

What are sensory sensitivities?



Children with autism spectrum disorder (ASD) can be oversensitive or under sensitive to the environment around them; their senses – sight, hearing, touch, smell and taste – take in either too much or too little information.

When children with ASD are oversensitive or over reactive to sensory experiences – *hypersensitive* – they may show aversive reactions such as covering their ears when they hear loud noises. When children are under sensitive or under reactive to their environment – *hyposensitive* – they may display exaggerated behaviours such as repeatedly rubbing their arms and legs against objects.

Some children can have both over sensitivities and under sensitivities in different senses, or even the same sense. For example, they might be oversensitive to some sound frequencies and under sensitive to others.

Background

Sensory sensitivities are displayed in many young children diagnosed with Autism Spectrum Disorders (ASD). An increasing number of early observations and parental reports identify the importance of sensory processing in everyday functioning. The emerging research evidence suggests that extreme sensory sensitivities may have an adverse effect on early engagement with the environment. Sensory sensitivities can be measured by using parent questionnaires or by observing child behaviour.

However, there are a lack of valid and reliable instruments that can be used to measure sensory sensitivities on the observational level - particularly methods that could be used in harmony with structured or semi-structured play-based assessments of autism and social communication behaviours.

What is SIMBA?

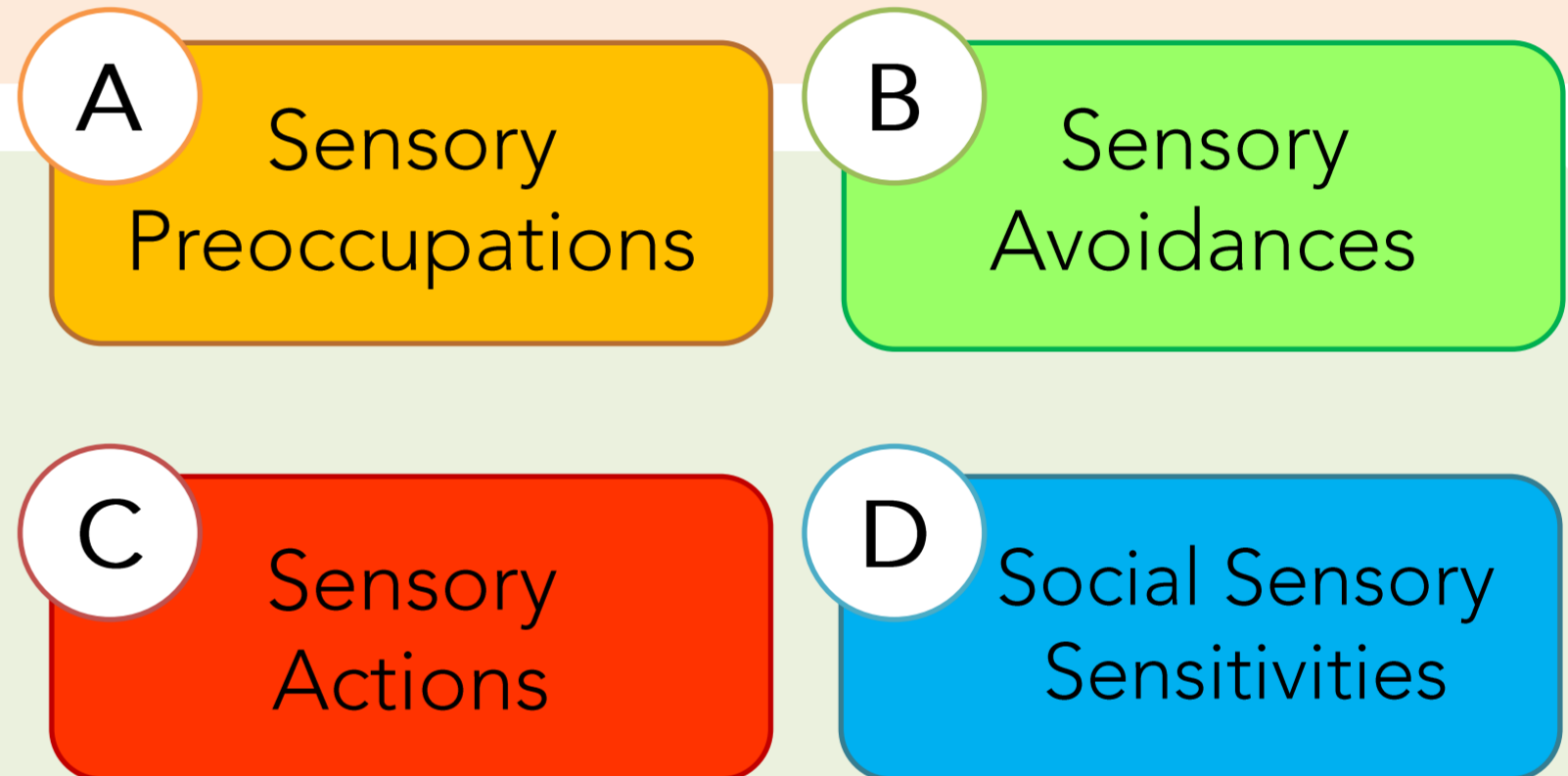
The objective of the SIMBA scale is to detect the presence of sensory sensitivities, and to discriminate different patterns of responses to sensory stimuli among children with ASD aged between 2-12 years.

It is our aim that this instrument can be applied as a complementary measure during structured play based assessments that capture the interaction between the child and the adult. As such, these assessments provide a naturalistic context for measuring sensory sensitivity.

Structure of the Measure

The structure is based on observed behavioural responses arranged into four categories: A) Sensory Preoccupations; B) Sensory Avoidances; C) Sensory Actions; and D) Social Sensory Sensitivities. The categories evolved in this way primarily in order to mirror clusters of observed behavioural responses to sensory stimuli. The scale has 19 items which are derived and clustered based on an in-depth literature review on established sensory sensitivity measures for typically developing children and children with ASD.

The SIMBA scale is coded based on videos which are obtained from standardized play-based assessments developed for children with ASD. In general, there are three "stimuli sources": the adult, the environment (room, toys) and the child.



Administration and Scoring

Researchers watch adult-child interaction videos and pay special attention to the child's behaviour and reactions to sensory stimuli.

The scoring is based on three parameters: frequency (how often behaviours are observed), duration (the length of time that the behaviour is noticeable) and intensity (the strength of the child's interest in the activity/behaviour).

After completing the items an overall score is calculated. Analysis on item-level can be used to further discriminate between patterns of hypersensitivity and hyposensitivity. Similarly, item analysis allows sensory sensitivities to be distinguished across sense modalities (noted for every item: V- visual, A- auditory, T- tactile, O/G- olfactory/gustatory, and P- proprioceptive).

Score:	Frequency	Time	Intensity	Does the child peer at toys or objects?	Terminology and examples
0-	x	x	x	- Consider if the child peers at toys and objects. Peering with the adult should be considered here. Also, peering should be considered if it occurs simultaneously with other actions (e.g. spinning and peering from the corner of the eyes)	Same scoring format
1-	Occasionally [1-2 times] Frequently [n > 2 times]	Briefly [t ≤ 3s]	V Mildly notable	- Scoring is based on frequency and time	
2-	Occasionally [n = 1-2 times]	OR At length/ prolonged [t > 3s.]	V Very notable	0. No, the child is not peering at toys, objects or at the adult in the room 1. Yes, the child occasionally peers at someone or something 2. Yes, the child frequently peers at toys or the adults, but the behavior is brief OR he/she occasionally peers at someone or something and there is at least one instance which lasts for prolonged time.	Sensory modality [V]
3-	Frequently [n > 2 times]	At length/ prolonged [t > 3s.]	V Very notable	3. Yes, the child frequently peers at toys or the adults AND there is at least one instance which lasts for prolonged time.	