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Sensory processing and associated behavioral outcomes of individuals with an Autism Spectrum Disorder (ASD) and an Intellectual Disability (ID): Preliminary results of a systematic review.

M.F. Werkman, J.A. Landsman, A.S. Fokkens, Y. Dijkxhoorn, I. van Berckelaer-Onnes, S. Begeer, S.A. Reijneveld

Introduction

- ASD and ID each affect sensory processing.
- Consensus lacks on the effect of the combined occurrence.
- For the ASD population 40 to 90% experience atypical sensory processing (since the DSM-5 a possible symptom of ASD).
- 25-50% of individuals with ASD also have ID.
- The combination of ASD with ID could lead to more and/or different atypical sensory processing compared to ASD alone, of relevance for their functioning.
- Consensus lacks on the extent to which atypical sensory processing is associated with behavioral outcomes for individuals with both ASD and ID.
- Therefore, the **aims of this systematic review** were to investigate:
 1. how individuals with ASD with ID differ in their sensory processing from individuals with ASD without ID, and
 2. to examine how atypical sensory processing is related to behavioral outcomes for individuals with ASD with ID compared to individuals with ASD without ID (see figure 1).

Method

- A systematic review was performed (see figure 2).
- English language primary studies 2000 - 2017.
- Articles were selected for full text reading based on these **inclusion criteria**:
 1. individuals with ASD was a distinct research group;
 2. sensory processing was the main focus.
- 11 studies met the **final inclusion criteria of our review**:
 1. the relation between sensory processing and behavioral outcomes was researched for the ASD population;
 2. a within group analysis of the role of ID/IQ for the association between 1) ASD and sensory processing *or* 2) sensory processing and behavioral outcomes was performed for the ASD population.

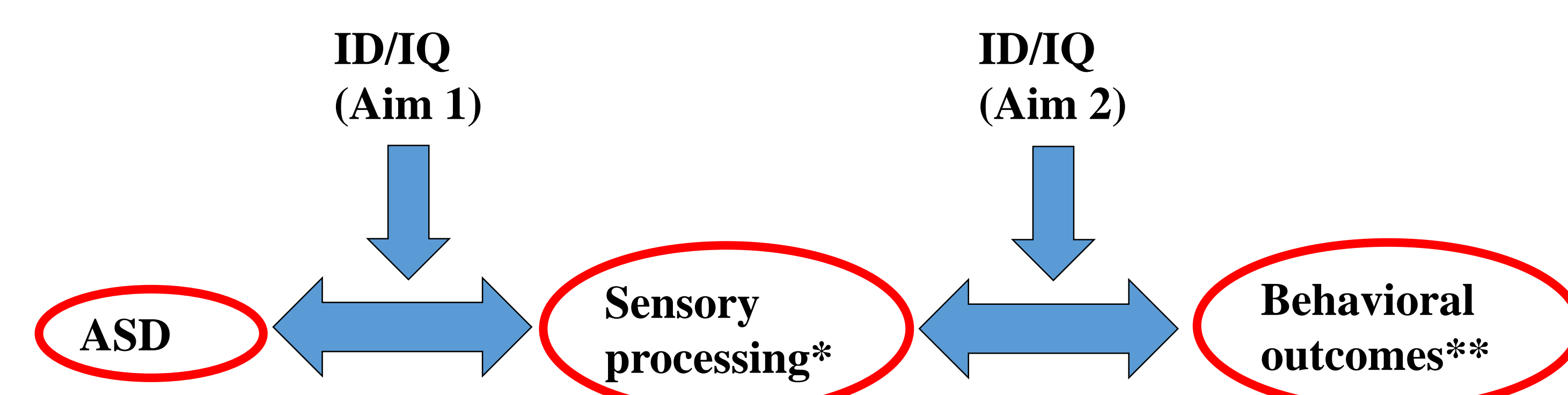


Figure 1. Aims review.

* = the registration and/or modulation of sensory information and the internal organization of sensory input.
 ** = outcomes for the individual, e.g. adaptive behavior, repetitive behavior.

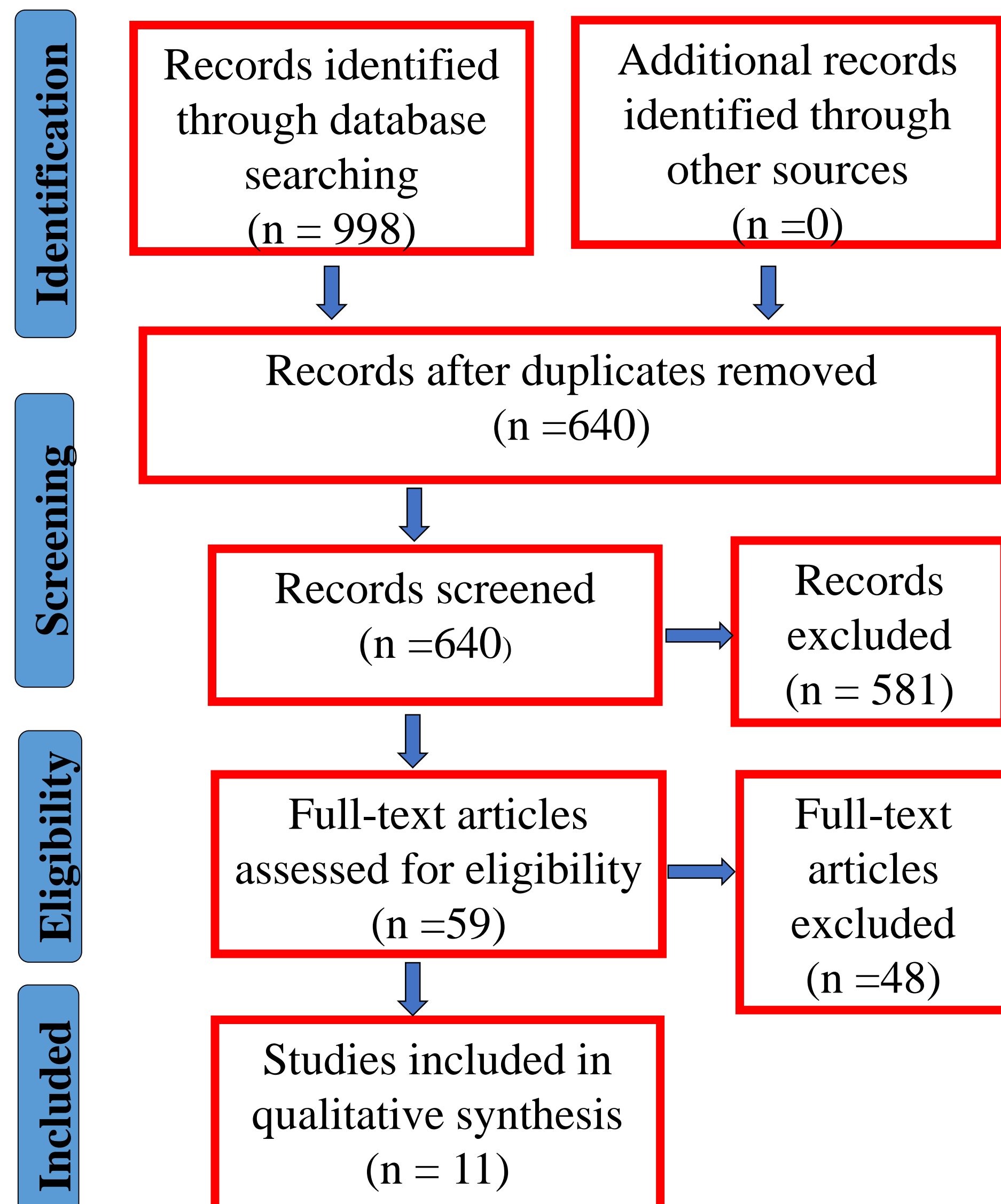


Figure 2. Flow diagram of the search and included studies.

'The Sensation of a Good Life' (SGL)

This PhD project is part of the Participatory Action Research project SGL. Figure 3 is developed by one of the participants with ASD. Ideally, sensory processing would be a perfect balance between under- and overresponsiveness.



Figure 3. Output SGL project. (Left image in the logo: designed by Marek Zamaro and with his permission included in the SGL logo. 'The Fifth Element, collection Special Arts'.

Preliminary findings

- Many studies have been published about the sensory processing of individuals with ASD since 2000 (640 articles).
- Studies about the sensory processing of individuals with both ASD and ID are scarce: of the 11 studies included in our review, 2 studies investigated the sensory processing of individuals with both ASD and ID. The other 9 studies made a differentiation in IQ within the ASD population for individuals with and without ID.
- **Mixed results for aim 1. No impact of ID/IQ on the sensory processing of individuals with ASD, different sensory processing clusters.**
- **Atypical sensory processing is associated with behavioral outcomes.**
- **Mixed results for aim 2. No impact of ID/IQ on the relation between sensory processing and behavioral outcomes, differences between sensory processing subtypes, different types of analyses.**
- More primary studies about the sensory processing of individuals with both ASD and ID are needed.