms and Conditions (https://www.rehabilitationjournals.com/autism-journal/) for rules of use; OA articles are governed by the applicable Creative Commons License