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## Initial Development of a Questionnaire About Parents' Perspectives on the Strengths and Interests of Autistic Preschoolers

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## BRIEF REPORT

# Initial Development of a Questionnaire About Parents' Perspectives on the Strengths and Interests of Autistic Preschoolers

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The aim of this study was to develop a new questionnaire for documenting young autistic children's interests and strengths and to draw a preliminary portrait of these characteristics, by comparing them with a group of typical preschoolers. Two groups were recruited to revise the questionnaire at each stage of its development. The tool was pretested through telephone interviews with 27 parents of autistic children and 28 parents of typical children matched by age. A review by professionals and parents led to several modifications to the questionnaire. Preliminary results showed that the parents in both groups had favorable perceptions of this questionnaire. Typical children were reported to have more social interests and autistic children, to be more interested in literacy and to have perception-related strengths. Autistic children's parents had less favorable perceptions of their child's strengths and interests. This research led to the development of the *Questionnaire sur les Forces et les Intérêts chez les enfants Autistes d'âge Préscolaire (QFIAP)*, which documents autistic preschoolers' interests and strengths. This new questionnaire may improve parents' understanding of autistic characteristics.

### Public Significance Statement

This research led to the development of the *Questionnaire sur les Forces et les Intérêts chez les enfants Autistes d'âge Préscolaire (QFIAP)*, a tool that could be useful to inform parents about the nature and value of their autistic child's interests and strengths.

**Keywords:** questionnaire, interests, strengths, autistic preschoolers, typical preschoolers

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Autism is marked by limited and atypical communication and social interactions, as well as by repetitive behaviors, non-functional routines or rituals, sensory peculiarities, and intense interests (American Psychiatric Association [APA], 2013). Data from the literature are contradictory regarding the value of autistic children's strengths and interests.<sup>1</sup> Whereas some authors associate intense interests with impairment in functioning (for a review, see Troyb et al., 2016), others highlight their positive aspects (Courchesne et al., 2015;

Grove et al., 2018; Smerbeck, 2019). In this regard, Mottron (2017) proposed that intense interests, together with cognitive strengths in pattern detection, manipulation, and recognition, could yield a positive effect on well-being and adaptive abilities. Klin et al. (2007) found that 75% of a sample of autistic children aged 2–6 had intense interests. More specifically, 65% of them were intensely interested in letters and 35%, in patterns. Early interests associated with literacy could be correlated with future mastering of speech later in autistic development (Ostrolenk et al., 2017). Although knowledge of the interests and strengths of young autistic children could lead to a better understanding of the developmental trajectory of autism and improve its outcome, there is little documentation on the subject.

Tools to document young autistic children's interests, their possible use, and their influence on adaptive abilities are needed. Although there is abundant literature on interventions that promote interests, the majority of research addressing the intense interests of young autistic children in a positive manner has been focused on interventions harnessing them (for a review, see Harrop et al., 2019). Diagnostic tools, screening tools, and other assessment tools that focus on repetitive behaviors indicate the presence or absence of

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<sup>1</sup> We used the term “autism” or “autistic” which in line with the preference of a majority of autistic adults and their family (see Wallace et al., 2019). Furthermore, this terminology is congruent with our previous work (e.g. Courchesne et al., 2018; Jacques et al., 2018).

intense interests or assess interest subgroups and their interference with activities of daily living (e.g., Repetitive Behavior Scale-Revised and Autism Diagnostic Interview-Revised [ADI-R]; Bodfish et al., 1999; Le Couteur et al., 2003). Whereas the Yale Survey of Special Interests (Volkmar & Klin, 1996) and the Interests Scale (Bodfish, 2003) are used to examine the nature of autistic children's special interests, these instruments aim mainly at assessing their negative impact. There is currently no instrument characterizing the nature of autistic infants' intense interests and the way they are integrated in daily family life. The lack of consistency in the way preschoolers' interests are defined can be an obstacle to the implementation of interventions (Dunst et al., 2012). In parallel, early strengths are categorically coded only by dichotomous answers according to their cognitive domains, without documentation of the nature of the children's specific strengths (ADI-R; Le Couteur et al., 2003).

In contrast, intense interests of typical young children have been well documented through observations, interviews, and questionnaires (Alexander et al., 2008; Leibham et al., 2013). For example, DeLoache et al. (2007) used a questionnaire to identify the interests of 177 children aged 11 months to 4 years and conducted telephone interviews to obtain more details on these interests. Research on the development of typical interests has also highlighted the importance of parents' perspectives in the emergence of young children's interests (Hume et al., 2015). As an example, the Home Environment Questionnaire provides information on the family values associated with the promotion of interests (Johnson et al., 2004). Parents' perspectives regarding their child's interests largely influence their level of development (Saçkes et al., 2016). Typical strengths in childhood have also been well studied. In their meta-analysis, Dunst et al. (2011) recommended various tools (e.g., Literacy Related Activities Questionnaire; Bennett et al., 2002) for documenting early childhood interests that may be useful for the development of language and literacy later in life.

In this study, we aimed to fill a gap in the literature by proposing a tool that would make it possible to document both the intense interests and the strengths of young autistic children, to learn about the developmental transformation of these autistic characteristics, and to better understand the parents' perspectives relative to these particularities. The primary objective was to develop a new tool for documenting the nature of the interests and strengths of young autistic children. The secondary objective was to draw a preliminary portrait of the interests and strengths of autistic children by comparing them with a group of typical children.

## Method

The *Questionnaire sur les Forces et les Intérêts chez les enfants Autistes d'âge Préscolaire* (QFIAP) was developed through a five-step iterative process, which is described below. The research was approved by the CIUSSS du Nord-de-l'île-de-Montréal and the Université du Québec en Outaouais Research Ethics Committees. Informed consent forms were signed electronically by each participant.

### The Five-Step Iterative Process

#### *Development of the Construct*

A literature review revealed the absence of tools designed to document the nature of the interests and strengths of young autistic

children. We proposed a new tool, whose objectively worded items prevent inference of a positive or negative value of the construct.

#### *Creation and Formulation of Questionnaire Items*

The questionnaire consists of closed and open questions. For the closed questions, the interest items were selected from a list of interests of young autistic children proposed in the literature (Boyd et al., 2007; Klin et al., 2007; Turner-Brown et al., 2011). The choice of strength items was based on the ADI-R (Le Couteur et al., 2003). Likert scales and dichotomous questions were selected. Because closed questions provide only predetermined information, open questions were used to obtain more details. These questions were based on studies concerning typical young children according to these three main themes: parents' perceptions of interests, context in which interests appear, and developmental trajectory of interests (Alexander et al., 2008; DeLoache et al., 2007; Johnson et al., 2004; Neitzel et al., 2008).

#### *Professionals' Review of the Questionnaire*

The first version of the questionnaire was submitted to a group of six professionals who were recruited on the basis of their clinical expertise with autistic children. The group of autism experts evaluated the questionnaire by examining the content validity and appearance validity (items, instructions, appearance, and relevance of questions). The modifications proposed by the experts, as well as the reasons behind each proposal were transcribed in a logbook and changes were made to the questionnaire (see Supplementary Material 1, Table A).

#### *Parents' Review of the Questionnaire*

The questionnaire was then submitted by phone interview to two parents of autistic children and two parents of typical children recruited from the database and participants Autisme-Hôpital en santé mentale Rivière-des-Prairies (HSMRDP) in Montreal. After answering the questionnaire, the parents evaluated the content and appearance validity of the questionnaire (items, instructions, appearance, and relevance of the questions). These data were collected in a logbook and changes were made to the questionnaire (see Supplementary Material 1, Table B).

#### *Testing of the Questionnaire Through Interviews*

The questionnaire was administered to a sample of 27 parents of autistic children and 28 parents of typical children aged 2–6 years to continue the evaluation of the tool and to collect preliminary data. No significant age difference was observed between the autistic children ( $M = 59.89$  months;  $SD = 8.21$ ) and the typical children ( $M = 54.86$  months;  $SD = 16.26$ ;  $p = .16$ ;  $t$  test). The sex ratios were similar between the autistic (7 girls/20 boys) and typical (8 girls/20 boys;  $p = .83$ , chi-square) children. The autistic children had to meet the diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; APA, 2013). None of the autistic children had an identifiable genetic condition. The typical children did not exhibit suspected or diagnosed autism, developmental delays, or behavioral issues. For both groups, parents without sufficient knowledge of French could not participate in the study because the QFIAP is in French. The autistic children's

parents were recruited from the Autisme-HSMRDP database in Montreal and through advertisements in *Sur le spectre*, the popular scientific journal of the Montreal Cognitive Neuroscience Autism Research Group. After answering the questionnaire, the parents assessed the content validity and appearance validity of the questionnaire (items, instructions, appearance, and relevance of the questions). These data were collected in a logbook.

## Analyses

Exploratory analyses were performed to compare the two groups based on the parent-reported interests and strengths. Themes were extracted first from the parent's comments collected during the interviews. Then, QFIAP Questions 1, 3, 7, 12, and 14 were used to obtain preliminary data. Mann–Whitney *U* tests were performed to assess the most common interests and strengths and to analyze the parents' perspectives on interests and strengths in both groups. A content analysis was also conducted to document the autistic children's main interests.

## Results

### Review of the Questionnaire by Experts and Parents, and Final Version

Three successively improved versions were developed. Changes related to the items, as well as to the content validity and appearance validity of the tool, were made to the questionnaire. The final questionnaire consists of 19 questions for documenting the nature of the child's interests and strengths, their trajectory, the parents' perspectives on the child's interests and strengths, the parents' interests and strengths, and interventions related to the child's strengths and interests. Its administration time is 20–30 min (see Supplementary Material 4 for the final version of the QFIAP).

### Autistic and Typical Children's Interests

#### Parents' Perceptions

The parents of autistic and typical children shared their opinion on four themes: appreciation of the questionnaire, similarities between parents and children, parental sensitivity, and awareness of the parental role. There was a consensus among the parents in both groups about the "interest" and "relevance" of the tool. The parents appreciated seeing the similarities between their aptitudes and those of their child: "I see that my child take after me than I thought" and "He is the portrait of his father." The questionnaire offered the parents a moment to reflect: "This telephone interview allows me to take a step back to think about my child." All parents found it more difficult to name their own strengths because much of their time was devoted to the child: "I realize that I have forgotten myself . . . since the arrival of my child" and "It's not easy to have a hobby when you have a young child."

Three themes emerged more specifically in the group of autistic children's parents: positive aspect of strengths, dichotomous view of interests and strengths, and perception of autism. These parents expressed their interest in promoting the strengths of autism: "This questionnaire allows me to see something other than deficits in my child" and "His strengths could be beneficial for his future." The questionnaire addressed their child's strengths at the time of

diagnosis: "I am happy to observe my child's strengths, given his recent diagnosis of autism." Parents shared their dichotomous view of their child's interests: "On the one hand, I want to promote my child's strengths, but, on the other hand, his interests take so much place in our daily lives" and "I am overwhelmed to see my child so happy to learn." Finally, the perception of autism was questioned by the parents: "Strengths and interests should be further promoted in order to break the negative image people have of people with autism."

### Autistic Interests (Questions 1, 3, 7-QFIAP)

Autistic children's parents had less favorable perceptions of their child's interests compared with typical children's parents ( $p = .00$ ). They considered the interests of autistic children more intense than those of typical children ( $p = .00$ ; see Supplementary Material 3, Table A). Five areas of interest were significantly more common among autistic children: logos ( $p = .00$ ), numbers ( $p = .01$ ), letters ( $p = .02$ ), electronics ( $p = .02$ ), and plumbing ( $p = .03$ ), whereas three others were significantly more common among typical children: playing with friends ( $p = .00$ ), role-playing games ( $p = .00$ ), and books ( $p = .00$ ; see Supplementary Material 2, Table A).

The main interests of the 27 autistic children in the sample were documented. The results showed that 10 were interested mainly in literacy (letters/numbers/books), eight in tablets/smartphones, two in dolls/stuffed animals, and one in other objects or activities: television, dinosaurs, coloring, water, cars, Legos, or fans. The average age of onset of interest in literacy was 24 months ( $SD = 7.35$ ). This interest developed most often at home ( $n = 8$ ). Interests were promoted by the parent, siblings, and child-care worker ( $n = 10$ ). Initially, the children used their interest in literacy for the following purposes as follows: they would recognize, write, reproduce, or identify letters and numbers ( $n = 5$ ); use letters to look at books; and place numbers in ascending and descending order or use them to count ( $n = 6$ ). As they evolved, interests became intensified, perfected, or diversified ( $n = 9$ ). In the end, the children were reproducing or identifying letters and numbers and using them to write; using letters to make words, to look at books, and for languages; using numbers to count, placing them in ascending and descending order, or adding them up ( $n = 10$ ). These results indicated that the interest in literacy changed along the children's trajectory. This evolution led to the use of various materials and to the acquisition of knowledge and of parallel skills (see Supplementary Material 2, Table B for examples of the development of the autistic children's main interests).

### Autistic Strengths (Questions 12, 14-QFIAP)

Autistic children's parents had less favorable perceptions of their child's strengths compared with typical children's parents ( $p = .00$ ). However, autistic children's parents were more satisfied than typical children's parents when they and their child had similar strengths ( $p = .05$ ). Three strengths were significantly more common among autistic children: shapes ( $p = .00$ ), interlocking games ( $p = .01$ ), and screen manipulation ( $p = .00$ ; see Supplementary Material 2, Table C), whereas no strength was found to be significantly more common in typical children.

## Discussion

The main objective of this research was to develop a questionnaire on the interests and strengths of young autistic children. We ensured the content and appearance validity of the questionnaire by consulting the literature and existing tools concerning the young autistic and typical populations and by having the tool revised by experts in the field and by parents. The secondary objective was to draw a preliminary portrait of the interests and strengths of autistic children, by comparing them with a group of typical children. Parents of both groups were able to give their perceptions of the questionnaire and talk about their parenting experience. Also, group specificities were identified in the strengths and interests. More specific information was gathered on the strongest interest in the autism subgroup. This made it possible to associate the interests and the strengths of the young autistic child.

### Professionals' and Parents' Participation in the Development of the Questionnaire

The relevance of the collaboration between professionals and parents has been demonstrated in many studies, for example, to document progress indicators (McConachie et al., 2018). As suggested by Gallé-Tessonneau et al. (2018), having professionals and parents review items of a questionnaire helps increase the quality of the items and the tool content validity, as well as reduce the number of items. Individual interviews therefore enabled parents to comment on their general experience and to suggest modifications to clarify the instructions in the questionnaire and make them easier to understand.

Autistic children's parents are a valuable source of information (Trigueros, 2018). This method of gathering information had never been used before to document the interests and strengths of young autistic children. In addition to closed questions that present a list of interests and strengths specific to young autistic children, open QFIAP questions allow parents to share their own perceptions and detail these characteristics. This can be a positive experience for autistic children's parents (Rabba et al., 2019).

### Group Differences in the Parents' Perspectives

The results of the QFIAP with parents of autistic and typical children suggested that autistic children's parents considered their child's interests and strengths less valuable than typical children's parents did. The reports indicated that the autistic children showed more interest in logos, numbers, letters, electronics, and plumbing, whereas the typical children were significantly more interested in playing with friends, role-playing games, and books. Only autistic children's parents reported the presence of more common strengths, namely, in shapes, interlocking games, and screen manipulation. Although parents of autistic children saw that certain interests turned into skills over time, they still perceived them more negatively than parents of typical children did.

This perception could be explained by the identification of the child's interest as a "pervasive" autistic characteristic. Restricted interests are indeed among the diagnostic criteria (APA, 2013) and may be seen as coinciding with the autistic deficit in adapting to the versatility required by daily life. Turner-Brown et al. (2011) observed that interests play a major role in the lives of autistic

children and most often turn out to be non-social interests that can cause functional deficits. Klin et al. (2007) also underscored the interference of interests and strengths with the children's social activities. Whereas authors of recent studies have recommended using autistic people's interests and strengths in interventions (Jones et al., 2018), documentation of autistic preschoolers' strengths is nonexistent. Our QFIAP could inform parents about the nature and value of their child's interests and strengths. This exchange between professionals and parents would possibly influence the daily activities and the quality of life of the children and of their families, as well as contribute to the emergence of related skills and to the children's development (Boyle et al., 2019).

### The Special Case for Literacy

Whereas typical children's parents reported interests related mainly to socialization (see also Neitzel et al., 2008), autistic children's parents reported an interest in objects that Alexander et al. (2008) linked to the literacy category. This does not come as a surprise: Cheung et al. (2018) observed better detection of letters by autistic infants compared with typical infants as young as 9 months. Letters may be detected because they belong to the general category of visual patterns, which autistic children as young as 14 months prefer to visual social material (Pierce et al., 2011). Courchesne et al. (2018) reported better performance by autistic preschoolers in a strength-based assessment that included the detection of embedded figures and visual search of non-social visual patterns.

The parental information collected using the QFIAP indicated that the interest in literacy improved as the child developed, led to the use of various materials and to the development of autonomy and of a variety of skills. This evolution of interest in letters and numbers in young autistic children could be consistent with what is proposed in the "expertise" section of the enhanced perceptual functioning model, and its extension in the "veridical mapping" development of special autistic abilities (Mottron et al., 2013). This model suggests a developmental link between early perceptual strengths in pattern recognition, detection, and manipulation, resulting, through intense interest, in the construction of an autistic expertise. A systematic review of the link between autism and intense interest for letters strongly suggested that this interest is far from exceptional. It largely bypasses what is described as "hyperlexia" (Ostrolenk et al., 2017), which is the greater advancement of decoding skills in comparison with the development of oral speech. Considering that parents' favorable attitudes toward interests could encourage learning (Lukie et al., 2014), knowledge of autistic children's interest in literacy-related material should represent an element with positive influence on future adaptation.

### Limitations and Future Directions

The QFIAP is the first instrument to enable exhaustive and neutral documentation of autistic interests and strengths in early childhood from the parents' perspectives. This instrument could provide a better understanding of autistic characteristics and of how they contribute to autistic children's learning, skills development, and expertise development. Research has highlighted the importance of involving autistic people, not only parents, from the initial stages of research (Tesfaye et al., 2019). As parents and professionals were the only informers in this study, a revision of the questionnaire by

autistic adults (Grove et al., 2018) may improve its content by adding other interests and strengths that are perhaps unusual, but relevant and representative of the autistic way of life. In addition, these preliminary results are based on a fairly summary description of the population. To have a better understanding of the interests and strengths of young autistic children, future studies should include a detailed description of the children's characteristics. Documenting the socio-demographic information of the sample would enable the assessment of the psychometric qualities and the structure of the questionnaire. Finally, the validation of the English version of the questionnaire should be carried out at a later stage to make it accessible to a wider population.

## Résumé

L'objectif de cette étude était de créer un nouveau questionnaire pour documenter les intérêts et les forces des jeunes enfants autistes et d'établir un portrait préliminaire de ces caractéristiques en les comparant à celles d'un groupe d'enfants d'âge préscolaire typiques. Deux groupes ont été recrutés pour réviser le questionnaire à chaque étape de son établissement. L'outil a été prétesté au moyen d'entrevues téléphoniques avec 27 parents d'enfants autistes et 28 parents d'enfants typiques jumelés selon leur âge. Une révision par des professionnels et des parents ont mené à plusieurs modifications du questionnaire. Les résultats préliminaires ont révélé que les parents des deux groupes avaient une perception favorable de ce questionnaire. Selon les réponses, les enfants typiques ont plus d'intérêts sociaux, et les enfants autistes s'intéressent davantage à la lecture et possèdent des forces reliées aux perceptions. Les parents des enfants autistes avaient des perceptions moins favorables des forces et des intérêts de ces derniers. Cette recherche a mené à l'établissement du Questionnaire sur les forces et les intérêts chez les enfants autistes d'âge préscolaire (QFIAP). Ce nouveau questionnaire pourrait améliorer chez les parents la compréhension des caractéristiques de l'autisme.

*Mots-clés* : questionnaire, intérêts, forces, enfants d'âge préscolaire autistes, enfants d'âge préscolaire typiques

## References

- Alexander, J. M., Johnson, K. E., Leibham, M. E., & Kelley, K. (2008). The development of conceptual interests in young children. *Cognitive Development, 23*(2), 324–334. <https://doi.org/10.1016/j.cogdev.2007.11.004>
- American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Bennett, K. K., Weigel, D. J., & Martin, S. S. (2002). Children's acquisition of early literacy skills: Examining family contributions. *Early Childhood Research Quarterly, 17*(3), 295–317. [https://doi.org/10.1016/S0885-2006\(02\)00166-7](https://doi.org/10.1016/S0885-2006(02)00166-7)
- Bodfish, J. (2003). *Interests scale*. University of North Carolina.
- Bodfish, J. W., Symons, F. W., & Lewis, M. H. (1999). *The Repetitive Behavior Scale*. Western Carolina Center Research Reports.
- Boyd, B. A., Conroy, M. A., Mancil, G. R., Nakao, T., & Alter, P. J. (2007). Effects of circumscribed interests on the social behaviors of children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 37*(8), 1550–1561. <https://doi.org/10.1007/s10803-006-0286-8>
- Boyle, S. A., McNaughton, D., & Chapin, S. E. (2019). Effects of shared reading on the early language and literacy skills of children with autism spectrum disorders: A systematic review. *Focus on Autism and Other Developmental Disabilities, 34*(4), 205–214. <https://doi.org/10.1177/1088357619838276>
- Cheung, C., Bedford, R., Johnson, M. H., Charman, T., & Gliga, T. (2018). Visual search performance in infants associates with later ASD diagnosis. *Developmental Cognitive Neuroscience, 29*, 4–10. <https://doi.org/10.1016/j.dcn.2016.09.003>
- Courchesne, V., Girard, D., Jacques, C., & Soulières, I. (2018). Assessing intelligence at autism diagnosis: Mission impossible? Testability and cognitive profile of autistic preschoolers. *Journal of Autism and Developmental Disorders, 39*, 678–682. <https://doi.org/10.1007/s10803-018-3786-4>
- Courchesne, V., Meilleur, A.-A. S., Poulin-Lord, M.-P., Dawson, M., & Soulières, I. (2015). Autistic children at risk of being underestimated: School-based pilot study of a strength-informed assessment. *Molecular Autism, 6*(1), Article e12. <https://doi.org/10.1186/s13229-015-0006-3>
- DeLoache, J. S., Simcock, G., & Macari, S. (2007). Planes, trains, automobiles—and tea sets: Extremely intense interests in very young children. *Developmental Psychology, 43*(6), Article e1579. <https://doi.org/10.1037/0012-1649.43.6.1579>
- Dunst, C. J., Jones, T., Johnson, M., Raab, M., & Hamby, D. W. (2011). Role of children's interests in early literacy and language development. *Center for Early Literacy Learning, 4*(5), 1–18.
- Dunst, C. J., Trivette, C. M., & Hamby, D. W. (2012). Meta-analysis of studies incorporating the interests of young children with autism spectrum disorders into early intervention practices. *Autism Research and Treatment, 2012*, Article e462531. <https://doi.org/10.1155/2012/462531>
- Gallé-Tessonneau, M., Grondin, O., Koleck, M., & Doron, J. (2018). Considérations méthodologiques pour la construction de questionnaires: L'exemple de la School Refusal EvaluationN (SCREEN). *Annales Médico-Psychologiques. Revue Psychiatrique, 176*(9), 863–869. <https://doi.org/10.1016/j.amp.2017.03.029>
- Grove, R., Hoekstra, R. A., Wierda, M., & Begeer, S. (2018). Special interests and subjective wellbeing in autistic adults. *Autism Research, 11*(5), 766–775. <https://doi.org/10.1002/aur.1931>
- Harrop, C., Amsbary, J., Towner-Wright, S., Reichow, B., & Boyd, B. A. (2019). That's what I like: The use of circumscribed interests within interventions for individuals with autism spectrum disorder. A systematic review. *Research in Autism Spectrum Disorders, 57*, 63–86. <https://doi.org/10.1016/j.rasd.2018.09.008>
- Hume, L. E., Lonigan, C. J., & McQueen, J. D. (2015). Children's literacy interest and its relation to parents' literacy-promoting practices. *Journal of Research in Reading, 38*(2), 172–193. <https://doi.org/10.1111/j.1467-9817.2012.01548.x>
- Jacques, C., Courchesne, V., Meilleur, A.-A. S., Mineau, S., Ferguson, S., Cousineau, D., Labbe, A., Dawson, M., & Mottron, L. (2018). What interests young autistic children? An exploratory study of object exploration and repetitive behavior. *PLoS One, 13*(12). Advance online publication. <https://doi.org/10.1371/journal.pone.0209251>
- Johnson, K. E., Alexander, J. M., Spencer, S., Leibham, M. E., & Neitzel, C. (2004). Factors associated with the early emergence of intense interests within conceptual domains. *Cognitive Development, 19*(3), 325–343. <https://doi.org/10.1016/j.cogdev.2004.03.001>
- Jones, C. R., Simonoff, E., Baird, G., Pickles, A., Marsden, A. J., Tregay, J., Happe, F., & Charman, T. (2018). The association between theory of mind, executive function, and the symptoms of autism spectrum disorder. *Autism Research, 11*(1), 95–109. <https://doi.org/10.1002/aur.1873>
- Klin, A., Danovitch, J. H., Merz, A. B., & Volkmar, F. R. (2007). Circumscribed interests in higher functioning individuals with autism spectrum disorders: An exploratory study. *Research and Practice for Persons with Severe Disabilities, 32*(2), 89–100. <https://doi.org/10.2511/rpsd.32.2.89>
- Le Couteur, A., Lord, C., & Rutter, M. (2003). *The autism diagnostic interview-revised (ADI-R)*. Western Psychological Services.

- Leibham, M. B., Alexander, J. M., & Johnson, K. E. (2013). Science interests in preschool boys and girls: Relations to later self-concept and science achievement. *Science Education, 97*(4), 574–593. <https://doi.org/10.1002/sce.21066>
- Lukie, I. K., Skwarchuk, S.-L., LeFevre, J.-A., & Sowinski, C. (2014). The role of child interests and collaborative parent-child interactions in fostering numeracy and literacy development in Canadian homes. *Early Childhood Education Journal, 42*(4), 251–259. <https://doi.org/10.1007/s10643-013-0604-7>
- McConachie, H., Livingstone, N., Morris, C., Beresford, B., Le Couteur, A., Gringras, P., Garland, D., Jones, G., Macdonald, G., & Williams, K. (2018). Parents suggest which indicators of progress and outcomes should be measured in young children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 48*(4), 1041–1051. <https://doi.org/10.1007/s10803-017-3282-2>
- Mottron, L. (2017). Should we change targets and methods of early intervention in autism, in favor of a strengths-based education? *European Child & Adolescent Psychiatry, 26*(7), 815–825. <https://doi.org/10.1007/s00787-017-0955-5>
- Mottron, L., Bouvet, L., Bonnel, A., Samson, F., Burack, J. A., Dawson, M., & Heaton, P. (2013). Veridical mapping in the development of exceptional autistic abilities. *Neuroscience and Biobehavioral Reviews, 37*(2), 209–228. <https://doi.org/10.1016/j.neubiorev.2012.11.016>
- Neitzel, C., Alexander, J. M., & Johnson, K. E. (2008). Children's early interest-based activities in the home and subsequent information contributions and pursuits in kindergarten. *Journal of Educational Psychology, 100*(4), Article e782. <https://doi.org/10.1037/0022-0663.100.4.782>
- Ostrolenk, A., d'Arc, B. F., Jelenic, P., Samson, F., & Mottron, L. (2017). Hyperlexia: Systematic review, neurocognitive modelling, and outcome. *Neuroscience and Biobehavioral Reviews, 79*, 134–149. <https://doi.org/10.1016/j.neubiorev.2017.04.029>
- Pierce, K., Conant, D., Hazin, R., Stoner, R., & Desmond, J. (2011). Preference for geometric patterns early in life as a risk factor for autism. *Archives of General Psychiatry, 68*(1), 101–109. <https://doi.org/10.1001/archgenpsychiatry.2010.113>
- Rabba, A. S., Dissanayake, C., & Barbaro, J. (2019). Parents' experiences of an early autism diagnosis: Insights into their needs. *Research in Autism Spectrum Disorders, 66*, Article e101415. <https://doi.org/10.1016/j.rasd.2019.101415>
- Saçkes, M., Işitan, S., Avci, K., & Justice, L. M. (2016). Parents' perceptions of children's literacy motivation and their home-literacy practices: What's the connection? *European Early Childhood Education Research Journal, 24*(6), 857–872. <https://doi.org/10.1080/1350293X.2014.996422>
- Smerbeck, A. (2019). The survey of favorite interests and activities: Assessing and understanding restricted interests in children with autism spectrum disorder. *Autism: An International Journal of Research and Practise, 23*(1), 247–259. <https://doi.org/10.1177/1362361317742140>
- Tesfaye, R., Courchesne, V., Yusuf, A., Savion-Lemieux, T., Singh, I., Shikako-Thomas, K., Mirenda, P., Waddell, C., Smith, I. M., & Nicholas, D. (2019). Assuming ability of youth with autism: Synthesis of methods capturing the first-person perspectives of children and youth with disabilities. *Autism: An International Journal of Research and Practise, 23*(8), 1882–1896. <https://doi.org/10.1177/1362361319831487>
- Trigueros, A. F. (2018). *Using parent-identified strengths of autistic children to advance strength-based intervention* [Doctoral dissertation]. Walden University, Walden Dissertations and Doctoral Studies Collection: Scholarworks. <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=7082&context=dissertations>
- Troyb, E., Knoch, K., Herlihy, L., Stevens, M. C., Chen, C.-M., Barton, M., Treadwell, K., & Fein, D. (2016). Restricted and repetitive behaviors as predictors of outcome in autism spectrum disorders. *Journal of Autism and Developmental Disorders, 46*(4), 1282–1296. <https://doi.org/10.1007/s10803-015-2668-2>
- Turner-Brown, L. M., Lam, K. S., Holtzclaw, T. N., Dichter, G. S., & Bodfish, J. W. (2011). Phenomenology and measurement of circumscribed interests in autism spectrum disorders. *Autism: An International Journal of Research and Practise, 15*(4), 437–456. <https://doi.org/10.1177/1362361310386507>
- Volkmar, F., & Klin, A. (1996). *Yale special interests survey*. Unpublished questionnaire.
- Wallace, S., Guldborg, K., & Bailey, A. (2019). A research review on autism. *Eteva*. <https://www.eteva.fi/globalassets/tiedostot/tiedostot-eteva/oppaat-ja-julkaisut/a-research-review-on-autism.pdf>

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