What kind of textures are liked or disliked by people on the autism spectrum? A qualitative study

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INTRODUCTION

Autistic people are still a poorly represented group in research. Sensory abnormalities are included as part of the autism diagnosis in the DSM-5 (American Psychiatric Association, 2013). A frequently reported characteristic is an atypical sensitivity to touch. Scientific studies document a broad spectrum of atypical reactions to tactile stimuli. These include hypo- or hypersensitivity to pain, hypersensitivity to light touch, a preference for deep pressure and unusual reactions to social touch (Haigh et al., 2015). For example, 70.4% of autistic people report 'unusual sensory interests' and 66% state that they have 'negative sensory experiences' (Zachor & Ben-Itzchak, 2014).

The sense of touch plays an important role in everyday life: the skin is the largest human organ and the primary mode of communication in the first year of life (Field, 2001). Nevertheless, the sense of touch remains largely unconsidered in research - previous studies have mainly focused on visual and auditory sensory differences (Cascio et al., 2013).

RESEARCH OBJECTIVES

This study aims to explore sensory and aesthetic preferences of textures in individuals on the autism spectrum and address the current research gaps. Our study specifically targets commonly encountered materials, to enhance their design and usability. The insights gained are intended to inform the development of autism-friendly products, such as clothing, toys, and other everyday items, thereby improving quality of life and accessibility for the autism community.

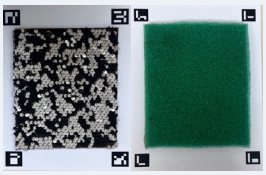
METHODOLOGY

This preliminary investigation employed a single-participant, multimethodological quasi-experimental design focusing on sensory and aesthetic perceptions in autistic individuals. Details of the methods used are outlined below:

- **N=1** autistic individual (due to time constraints and the research scope).

STIMULI

- 12 everyday materials (e.g., Faux fur, bubble wrap, towel);
- 21x16cm format on a neutral, rigid background (randomized counter-balanced sequence);



MEASURES

- **Audio Recordings**: For think-aloud protocol;
- **Touch evaluation task** 7-point Likert scale with 10 sensory/aesthetic attributes;

PROCEDURE

The assessment was divided into three blocks with brief intermissions to ensure participant focus and reduce fatigue:

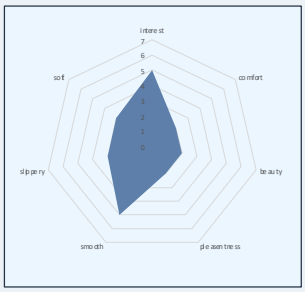
1. **Visual Exploration Phase (30 seconds)**: Participants described their impressions, supported by semi-structured interviews (think-aloud protocol);
2. **Haptic Exploration Phase (60 seconds)**: Continued verbalizations of sensory, aesthetic experiences, guided by semi-structured interviews (think-aloud protocol);
3. **Rating Phase**: Touch evaluation task of the texture explored;

(PRELIMINARY) RESULTS

To Analysed data from "think-aloud" protocol and semi-structured interviews, we employed Interpretative Phenomenological Analysis (IPA) for qualitative insights (Pietkiewicz & Smith, 2014).

EXAMPLE 1: SEQUINS

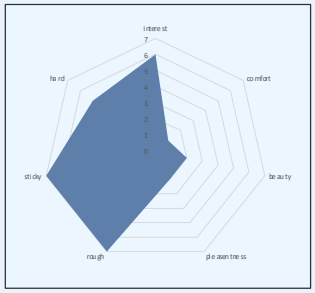
In the visual phase the participant associates the material with **"scales" of "snakeskin"**. There's a considerable notice of the coloration ("It is somehow weird that they have this color. Usually it's pink or blue"). The participant also struggles to not involve the background into the evaluation. The expectation of a pleasant haptic was disappointed – it was perceived as **unpleasant** and **unsatisfying**. Especially the fact, that the sequins didn't turn sides easily was **bothering**. The material was known.



Rating it high on interest but low within the others aesthetic facets like beauty, pleasantness, and comfort, highlights a **certain repulsive fascination**. Considering the sensory characteristics the struggle to separate it from the background resulted in a tendency towards the middle in ranking.

EXAMPLE 2: ABRASIVE SPONGE

The participant initially describes the material visually ("green", "shiny"). The color and appearance evoke associations with **"artificial turf"** and an "artificial" appearance. "Fake green" and differences in brightness are emphasized. Roughness when stroking and "soft yielding" when tapping are described in the haptic exploration phase. The texture is compared to a dried sponge. The participant shows interest in the acoustic component (**"it crackles nicely"**), hinting on multimodal perceptional importance. When asked to label it, the participant chose to call the material "rough artificial grass", whereby the colour plays a decisive role. The material is rated as very interesting and is therefore perceived as particularly striking or different. Despite this, it is not perceived as pleasant, beautiful or comfortable. The ratings considering sensory characteristics also are associated more negatively. The participant's perception of the material is therefore **predominantly negative**, apart from the interest and the crackling sound, which arouses a **certain fascination.**



The ratings indicate a **rejection** with the texture and appearance being perceived as artificial and unnatural.

DISCUSSION

While our research highlights an important area of study, it is essential to acknowledge its limitations. Due to time constraints and the specificity of the targeted population, we were unable to include multiple participants yet. The sample was conducted by contacting a specific community, not randomly pulled. This prevents us from obtaining reliable or generalizable data, particularly as we lack a control group for comparison until now. Therefore, this study should be viewed as a preliminary exploration that underscored the need for further research in this critical area.

References mentioned:

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: Amer Psychiatric Pub Inc.

Cascio, C. J., Lorenzi, J., Baranek, G. T., et al. (2013). Self-reported Pleasantness Ratings and Examiner-Coded Defensiveness in Response to Touch in Children with ASD: Effects of Stimulus Material and Bodily Location. Journal of Autism and Developmental Disorders.

Field, T. (2001). Touch. Cambridge, MA: MIT Press.

Haigh, S.M., Minshew, N. Heeger, D.J., Dinstein, I. & Behrmann, M. (2015). Over-Responsiveness and Greater Variability in Roughness Perception in Autism. Autism Research 9: 393–402, 2016.

Kyriacou, C., Forrester-Jones, R., & Triantafyllopoulou, P. (2023). Clothes, sensory experiences and autism: is wearing the right fabric important?. *Journal of Autism and Developmental Disorders, 53*(4), 1495-1508.

Pietkiewicz, I., & Smith, J. A. (2014). A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychological journal*, *20*(1), 7-14.

Zachor, D.A., & Ben-Itzchak, E. (2014). The relationship between clinical presentation and unusual sensory interests in autism spectrum disorders: A preliminary investigation. Journal of Autism and Developmental Disorders, 44(1), 229–235.

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