



OPEN ACCESS

EDITED BY

Dongchuan Yu,
Southeast University, China

REVIEWED BY

Yael Enav,
University of Haifa, Israel
Saniye Teze,
University of Gaziantep, Türkiye

*CORRESPONDENCE

Charlotte Engberg Conrad
✉ charlotte.conrad@rn.dk

RECEIVED 21 June 2025

ACCEPTED 16 October 2025

PUBLISHED 03 November 2025

CITATION

Conrad CE, George C, Færk E, Jakobsen H,
Thomsen PH and Lauritsen MB (2025)
Attachment and reflective functioning in
families with a child on the autism spectrum.
Front. Psychol. 16:1651408.
doi: 10.3389/fpsyg.2025.1651408

COPYRIGHT

© 2025 Conrad, George, Færk, Jakobsen,
Thomsen and Lauritsen. This is an
open-access article distributed under the
terms of the [Creative Commons Attribution
License \(CC BY\)](#). The use, distribution or
reproduction in other forums is permitted,
provided the original author(s) and the
copyright owner(s) are credited and that the
original publication in this journal is cited, in
accordance with accepted academic
practice. No use, distribution or reproduction
is permitted which does not comply with
these terms.

Attachment and reflective functioning in families with a child on the autism spectrum

Charlotte Engberg Conrad^{1*}, Carol George², Emil Færk¹,
Helle Jakobsen¹, Per Hove Thomsen^{3,4} and
Marlene Briciet Lauritsen^{1,5}

¹Department of Psychiatry, Aalborg University Hospital, Aalborg, Denmark, ²Department of Psychology, Mills College at Northeastern University, Oakland, CA, United States, ³Department of Child and Adolescent Psychiatry, Aarhus University Hospital, Psychiatry, Aarhus, Denmark, ⁴Department of Clinical Medicine, Aarhus University, Aarhus, Denmark, ⁵Department of Clinical Medicine, Aalborg University, Gistrup, Denmark

The concepts of attachment and reflective functioning are predictors of positive development in children on the autism spectrum. This is the one of the first cross-sectional studies to examine associations between parents' attachment representations and parental reflective functioning and child attachment in families with children on the autism spectrum. Twenty-eight parents completed the Adult Attachment Projective Picture System and questionnaires of Maternal Perception of Child Attachment and Parental Reflective Functioning regarding their child on the autism spectrum and when applicable a typically developing sibling. To test any associations between the parents' attachment and parental reflective functioning and parents' perception of child attachment, the sample was divided in organized (secure, dismissing and preoccupied combined) as compared with unresolved parents. We found a higher level of the parents' Interest and Curiosity in their child's mental states (a parental reflective functioning domain) in the organized as compared with unresolved parents. Also, mothers had significantly higher levels of Interest and Curiosity than fathers. There were no other significant differences regarding the remaining questionnaire domains. Also, there were no significant differences between parents' rating of child attachment or parental reflective functioning in relation to their child on the autism spectrum compared with their typically developing sibling. The findings suggest that future support may enhance focus on parents unresolved to loss and trauma and fathers. Also, more research is needed to understand the implications of attachment and reflective functioning in families affected by autism.

KEYWORDS

autism, attachment, adult attachment, parental attachment, reflective functioning, parental reflective functioning, child attachment

1 Introduction

Autism is a pervasive neurodevelopmental disorder characterized by difficulties in social communication, and repetitive stereotyped behaviors and interests (WHO, 2024). According to attachment theory, the development of secure internal working models is beneficial for healthy emotional, social and cognitive development (Bosmans and Borelli, 2022; Dagan et al., 2024; Schore, 2001). Intergenerational transmission of attachment patterns is related to parents' attachment representation and parental reflective functioning (Luyten et al., 2017b; van IJzendoorn, 1995; van IJzendoorn and Bakermans-Kranenburg, 2019). These processes

are challenged by a child's autism characteristics, as the ability to understand, predict, and affect the caregiver's behavior may be affected by difficulties in these children's social communication (Cortina and Liotti, 2010; Stern, 2004; Teague et al., 2017). The current cross-sectional study examines the relation between parent's attachment representations and their perception of the child's attachment and parental reflective functioning.

Attachment is an innate neurobiological behavioral system providing the child with a fundamental sense of security through the perceived availability of their primary caregiver (i.e., attachment figure) when the child is stressed (Bowlby, 1969). Attachment bonds are developed in the interaction between the caregiver and child through mutual and recognizable dynamic reciprocal communicative interactions, where positive and negative interactions will affect parent and child behavior (Ainsworth et al., 1978). The child will develop a representational model of self, other, and relationships that becomes a lifelong interpretation of how to understand and interpret experiences and emotions (Bowlby, 1969, 1973).

Children on the autism spectrum have the same ability to form attachment bonds as typically developing children (Kahane and El-Tahir, 2015; Rutgers et al., 2004; Teague et al., 2017). One longitudinal study shows that children on the autism spectrum classified secure demonstrate better language development and higher empathic ability later in childhood than insecure children (Rozga et al., 2018). This study also demonstrates the positive sequelae of secure attachment are comparable to a normative population (Rozga et al., 2018). Other studies have indicated that children with autism show signs of more insecurity towards their parents than typically developing children (Rutgers et al., 2004; Teague et al., 2017). These studies suggest that this is due to the innate social communication disabilities seen in children on the autism spectrum. A study by Teague et al. (2018) found a higher frequency of insecure attachment in children on the autism spectrum than in samples of typically developing children, and insecure attachment was related to the child's diagnosis, cognitive development, and parenting practices (e.g., coercive parenting and closeness in the attachment relationship) (Teague et al., 2018). This finding underscores the dynamic, bi-directional interplay involved in the development of attachment the quality (Sameroff, 2009; Teague et al., 2018).

As early as 1940 John Bowlby emphasized the significance of the transference of patterns between parents and their children. He thought that supporting the parents could help the child's development (Bowlby, 1940). Since then, attachment research has demonstrated that parents' attachment representation to some extent is transferred to the child (Benoit and Parker, 1994; Buchheim et al., 2022; Fonagy et al., 1991a; George and Solomon, 1996; Solomon and George, 2011; van IJzendoorn, 1995; van IJzendoorn and Bakermans-Kranenburg, 1997). This correlation has not been sufficiently investigated concerning children on the autism spectrum (Teague et al., 2017).

Attachment patterns in parents of children on the autism spectrum have only been examined in a few studies using developmental assessments of adult attachment (Bond et al., 2020; Conrad et al., 2025; Seskin et al., 2010; Teague et al., 2017). The studies are small and have conflicting results. The study by Seskin et al. (2010) showed a similar distribution of adult attachment in 40 parents of children on the autism spectrum as the distribution pattern found in normative samples as measured by the Adult Attachment Interview

(AAI). The study by Seskin et al. (2010) found that children whose parent's adult attachment is secure had better relational and functional abilities than children of insecure parents (Seskin et al., 2010). A case-control study by Bond et al. (2020) found insecure adult attachment representations in all four participating parents as measured by the AAI. Conrad et al. (2025) examined adult attachment in a sample of 37 parents of children on the autism spectrum and found that 34 of them were classified as insecure, based on the Adult Attachment Projective Picture System (AAP) (Conrad et al., 2025).

Parental reflective functioning (PRF) refers to parents' mentalizing capacities to reflect upon their own internal mental experiences as well as those of the child (Fonagy et al., 1991b; Luyten et al., 2017a). PRF is believed to be important in the development of the child's own mentalizing capacity and secure attachment (Kelly et al., 2005; Sharp and Fonagy, 2008; Slade, 2005). A previous review emphasizes the need for research on the impact of reflective functioning in families affected by autism. This knowledge will build our understanding of intergenerational transmission of attachment (Teague et al., 2017). The social communication disabilities of children on the autism spectrum may complicate parent's ability to comprehend children's mental states and motivations. As a result, the parent's behavior may be difficult for the child to predict and understand leading to interactions reflected in lower levels of PRF (Slade, 2009; Stern, 2004; Teague et al., 2017). However, parents who can adapt to their children's development and make more of an effort in the understanding of their child would be expected to lead to higher levels of PRF. Not all children in a family are the same, so it seems possible that parenting would be different for typically developing siblings compared with siblings on the autism spectrum. Previous studies found that typically developing siblings receive less parental attention and differential treatment than their siblings on the autism spectrum (Chan and Goh, 2014; Enav et al., 2020). Only one previous study by Enav et al. (2020) has examined parental reflective functioning examining children on the autism spectrum compared to typically developing siblings. This study found, in a sample of 30 parents, that parents exhibited significantly higher reflective functioning when interacting with their child on the autism spectrum than with the typically developing sibling (Enav et al., 2020).

Traditionally the primary caregiver in a family is the mother, however, this pattern is no longer true in families in Western culture. Fathers today are more active and engaged in childcare than in the past. Interest in children's attachment to fathers is not recent (Grossmann and Grossmann, 2020). One study by Miljkovitch et al. (2004) assessed attachment in 31 children using the Attachment Story Completion Task and in both parents with the AAI. The study found a significant association of attachment between the mothers and their children, but not between the fathers and their children (Miljkovitch et al., 2004), contrary to the results of a few other studies showing concordance between the fathers' AAI and their child's attachment as measured by the Strange Situation Procedure (Radojevic, 1992; Steele et al., 1996; van IJzendoorn, 1995). More research is needed to understand the impact of both parents' attachment representations on the child.

1.1 Purpose

The purpose of the study is to increase knowledge about the impact of attachment and reflective functioning in families with a

child on the autism spectrum building on data on the classification of parents' adult attachment and parental reflective functioning and parents' perception of child attachment (Conrad et al., 2025).

This cross-sectional study is one of the first to examine associations between parents' attachment representations and parental reflective function and child attachment in families with children on the autism spectrum. The study aims to examine:

- 1 The associations between parents' adult attachment and parental reflective functioning.
- 2 The association between parents' adult attachment and parental perception of child attachment.
- 3 Differences between the fathers' and mothers' perception of child attachment or parental reflective functioning.
- 4 Differences between parents' perception of their child's attachment and parental reflective functioning in the children on the autism spectrum compared to their typically developing siblings.

2 Materials and methods

2.1 Participants

Participants were 37 parents of 24 children on the autism spectrum and their 11 typically developing siblings partly recruited from a Danish feasibility study of the Paediatric Autism Communication Therapy intervention and partly from two Danish child and adolescent psychiatric departments. Parents received verbal and written information about the project before providing consent for their own and their children's participation in this study. Twenty boys and four girls were included with a mean age of 5.1 years (range 3.4–7.0 years). All children were diagnosed with the following ICD-10 diagnoses: F84.0, F84.1 or F84.5, which in this study is defined as autism spectrum disorder. All participating parents were biological parents. All but three parents were cohabiting with the other parent. Only three participants were single parents. Participants were mainly educated (equally distributed representation of short, middle and long educations), employed, and from middle to high-income households. The 11 typically developing siblings were all under the age of 7 years. For further demographics see Table 1 in Conrad et al. (2025).

Parents participated in the AAP test and were asked to complete the questionnaires Maternal Perception of Child Attachment (MPCA), and Parental Reflective Functioning Questionnaire (PRFQ). The questionnaires were completed by 28 parents, 18 mothers and 10 fathers. Eleven of the parents (7 mothers, 4 fathers) also completed

these questionnaires regarding a typically developing sibling under the age of 7.

2.2 Measures

2.2.1 Adult attachment projective picture system

The AAP is a validated free response test used to designate four standard adult attachment patterns: secure, dismissing, preoccupied, and unresolved (George and West, 2011). The AAP consists of a series of pictures, which increasingly activate attachment-related distress. Parents are presented one picture at a time and are asked to describe a hypothetical situation about what is happening, what lead up to the scene, what the persons are thinking or feeling, and what will happen next. In this study all AAPs were administered virtually, which is a valid administration method (David et al., 2022). The parents' responses were audio-recorded and transcribed verbatim. The transcripts were coded according to the AAP manual standards by the first author who is a reliable judge. Twenty percent of the transcripts were double-coded for reliability by another reliable judge with 100% agreement on attachment classification (Conrad et al., 2025).

2.2.2 Maternal perception of child attachment

Child attachment was assessed using the Maternal Perceptions of Child Attachment (MPCA) parent report questionnaire (Hoppes and Harris, 1990). The MPCA has 23 items rated on a 5-point Likert Scale, with higher scores reflecting parental perception of a more secure attachment. Questions address how much the parents see the child's either verbal or physical interactions, how the child identifies with the parent and is capable of sharing intimacy (Goodman and Glenwick, 2012). The parents' ratings are considered a reflection of the relative strength of a child's attachment security. The questionnaire was translated into Danish in 2021 by the first author and the translation was checked using back-translation to English by a professional translation company. The Danish version was named Parental Perception of Child Attachment because of its use with mothers and fathers. No other adaptations were made. The MPCA has previously been used and validated in populations with children on the autism spectrum (Goodman and Glenwick, 2012; Siller et al., 2014). Cronbach's alpha in our sample showed a high internal consistency with a reliability coefficient of 0.86.

2.2.3 Parental reflective functioning questionnaire

Parents' reflective functioning about the child is assessed with the multi-dimensional, well-validated questionnaire PRFQ (Luyten et al., 2017a). The questionnaire consists of 18 items rated on a

TABLE 1 Two sample t-tests of comparing organized and unresolved parents' ratings of their child on the autism spectrum.

	Range	Organized (N = 16)		Unresolved (N = 12)		Difference Mean Diff	SE	95% CI	p-value
		Mean	SD	Mean	SD				
PRFQ PM	0.5–2.7	1.91	0.45	1.68	0.53	–0.23	0.19	–0.61;0.16	0.23
PRFQ CMS	1.7–5.8	3.90	1.26	3.74	0.92	–0.15	0.43	–1.04;0.73	0.71
PRFQ IC	4.2–7.0	5.91	0.80	5.31	0.75	–0.60	0.30	–1.21;0.01	0.05
MPCA	2.3–3.6	2.93	0.38	2.82	0.32	–0.11	0.14	–0.39;0.14	0.42

7-point Likert Scale. It evaluates the dimensions of Pre-Mentalizing (PM), Certainty about Mental States (CMS), and Interest and Curiosity (IC). PM modes capture a non-mentalizing stance, malevolent attributions and the parent's inability to enter the child's world. PM includes six items, for example, "My child cries around strangers to embarrass me." Higher scores indicate a developmentally lower level of mentalizing. CMS refers to the recognition of the opacity of mental states. This dimension has six items, for example, "I can always predict what my child will do." Higher scores indicate a higher level of CMS. Low scores indicate hypomentalization, with a lack of certainty about the child's mental states. IC refers to the parent's interest in the mental states of the child. There are six items, for example, "I try to see situations through the eyes of my child." Higher scores indicate a higher capacity of IC that reflects hypermentalizing with lower scores reflecting an absence of interest in the mental states of the child (Luyten et al., 2017a). The questionnaire was translated into Danish in 2015 by Mette Skovgaard Væver and Johanne Smith-Nielsen, without additional adaptations from the original. The factor structure of the PRFQ has been investigated in a Danish sample of 423 mothers with and without postpartum depression, where the three-factor structure of the questionnaire was supported (Wendelboe et al., 2021). Recently, the PRFQ was validated in a Finnish sample of 355 mothers and 108 fathers finding factor structure similar to the original PRFQ and thus supporting cross-cultural validity (Flykt et al., 2025).

PRFQ has primarily been validated in samples of young children, and the use is only recommended in children up to the age of 5 (Luyten et al., 2017a). We decided to use the measure in the sample of children aged 2–6 years as the developmental age in children with autism is often not equivalent to the chronological age (Pastor-Cerezuela et al., 2016; Werner et al., 2005). Research shows that children on the autism spectrum exhibit delays in the development of language and adaptive functioning (Brignell et al., 2018; Jain et al., 2025). Also, PRFQ has been used for 6-year-olds in other studies (Kungl et al., 2024). Cronbach's alpha in our sample for the PRFQ showed both low and high internal consistencies with reliability coefficients of PM 0.12, CMS 0.87, and IC 0.63.

2.3 Statistical analysis

Within the sample differences related to the adult attachment are analyzed with *t*-tests, when data is normally distributed. Because of the data representing both parents' rating of their relationship with the same child, we used a mixed effects logistic regression to control for data non-independency. Correlations for parental perception of child attachment and parental reflective functioning were performed by

separating parents into two adult attachment groups – secure/insecure or organized/unresolved. The level of statistical significance was for all analyses 0.05. All statistical analysis was performed using Stata Statistical Software: Release 18. College Station, TX: StataCorp LLC.

2.4 Ethical considerations

The study was reviewed by the local ethics committee which, according to Danish regulations, decided that no approval for the feasibility study was required. All data were following the European Union regulations, i.e., the General Data Protection Regulation. The study was registered at the regional research administration in the North Denmark Region (ID number F2022-050). Complete anonymity was ensured for the participants. Participation was voluntary, and participating parents were informed that their participation did not have any consequences for the treatment of their child. All participating parents signed an informed consent form.

3 Results

Using the AAP, the 37 parents were classified as 8.1% (3) *secure*, 27% (10) *dismissing*, 18.9% (7) *preoccupied*, and 45.9% (17) *unresolved* (Conrad et al., 2025). The 28 parents who filled in the PRFQ and MPCA questionnaires were classified as 7.1% (2) *secure*, 32.1% (9) *dismissing*, 17.9% (5) *preoccupied* and 42.9% (12) *unresolved*. Due to the low sample size, the low frequency of secure and the high frequency of unresolved, the sample was dichotomized in the organized (secure, dismissing, and preoccupied combined) and the unresolved for the following analyses. This dichotomization of attachment classifications is consistent with previous research (Dagan et al., 2018; Eilert and Buchheim, 2023).

3.1 Association between adult attachment and parental reflective functioning

t-test analyses showed no significant difference between the PM and CMS domains between the 16 organized versus the 12 unresolved parents (Table 1), or the mixed effects regression (Table 2). Regarding the PRFQ IC, the *t*-test found a small significant difference between parent groups: unresolved parents had a lower mean on the IC dimension than organized parents with a mean difference of -0.60 $p = 0.05$, confidence interval slightly crossing the zero $[-1.21; 0.01]$ (Table 1). The mixed effects regression coefficient of 0.60 regarding IC found a difference between the groups of organized compared to unresolved was significant $p < 0.05$ (Table 2).

TABLE 2 Mixed effects regression of organized and unresolved parents' ratings of their child on the autism spectrum.

Outcome	Coefficient	SE	<i>p</i> -value	95% CI
PRFQ PM	0.23	0.17	0.19	0.11;0.57
PRFQ CMS	0.16	0.42	0.70	−0.66;0.97
PRFQ IC	0.60*	0.29	0.04*	0.04;1.16
MPCA	0.13	0.13	0.34	−0.13;0.38

* $p < 0.05$.

3.2 Associations between adult attachment and parents' perception of child attachment

t-test analyses found no significant differences between organized and unresolved parents' perceptions of child attachment as measured by the MPCA (Table 1), and no significant differences were found using the mixed effects regression (Table 2).

3.3 Differences between fathers and mothers

Mother versus father differences were examined using mixed effects regression for both the MPCA and the PRFQ. There were no significant differences between 18 mothers' and 10 fathers' ratings for the PRFQ PM, PRFQ CMS and MPCA (Supplementary material 1).

Regarding the PRFQ IC, we found evidence of mothers experiencing a significantly higher interest and curiosity in their children's mental states compared to the fathers with a mixed effects coefficient 0.64, 95% CI [0.06, 1.21], $p < 0.05$ (Supplementary material 1).

3.4 Siblings

Differences between the groups of organized and unresolved parents were also tested regarding the 11 typically developing siblings. None of the included PRFQ and MPCA outcomes showed any significant differences between the groups (Table 3).

The 11 typically developing siblings were compared to their 11 siblings on the autism spectrum. No significant differences were found in this small sample (Table 4).

4 Discussion

The purpose of this study was to advance our understanding of attachment and PRF in families raising a child on the autism spectrum. Regarding PRF findings indicated that parents with organized attachment patterns reported significantly higher levels of Interest and Curiosity (IC) compared to those with unresolved attachment patterns. This suggests that organized parents demonstrate a greater capacity for reflective engagement with their child's mental and emotional states. The IC domain reflects the degree to which parents express thoughtful consideration of their child's internal experiences, as captured by items such as "I wonder a lot about what my child is thinking and feeling" and reverse-scored items like "I believe there is no point in trying to guess what my child feels." Although parents with organized attachment also showed slightly higher scores on the PM and CMS domains, these differences were not statistically significant.

The results indicated that organized and unresolved parents reported similar perceptions of their children's attachment. This may be expected, as only two of the 28 parents who completed the questionnaires were classified as secure. Consequently, the organized group consisted primarily of insecurely attached parents (preoccupied or dismissing), and unresolved attachment also reflects an insecure pattern.

The mean MPCA score of 2.72, indicating lower child attachment security, was comparable to the baseline mean of 3.06 reported by Siller et al. (2014). This lower perceived attachment security in our sample is likely related to the high prevalence of insecure parental attachment.

Comparing mothers and fathers, mothers reported higher PRFQ IC scores than fathers. In our sample, more fathers were classified unresolved, which may partly explain this difference. The finding aligns with previous studies finding higher IC levels in mothers compared to in non-clinical samples (Flykt et al., 2025; Luyten et al., 2017a). However, we did not observe a significant difference in CMS, possibly due to our low sample size.

TABLE 3 Two sample t-tests of parents rating of typically developing siblings.

	Organized (N = 8)		Unresolved (N = 3)		Difference Mean Diff	SE	CI	p-value
	Mean	SD	Mean	SD				
PRFQ PM	1.42	0.53	1.17	0.17	−0.25	0.32	−0.98;0.48	0.46
PRFQ CMS	4.40	1.17	3.72	0.25	−0.67	0.71	−2.27;0.92	0.37
PRFQ IC	6.00	0.82	5.22	0.84	−0.78	0.56	−2.04;0.49	0.20
MPCA	2.60	0.19	2.70	0.26	0.10	0.14	−0.22;0.41	0.50

TABLE 4 Comparison between siblings.

	Children on the autism spectrum (N = 11)		Typically developing siblings (N = 11)		Difference Mean Diff	SE	CI	p-value
	Mean	SD	Mean	SD				
PRFQ PM	1.58	0.29	1.35	0.58	0.23	0.17	−0.16;0.62	0.22
PRFQ CMS	3.68	1.19	4.21	1.04	−0.53	0.31	−1.23;0.17	0.12
PRFQ IC	5.73	0.93	5.79	0.86	−0.06	0.12	−2.04;0.49	0.20
MPCA	2.72	0.39	2.62	0.20	0.10	0.12	−0.22;0.41	0.50

Regarding the parents' report of MPCA and PRFQ for their typically developing child, no significant differences were found between the groups of organized and unresolved parents. A similar trend of higher IC levels organized parents, with a group difference of 0.78, was observed but did not reach significance due to the small sample size of 11 siblings.

There were no significant differences in parents' MPCA or PRFQ ratings between their children on the autism spectrum compared to their typically developing siblings. This contrasts with Enav et al. (2020), who found higher PRF ratings for children on the autism spectrum than the typically developing sibling. The discrepancy may reflect the complex dynamics of parental reflective functioning in these families. Parents may invest greater effort and persistence in understanding their child on the autism spectrum, thus enhancing their parental reflective functioning. At the same time, the child's social-communicative challenges may hinder parental understanding, limiting reflective capacity. These opposing factors may co-exist, balancing out potential differences in parental reflective functioning between children on the autism spectrum and their typically developing siblings.

4.1 Strengths and limitations

This study was one of the first to examine associations between parents' attachment representations and parental reflective function and child attachment in families with children on the autism spectrum. Validated measures of attachment and parental reflective functioning were used in this study.

The primary limitation of the study was the small sample size and missing data on the PRFQ and MPCA questionnaires, resulting in limited statistical power. Nonetheless, it is expected the findings in future meta-analysis will contribute to a growing evidence on the examined associations. Another limitation was the sample's predominance of parental attachment insecurity. Given that defensive processes linked to preoccupied and dismissing attachment support organization of the attachment system (George and West, 2012), combining these groups with secure parents was justified, and consistent with previous research (Dagan et al., 2018; Eilert and Buchheim, 2023). However, with a larger, more diverse sample, we would have preferred to analyze secure versus insecure attachment or the four attachment styles separately.

Defensive processes are known to influence how individuals respond to self-report measures (George and West, 1999). Self-report questionnaires for parents of children with autism may be especially stressful because endorsing items evaluating the self or their child may cause feelings of inadequacy, harshness, or guilt, or bad conscience about their typically developing child. Studies comparing social psychology self-report measures of attachment and developmental measures show that individuals inflate self-reported security (George and West, 1999). This bias may similarly influence PRFQ scores. Potential limitations of the PRFQ include its brevity, its design as a screening tool for large samples (Luyten et al., 2017a) and its retrospective nature. Observational methods or parental interviews are generally considered more accurate (Luyten et al., 2017a). We recommend that future research in attachment and parental reflective functioning should incorporate observational data or semi-structured interviews to validate any self-report findings.

5 Conclusion

Our findings indicate that parents do not perceive significant differences in attachment-related behaviors between their child on the autism spectrum and their typically developing sibling. However, unresolved parents and fathers of children on the autism spectrum showed slightly greater difficulties regarding the PRFQ domain IC. Professionals working with these families may consider providing targeted support to enhance this aspect of parental reflective functioning. This could be by offering parent-mediated interventions that strengthen parental reflective functioning. Further research with larger and more diverse samples is needed to deepen our understanding of the interplay between attachment and parental reflective functioning in families affected by autism.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The requirement of ethical approval was waived by the Scientific Ethics Committee, Aalborg University for the studies involving humans according to Danish regulations. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

CC: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Visualization, Writing – original draft. CG: Conceptualization, Formal analysis, Resources, Supervision, Validation, Writing – review & editing. EF: Data curation, Formal analysis, Writing – review & editing. HJ: Data curation, Formal analysis, Writing – review & editing. PT: Conceptualization, Funding acquisition, Resources, Supervision, Validation, Writing – review & editing. ML: Conceptualization, Formal analysis, Funding acquisition, Methodology, Resources, Supervision, Validation, Writing – review & editing.

Funding

The author(s) declare that financial support was received for the research and/or publication of this article. CC received support from the Lundbeck Foundation (R389-2021-1597).

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The author(s) declared that they were an editorial board member of Frontiers, at the time of submission. This had no impact on the peer review process and the final decision.

Generative AI statement

The authors declare that no Gen AI was used in the creation of this manuscript.

Any alternative text (alt text) provided alongside figures in this article has been generated by Frontiers with the support of artificial intelligence and reasonable efforts have been made to ensure accuracy, including review by the authors wherever possible. If you identify any issues, please contact us.

References

- Ainsworth, M. D., Blehar, M., Waters, E., and Wall, S. (1978). Patterns of attachment. Hillsdale, NJ: Erlbaum.
- Benoit, D., and Parker, K. C. (1994). Stability and transmission of attachment across three generations. *Child Dev.* 65, 1444–1456. doi: 10.1111/j.1467-8624.1994.tb00828.x
- Bond, N., Dallos, R., and McKenzie, R. (2020). Doing things differently: exploring attachment patterns and parental intentions in families where a child has a diagnosis of autism. *Clin. Child Psychol. Psychiatry* 25, 766–777. doi: 10.1177/1359104520907141
- Bosmans, G., and Borelli, J. L. (2022). Attachment and the development of psychopathology: introduction to the special issue. *Brain Sci.* 12:174. doi: 10.3390/brainsci12020174
- Bowlby, J. (1940). The influence of early environment in the development of neurosis and neurotic character. *Int. J. Psychoanal.* 21, 154–178.
- Bowlby, J. (1969). Attachment and loss (Vol. 1), London: Hogarth.
- Bowlby, J. (1973). Attachment and loss: Volume II: Separation, anxiety and anger. London: The Hogarth press and the institute of psycho-analysis, 1–429.
- Brignell, A., Morgan, A. T., Woolfenden, S., Klopper, F., May, T., Sarkozy, V., et al. (2018). A systematic review and meta-analysis of the prognosis of language outcomes for individuals with autism spectrum disorder. *Autism Dev. Lang. Impair.* 3:2396941518767610. doi: 10.1177/2396941518767610
- Buchheim, A., Ziegenhain, U., Kindler, H., Waller, C., Gündel, H., Karabatsiak, A., et al. (2025). Identifying risk and resilience factors in the intergenerational cycle of maltreatment: results from the TRANS-GEN study investigating the effects of maternal attachment and social support on child attachment and cardiovascular stress physiology. *Front. Hum. Neurosci.* 16:890262. doi: 10.3389/fnhum.2022.890262
- Chan, G. W., and Goh, E. C. (2014). 'My parents told us that they will always treat my brother differently because he is autistic'—are siblings of autistic children the forgotten ones? *J. Soc. Work. Pract.* 28, 155–171. doi: 10.1080/02650533.2013.844114
- Conrad, C. E., Lauritsen, M. B., Færk, E., Jakobsen, H., Thomsen, P. H., and George, C. (2025). Representations of adult attachment and shame in parents of children on the autism spectrum [original research]. *Front. Psychol.* 16:1519090. doi: 10.3389/fpsyg.2025.1519090
- Cortina, M., and Liotti, G. (2010). Attachment is about safety and protection, intersubjectivity is about sharing and social understanding: the relationships between attachment and intersubjectivity. *Psychoanal. Psychol.* 27, 410–441. doi: 10.1037/a0019510
- Dagan, O., Facompré, C. R., and Bernard, K. (2018). Adult attachment representations and depressive symptoms: a meta-analysis. *J. Affect. Disord.* 236, 274–290. doi: 10.1016/j.jad.2018.04.091
- Dagan, O., Schuengel, C., Verhage, M. L., Madigan, S., Roisman, G. I., Bernard, K., et al. (2024). Configurations of mother–child and father–child attachment relationships as predictors of child language competence: an individual participant data meta-analysis. *Child Dev.* 95, 50–69. doi: 10.1111/cdev.13998
- David, R. M., Carroll, A. J., and Smith, J. D. (2022). Virtual delivery of therapeutic assessment: an empirical case study. *J. Pers. Assess.* 104, 417–427. doi: 10.1080/00223891.2021.1929262
- Eilert, D. W., and Buchheim, A. (2023). Attachment-related differences in emotion regulation in adults: a systematic review on attachment representations. *Brain Sci.* 13:884. doi: 10.3390/brainsci13060884
- Enav, Y., Erhard-Weiss, D., Goldenberg, A., Knudston, M., Hardan, A. Y., and Gross, J. J. (2020). Contextual determinants of parental reflective functioning: children with autism versus their typically developing siblings. *Autism* 24, 1578–1582. doi: 10.1177/1362361320908096
- Flykt, M., Haarala, H., Pyhältö, K., Minkinen, J., and Kalland, M. (2025). Validation of the parental reflective functioning questionnaire in Finnish mothers and fathers of toddlers. *Infant Ment. Health J.* 46, 564–576. doi: 10.1002/imhj.70006
- Fonagy, P., Steele, H., and Steele, M. (1991a). Maternal representations of attachment during pregnancy predict the organization of infant–mother attachment at one year of age. *Child Dev.* 62, 891–905. doi: 10.2307/1131141
- Fonagy, P., Steele, M., Steele, H., Moran, G. S., and Higgitt, A. C. (1991b). The capacity for understanding mental states: the reflective self in parent and child and its significance for security of attachment. *Infant Ment. Health J.* 12, 201–218. doi: 10.1002/1097-0355(199123)12:3<201::AID-IMHJ1203020207>3.0.CO;2-7
- George, C., and Solomon, J. (1996). Representational models of relationships: links between caregiving and attachment. *Infant Ment. Health J.* 17, 198–216. doi: 10.1002/(SICI)1097-0355(199623)17:3<198::AID-IMHJ1703020202>3.0.CO;2-L
- George, C., and West, M. (1999). Developmental vs. social personality models of adult attachment and mental ill health. *Br. J. Med. Psychol.* 72, 285–303. doi: 10.1348/000711299159998
- George, C., and West, M. (2011). The adult attachment projective picture system: integrating attachment into clinical assessment. *J. Pers. Assess.* 93, 407–416. doi: 10.1080/00223891.2011.594133
- George, C., and West, M. L. (2012). The adult attachment projective picture system: attachment theory and assessment in adults. New York: Guilford Press.
- Goodman, S. J., and Glenwick, D. S. (2012). Correlates of attachment perceptions in parents of children with autism Spectrum disorders. *J. Autism Dev. Disord.* 42, 2056–2066. doi: 10.1007/s10803-012-1453-8
- Grossmann, K., and Grossmann, K. E. (2020). Essentials when studying child–father attachment: a fundamental view on safe haven and secure base phenomena. *Attach Hum. Dev.* 22, 9–14. doi: 10.1080/14616734.2019.1589056
- Hoppes, K., and Harris, S. L. (1990). Perceptions of child attachment and maternal gratification in mothers of children with autism and down syndrome. *J. Clin. Child Psychol.* 19, 365–370. doi: 10.1207/s15374424jccp1904_8
- Jain, D., Multani, K. S., Dodiya, A., Benani, U., and Iyer, A. (2025). Adaptive behavior and its differences between children with autism spectrum disorder and social communication disorder. *Autism* 29, 829–837. doi: 10.1177/13623613251317787
- Kahane, L., and El-Tahir, M. (2015). Attachment behavior in children with autistic Spectrum disorders. *Adv. Ment. Health Intellect. Disabil.* 9, 79–89. doi: 10.1108/AMHID-06-2014-0026
- Kelly, K., Slade, A., and Grienberger, J. F. (2005). Maternal reflective functioning, mother–infant affective communication, and infant attachment: exploring the link between mental states and observed caregiving behavior in the intergenerational transmission of attachment. *Attach Hum. Dev.* 7, 299–311. doi: 10.1080/14616730500245963
- Kungl, M. T., Gabler, S., White, L. O., Spangler, G., and Vrticka, P. (2024). Precursors and effects of self-reported parental reflective functioning: links to parental attachment representations and behavioral sensitivity. *Child Psychiatry Hum. Dev.*, 1–16. doi: 10.1007/s10578-023-01654-2
- Luyten, P., Mayes, L. C., Nijssens, L., and Fonagy, P. (2017a). The parental reflective functioning questionnaire: development and preliminary validation. *PLoS One* 12:e0176218. doi: 10.1371/journal.pone.0176218
- Luyten, P., Nijssens, L., Fonagy, P., and Mayes, L. C. (2017b). Parental reflective functioning: theory, research, and clinical applications. *Psychoanal. Stud. Child* 70, 174–199. doi: 10.1080/00797308.2016.1277901
- Miljkovitch, R., Pierrehumbert, B., Bretherton, I., and Halfon, O. (2004). Associations between parental and child attachment representations. *Attach Hum. Dev.* 6, 305–325. doi: 10.1080/14616730412331281557

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2025.1651408/full#supplementary-material>

- Pastor-Cerezuela, G., Fernández-Andrés, M.-I., Feo-Álvarez, M., and González-Sala, F. (2016). Semantic verbal fluency in children with and without autism spectrum disorder: relationship with chronological age and IQ. *Front. Psychol.* 7:921. doi: 10.3389/fpsyg.2016.00921
- Radojevic, M. (1992). Predicting quality of infant attachment to father at 15 months from pre-natal paternal representations of attachment: an Australian contribution. 25th international congress of psychology, Brussels, Belgium.
- Rozga, A., Hesse, E., Main, M., Duschinsky, R., Beckwith, L., and Sigman, M. (2018). A short-term longitudinal study of correlates and sequelae of attachment security in autism. *Attach Hum. Dev.* 20, 160–180. doi: 10.1080/14616734.2017.1383489
- Rutgers, A. H., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., and van Berckelaer-Onnes, I. A. (2004). Autism and attachment: a meta-analytic review. *J. Child Psychol. Psychiatry* 45, 1123–1134. doi: 10.1111/j.1469-7610.2004.t01-1-00305.x
- Sameroff, A. (2009). The transactional model. Washington, DC: American Psychological Association.
- Schore, A. N. (2001). Effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health. *Infant Ment. Health J.* 22, 7–66.
- Seskin, L., Feliciano, E., Tippy, G., Yedloutschnig, R., Sossin, K. M., and Yasik, A. (2010). Attachment and autism: parental attachment representations and relational behaviors in the parent-child dyad. *J. Abnorm. Child Psychol.* 38, 949–960. doi: 10.1007/s10802-010-9417-y
- Sharp, C., and Fonagy, P. (2008). The parent's capacity to treat the child as a psychological agent: constructs, measures and implications for developmental psychopathology. *Soc. Dev.* 17, 737–754. doi: 10.1111/j.1467-9507.2007.00457.x
- Siller, M., Swanson, M., Gerber, A., Hutman, T., and Sigman, M. (2014). A parent-mediated intervention that targets responsive parental behaviors increases attachment behaviors in children with ASD: results from a randomized clinical trial. *J. Autism Dev. Disord.* 44, 1720–1732. doi: 10.1007/s10803-014-2049-2
- Slade, A. (2005). Parental reflective functioning: an introduction. *Attach Hum. Dev.* 7, 269–281. doi: 10.1080/14616730500245906
- Slade, A. (2009). Mentalizing the unmentalizable: parenting children on the spectrum. *J. Infant Child Adolesc. Psychother.* 8, 7–21. doi: 10.1080/15289160802683054
- Solomon, J., and George, C. (2011). “Dysregulation of caregiving across two generations” in *Disorganized attachment and caregiving*. eds. J. Solomon and C. George (New York: Guilford Press), 25–51.
- Steele, H., Steele, M., and Fonagy, P. (1996). Associations among attachment classifications of mothers, fathers, and their infants. *Child Dev.* 67, 541–555. doi: 10.2307/1131831
- Stern, D. N. (2004). The present moment in psychotherapy and everyday life (Norton series on interpersonal neurobiology). London and New York: WW Norton & Company.
- Teague, S. J., Gray, K. M., Tonge, B. J., and Newman, L. K. (2017). Attachment in children with autism spectrum disorder: a systematic review. *Res. Autism Spectr. Disord.* 35, 35–50. doi: 10.1016/j.rasd.2016.12.002
- Teague, S. J., Newman, L. K., Tonge, B. J., and Gray, K. M. (2018). Caregiver mental health, parenting practices, and perceptions of child attachment in children with autism spectrum disorder. *J. Autism Dev. Disord.* 48, 2642–2652. doi: 10.1007/s10803-018-3517-x
- van IJzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: a meta-analysis on the predictive validity of the adult attachment interview. *Psychol. Bull.* 117, 387–403. doi: 10.1037/0033-2909.117.3.387
- van IJzendoorn, M. H., and Bakermans-Kranenburg, M. J. (1997). Intergenerational transmission of attachment: a move to the contextual level. *Attach. Psychopathol.* 3, 135–170.
- van IJzendoorn, M. H., and Bakermans-Kranenburg, M. J. (2019). Bridges across the intergenerational transmission of attachment gap. *Curr. Opin. Psychol.* 25, 31–36. doi: 10.1016/j.copsyc.2018.02.014
- Wendelboe, K. I., Smith-Nielsen, J., Stuart, A. C., Luyten, P., and Skovgaard Væver, M. (2021). Factor structure of the parental reflective functioning questionnaire and association with maternal postpartum depression and comorbid symptoms of psychopathology. *PLoS One* 16:e0254792. doi: 10.1371/journal.pone.0254792
- Werner, E., Dawson, G., Munson, J., and Osterling, J. (2005). Variation in early developmental course in autism and its relation with behavioral outcome at 3–4 years of age. *J. Autism Dev. Disord.* 35, 337–350. doi: 10.1007/s10803-005-3301-6
- WHO. (2024). ICD-11 International Classification of Diseases. Available online at: <https://icd.who.int/browse/2024-01/mms/en> (Accessed October 18, 2025).