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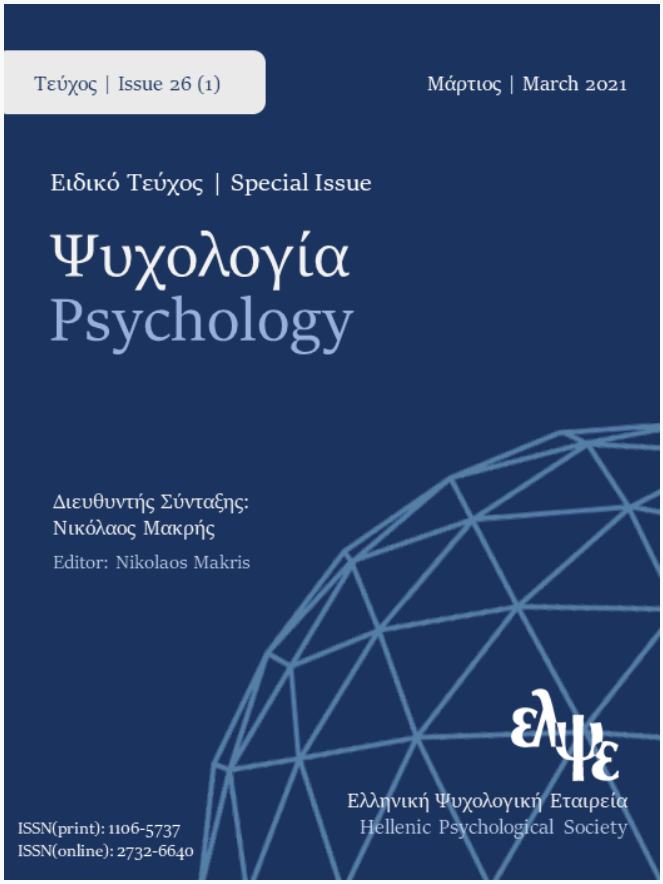
Psychology: the Journal of the Hellenic Psychological Society

Vol 26, No 1 (2021)

Special Issue: Developmental Psychology. Research, applications and implications



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Asimenia Papoulidi, Christina F. Papaeliou, Stavroula Samartzi

doi: 10.12681/psy_hps.26324

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To cite this article:

Papoulidi, A., Papaeliou, C. F., & Samartzi, S. (2021). Shared intentionality in children with Autism Spectrum Disorder (ASD). *Psychology: The Journal of the Hellenic Psychological Society*, *26*(1), 56–72. https://doi.org/10.12681/psy_hps.26324

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ΨΥΧΟΛΟΓΙΑ | PSYCHOLOGY, 26 (1), 56-72

Ελληνική Ψυχολογική Εταιρεία
Hellenic Psychological Society

ΕΜΠΕΙΡΙΚΗ ΕΡΓΑΣΙΑ | RESEARCH PAPER

Shared intentionality in children with Autism Spectrum Disorder (ASD)

Asimenia PAPOULIDI[1], Christina F. PAPAELIOU[2], Stavroula SAMARTZI[1]

[1] Department of Psychology, Panteion University of Social and Political Sciences
[2] Department of Early Childhood Education and Care, University of West Attica

KEYWORDS

Mother-child interaction
Intentionality
Intersubjectivity
Autism Spectrum Disorder

CORRESPONDENCE

Asimenia Papoulidi
Panteion University of Social and Political Sciences,
Department of Psychology,
Syngrou Av. 136, Athens, GR-17671, Greece
Email:
a.papoulidi@panteion.gr

ABSTRACT

It is well documented that the ability and motivation to engage with others in collaborative activities with joint goals and shared intentions is the foundation of human uniqueness. However, children with Autism Spectrum Disorder (ASD) show difficulties in sharing their motives, intentions, and emotions with others about topics in the environment and manifest low levels of engagement. The purpose of the present study was to compare the level of intentionality and social engagement in 10 children with ASD and 10 typically developing (TD) children, matched for mental age, during free play interactions with their mothers. Children were video recorded while playing with their mothers in a naturalistic condition with toys provided by the researcher. For the microanalysis of the video recordings the EUDICO Linguistic Annotator was used, which permits the analysis of joint behaviors and captures subtle qualitative differences in social engagement. Results indicated that children with ASD showed deficits in joint attention, exhibited no functional play and employed less communicative gestures than their peers in the comparison group. These differences between the two groups in their mode of communication led to the emergence of two distinct patterns of engagement which depict the different level of intentionality that these groups have in sharing their experiences during mother-child interactions. These representative patterns of interaction can be used as a potential tool for early identification of children at risk of ASD well before other behaviors become fully manifested.

Mother-child interaction has been seen as critical for child development, both cognitive and emotional; for example, evidence shows a link between such interaction and language development (Feldman, 2007; Saint-Georges et al., 2013). Infants early on participate actively in social interactions (Nagy, 2011; Trevarthen & Aitken, 2001) and learn to anticipate the behavior of their communicative partner (Gallagher, 2008; Panksepp, 2011; Trevarthen, 2009; Trevarthen & Reddy, 2007). A wealth of studies has shown that both mothers and infants adjust the timing of their actions in order to achieve synchrony, which is defined as the dynamic and reciprocal adaptation of the temporal structure of behaviors between interactive partners (Leclère et al., 2014).

According to Schirmer et al. (2016), interaction success depends on the degree of temporal coordination between interaction partners. Contingent coordination in mother-child interaction is achieved during the first months of life and is evident through rhythmic patterns of behavior which consist of combinations of gestures, facial expressions and vocalizations (Jaffe et al., 2001; Lester et al., 1985). During this coordinated interaction each partner reflects on the other's affective states and a matching of subjective experiences, which is called

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affect attunement, is achieved (Stern, 1985). Affect attunement is a particular kind of intersubjectivity exhibited during the first months of life.

According to Trevarthen's Theory of Intersubjectivity (Trevarthen, 2001, 2005), social engagement is based on innate motives for moving and responding to the physical and social environment. Intersubjectivity, which is defined as the intuitive recognition and understanding of the impulses and desires of another's mind, plays a significant role in the development of nonverbal, intentional communication in human infants (Trevarthen, 1979). Early intersubjective skills serve as a foundation for more advanced social cognitive skills as well as the development of symbolic play (Cebula & Wishart, 2008; Meltzoff, 2007; Tager-Flusberg et al., 2006; Trevarthen & Aitken, 2001).

Infants gradually progress from primary intersubjectivity to secondary intersubjectivity (Trevarthen, 1979). Primary intersubjectivity involves direct social attention and attunement and is evident from birth. Secondary intersubjectivity appears around nine months of age and refers to the intercoordination of self, other, and object based on the cooperative exchange of behaviors (Hubley & Trevarthen, 1979; Trevarthen & Hubley, 1978). The most important manifestation of secondary intersubjectivity is joint attention. Joint attention is the coordination of attention between social partners and objects in order to share an experience (Bakeman & Adamson, 1984).

Around the same age, infants begin to act intentionally in order to influence the behavior of their communicative partner (Bates, 1976; McLean, 1990). They exhibit a new readiness to tune in with the intentions and interests of a partner in joint exploration and use of objects. Infants gradually progress from pre-intentional communication, which entails acts directed to either a communication partner or object with no indication of joint attention, to intentional communication, which includes acts clearly directed toward a communication partner (Crais & Ogletree, 2016). These skills are described under the term "shared intentionality", which refers to collaborative interactions in which participants share psychological states with one another (Tomasello & Carpenter, 2007). The capacity to share intention with others is unique to human social cognition and makes human social skills very different from those of other animal species (Tomasello, 1999). The transition from pre-intentional to intentional communication is a major milestone for all children and is critical to the development of higher-level communication skills (Brady et al., 2004; Tomasello et al., 2007).

However, for many children with developmental disabilities this critical transition to intentional communication is delayed or does not happen at all. This seems to be the case for children with Autism Spectrum Disorder (ASD). ASD is a neurodevelopmental disorder characterized by social and communicative deficits as well as restricted and repetitive behaviors (APA, 2013). In particular, children with ASD show deficits in communicative abilities and difficulties in sharing their motives, intentions, and emotions with others about topics in the environment (Papoulidi et al., 2017; Trevarthen & Delafield-Butt, 2013).

Children with ASD show impairment in contingent interactions and mutual coordination with their communicative partner (Macintosh & Dissanayake, 2006) that may stem from their severe difficulties in creating expectancies and predicting the behavior of others (Sinha et al., 2014). In their seminal study, Trevarthen and Daniel (2005) examined home videos of 11-month-old twin infants with Rett syndrome, one of whom was diagnosed with ASD at the age of two years. Their research focused on rhythmic behavior and synchrony during the interaction of the twin girls with their father. Results demonstrated that the infant who later developed ASD showed little eye contact, incoherent engagement of mutual attention, absence of co-regulation, weak emotional expression and lack of anticipation, making the interaction asynchronous. Moreover, a series of prospective studies with high-risk infants (siblings of children with ASD) has detected differences in early social engagement, weaker synchrony in infant-led interactions and stronger tendency toward inactivity (Rozga et al., 2011; Wan et al., 2012; Yirmiya et al., 2006).

Impairment in joint attention is among the earliest signs of the disorder (Charman, 2003; Dawson et al., 2004; Jones & Carr, 2004) and constitutes a key diagnostic criterion. In addition, numerous studies have shown

that children with ASD present deficits in multiple communicative gestures (Iverson et al., 2018; Watson et al., 2013). The lack of motivation in social engagement is also revealed in play activities. Although children with ASD may play with objects functionally, this play tends to be less frequent, elaborated, varied and integrated than that of typically developing (TD) children (Christensen et al., 2010; Williams et al., 2001). They also show particular difficulties in symbolic play (Dominguez et al., 2006; Stanley & Konstantareas, 2007; Thiemann-Bourque et al., 2012; Warreyn et al., 2005). Unsurprisingly, children with ASD prefer solitary actions and simple manipulation of objects (Elison et al., 2014). In most cases, they do not show any interest in sharing their experiences with others and they do not engage in social interactions.

The aim of the present study is to compare the level of intentionality and social engagement in 10 children with ASD and 10 TD children, matched for mental age, during free play interactions with their mothers by employing a microanalytic approach.

The following hypotheses were raised. Compared to TD children, children with ASD would present (a) deficits in gaze coordination with their mother, (b) difficulties attuning their affect to that with their communicative partner, and (c) a different pattern of interaction with their mothers, which would reveal their limited intentionality to share their experiences with her.

Method

The current study constitutes part of a larger-scale project, the BabyAffect, which studied affective and behavioral modeling of early childhood lexicalizations and communicative functions with application to ASD and language delay detection. The method followed in the present study, which is described below, was also applied in the BabyAffect project.

Recruitment and participants

Table 1
Performance on Mullen Scales of Early Learning

	ASD	TD	*F*	*p*
Visual Reception				
Mean	20.9	21.6	0.07	0.782
Range	14-29	12-35		
SD	4.22	6.63		
Fine Motor				
Mean	20.8	20.2	0.04	0.832
Range	14-28	13-38		
SD	5.51	6.84		
Receptive Language				
Mean	15.6	19.5	1.82	0.193
Range	6-23	10-33		
SD	5.29	7.42		
Expressive Language				
Mean	17.2	16.2	0.15	0.699
Range	8-29	13-29		
SD	6.54	4.68		

The participants of the present study were 10 children with ASD (9 males), aged between 29 and 81 months (M = 55.1, SD = 21.03) and 10 TD children (8 males), aged between 9 and 30 months (M = 16.9, SD = 5.82) (F = 33.23, $p < 0.001$). The male/female ratio of the sample depicts the overrepresentation of males with ASD, which is well known in the literature (Halladay et al., 2015; Wijngaarden-Cremers et al., 2014). Participants were recruited from pediatric clinics, daycare centers, developmental pediatric clinics, private psychological centers and special schools (non-random sampling). TD children were mainly recruited through the social network of the researchers. All participants came from Greek-speaking families and were matched for visuospatial, fine motor, and linguistic abilities on the raw scores of the Mullen Scales of Early Learning (Mullen, 1995). This test is administered in infants and preschool children from birth to 68 months and is commonly used in studies of infants and young preschoolers with developmental disorders (Klein-Tasman et al., 2007). Table 1 presents the raw scores of participants on the four subscales that were assessed (visual reception, fine motor, receptive and expressive language).

Procedure

Parents were informed of the procedure of the study and were asked to sign a consent form. During the first visit, a questionnaire for demographic and medical information was administered to parents. Even though mothers and fathers in the two groups did not differ significantly in age (F = 0.14, p = 0.708 and F = 0.02, p = 0.883, respectively), significant differences were observed in parents' education. In particular, the majority of mothers in the ASD group had graduated from High School, while the majority of mothers in the TD group had a University degree (χ^2 = 13.24, p = 0.004). The same holds for fathers as well (χ^2 = 14.00, p = 0.007).

Video recordings took place in children's homes. Home environment was considered more appropriate for obtaining representative samples of the children's spontaneous behavior than the unfamiliar laboratory environment (Papaeliou et al., 2002). Each session lasted approximately 35 minutes and was video recorded using a high-quality camera mounted on a tripod. According to the relevant literature, this is a common duration for video recordings, which provides adequate data and has been extensively used in previous work, including children with ASD (Iverson & Fagan, 2004; Iverson & Wozniak, 2007). Mothers were asked to play with their child, as they would normally do, trying to introduce to the child all the toys provided by the researcher.

Data analysis and annotation

A microanalytic approach was considered the best method in order to study the interaction of the dyad, since it permits the analysis of joint behaviors and captures subtle qualitative differences in social engagement. For the microanalysis of the video recordings the EUDICO Linguistic Annotator (ELAN) was used. ELAN is a professional tool for the creation of complex annotations on video and audio resources, developed at the Max Planck Institute for Psycholinguistics (Hellwig, 2014).

A coding system which was based on previous schemes (Laing et al., 2002; Papaeliou & Trevarthen, 2006; Papaeliou et al., 2015) was designed and included the following axes: gaze direction, action on object, action on partner and emotion (see Appendix). The coding system was intended to be concise and not redundant and to describe overt behaviors (The BabyAffect Team, 2014). Behaviors were coded on a split-second basis. Milliseconds was the unit of analysis that was considered most appropriate for the present data. At an initial level, behaviors were coded separately for the mother and the child on a frame-by-frame basis and then their behaviors were combined in order to assess the interaction of the dyad in terms of shared intentionality. According to the literature, there are three levels of intentionality (Crais & Ogletree, 2016; Iverson & Wozniak, 2016; Meadows et al., 2000; Yoder et al., 2001). Non-intentional communication is evident in acts with complete absence of intent, directed neither to a person nor to an object (i.e. different focus of attention, solitary actions). Pre-intentional communication entails acts directed to either a communication partner or object with no indication of joint attention between communication partner and object (i.e. parallel looking: partners are looking at the same

object without though communicating about it). Intentional communication includes acts clearly directed toward a communication partner that carry intent for interaction (i.e. joint attention, functional play). Joint attention is achieved through the use of alternating gaze (looking back and forth between the partner and an object) and/or communicative gestures (pointing, showing, offering). Functional play refers to conventional use of objects according to their function (Bigelow et al., 2004). The innovation of the current research lies on the grouping of the separate behaviors observed in mothers and children into the above-mentioned categories of intentionality. It also demonstrates the way these categories are alternated during the interaction which produces a distinct rhythmical pattern for each group of participants. Inter-rater and intra-rater reliability was calculated for three ASD children and three TD children (30% of the sample) for each behavior category and was found to be very high. For inter-rater reliability Cohen's kappa ranged from 0.77 to 0.87 and for intra-rater reliability kappa ranged from 0.78 to 0.91.

Results

It is clarified that since duration (dependent variable) does not follow normal distribution, data were transformed in order to conform to normality. Among the different types of transformations used to transform skewed data to conform to normality, the log transformation was selected as the most appropriate to the data of the present study (Field, 2013). In addition, because of the small sample size Cohen's d effect size was also calculated in order to measure the magnitude of the mean differences in cases where the null hypothesis was rejected.

Interaction initiation

A chi-square test was performed to examine the relation between initiation of interaction and group category. The relation between these variables was statistically significant, χ^2 (1, N = 20) = 5.05, p = 0.025. Overall, compared to TD children, children with ASD were less likely to commence an interaction and engage their mother in their actions. In particular, only two out of 10 children with ASD initiated the interaction. In all other cases, it was the mother who initiated the interaction and attempted to engage the child in order to play together and share their experiences.

Gaze direction of the dyad

An independent samples t-test was performed to examine between group differences in relation to gaze coordination of the mother-child dyads. Results indicated that ASD dyads (M = 10.07, SD = 0.44) spent significantly more time looking at different objects/directions compared to TD dyads (M = 8.48, SD = 1.19, $t(11)$ = 3.94, p = 0.002, d = 1.81). In addition, the duration of alternating gaze was significantly shorter for the ASD group (M = 0.99, SD = 3.13) in relation to the TD group (M = 9.93, SD = 3.33, $t(18)$ = -5.76, p < 0.001, d = -2.58). Alternating gaze between the partner and an object signifies an attempt for joint attention. As it is presented in Table 2, no significant differences were found between groups for the duration of time spent on either eye contact or parallel looking.

Affect of the dyad

Examining the emotional state of partners (see Appendix for behavioral variables that serve as criteria of emotional state), it was observed that in most cases both mothers and children retained a neutral affect during the play session in both ASD and TD groups. Assessing the degree to which each member of the dyad manages to attune to the affect of the other, it was noteworthy that children in the ASD group did not exhibit positive affect at all, whereas TD children did not exhibit negative affect at all. Therefore, statistical analysis could not be run for those categories. Although emotional states signifying lack of affect attunement lasted longer in the ASD group, no statistically significant differences were found (Table 3).

Table 2
Mean time of gaze direction of the dyad

	Mean Duration **(msec)**	***SD***	***t***	***p***
Eye Contact			0.09	0.927
ASD	1.60	3.40		
TD	1.47	3.10		
Parallel Looking			0.77	0.449
ASD	9.62	1.53		
TD	8.73	3.32		
Alternating Gaze			-5.76	< 0.001*
ASD	0.99	3.13		
TD	9.33	3.33		
Different Focus of Attention			3.94	0.002*
ASD	10.07	0.44		
TD	8.48	1.19		

*$p < 0.05$

Table 3
Mean duration of attuned vs. non attuned affect of the dyad

	Mean Duration **(msec)**	***SD***	***t***	***p***
Affect Attunement			-1.00	0.327
ASD	9.81	3.57		
TD	10.99	0.91		
Lack of Affect Attunement			1.01	0.325
ASD	6.14	5.33		
TD	3.80	4.96		

*$p < 0.05$

Type of action

An independent sample *t*-test was conducted in order to examine whether there were any differences between the groups of the ASD and TD children in relation to the type of action (communicative gestures, exploratory play, functional play) they usually performed during the play interaction. Results showed that the mean duration of communicative gestures was significantly less for children with ASD ($M = 2.30$, $SD = 3.72$) than TD children ($M = 8.11$, $SD = 2.97$, $t(18) = -3.85$, $p < 0.001$, $d = -1.72$). It was also noteworthy that children with ASD did not display functional play at all, while it was highly produced by TD children. In relation to exploratory play, there were no significant differences between the groups (Table 4).

With regards to mothers, an independent samples *t*-test indicated that there was a significant difference in the time they spent in exploratory play. In particular, mothers of children with ASD ($M = 4.45$, $SD = 4.71$) used this type of play much longer than mothers of TD children ($M = 0.75$, $SD = 2.39$, $t(13) = 2.21$, $p = 0.045$, $d = 0.99$). It was also observed that mothers in the ASD group displayed more functional play than mothers in the TD group, while the latter group performed more communicative gestures than the former. However, as it is presented in Table 5, these differences were not statistically significant.

Table 4
Between group differences in type of action performed by children

	***Mean Duration* (msec)**	***SD***	***t***	***p***
Exploratory Play			1.36	0.190
ASD	8.01	4.41		
TD	5.26	4.59		
Communicative Gestures			-3.85	0.001*
ASD	2.30	3.72		
TD	8.11	2.97		

*$p < 0.05$

Table 5
Between group differences in type of action performed by mothers

	***Mean Duration* (msec)**	***SD***	***t***	***p***
Exploratory Play			2.21	0.045*
ASD	4.45	4.71		
TD	0.75	2.39		
Communicative Gestures			-0.80	0.432
ASD	4.71	4.12		
TD	6.23	4.30		
Functional Play			0.89	0.387
ASD	8.23	3.03		
TD	6.67	4.65		

*$p < 0.05$

Patterns of intentional interaction

Having examined independently the type of action each partner performs during the interaction, it was then time to combine their behaviors and investigate how the dyad interacted during the play episode. For this purpose, the behaviors of both partners were taken into account simultaneously. This study explored the temporal succession of their behaviors as well as the level of intentionality that each behavior revealed. More specifically, three levels of intentionality (non-intentional, pre-intentional, intentional) were assumed and each behavior was then categorized into one of them.

The following patterns emerged for each group. Figures 1 and 2 depict the temporal succession of behaviors during the interaction of 10 ASD children and 10 TD children with their mothers, respectively. As it is depicted graphically, the differences between the groups in their intentionality for interaction were distinct. In the ASD group, non-intentional communication prevailed and there were only scarce periods of pre-intentional communication which were shorter in duration. By contrast, in the TD group intentional communication was the dominant category and there were shorter periods of pre-intentional and non-intentional communication.

An independent samples *t*-test indicated that there were significant differences between the groups in relation to non-intentional and intentional communication (Table 6). More specifically, the duration of non-intentional communication was statistically significantly longer in the ASD group (M = 10.70, SD = 0.78) than the TD group (M = 9.09, SD = 1.15, $t(18)$ = 3.65, p = 0.002, d = 1.63). Marked differences between the groups were also observed in relation to intentional communication, since it was almost absent from the ASD group,

with the exception of one child (M = 0.99, SD = 3.13), while it dominated in the pattern of interaction of the TD group (M = 10.64, SD = 0.96, $t(18)$ = -9.30, p < 0.001, d = -4.16). No significant differences between the groups were found in pre-intentional communication.

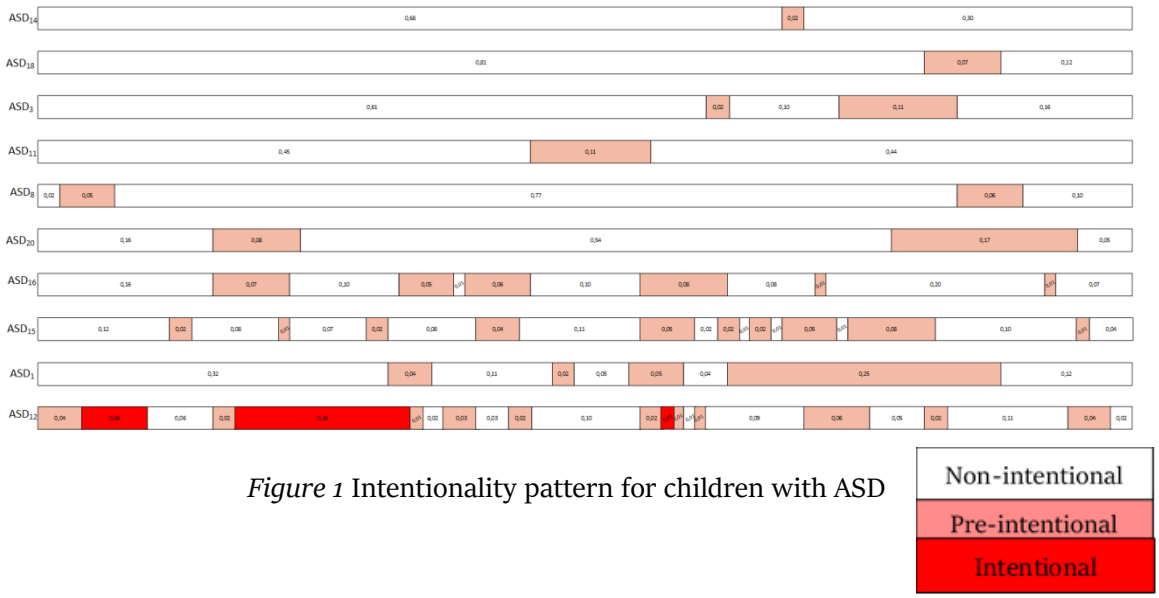

Figure 1 Intentionality pattern for children with ASD

Figure 2 Intentionality pattern for TD children

Table 6
Between group differences in levels of intentionality

	Mean Duration **(msec)**	***SD***	***t***	***p***
Non-Intentional Communication			3.65	0.002*
ASD	10.70	0.78		
TD	9.09	1.15		
Pre-Intentional Communication			1.23	0.231
ASD	9.01	1.10		
TD	7.38	4.00		
Intentional Communication			-9.30	< 0.001*
ASD	0.99	3.13		
TD	10.64	0.96		

*p < 0.05

Discussion

The purpose of the present study was to compare the level of intentionality of 10 children with ASD and 10 TD children, matched for mental age, during free play interactions. As evidenced in the literature, infants are socially responsive from soon after birth and their motive for sharing a narrative is clearly demonstrated by their ability to imitate the expressive movements of their partner and collaborate in turn-taking sequences (Kugiumutzakis & Trevarthen, 2015; Trevarthen & Delafield-Butt, 2013). The emergence of intentional communication around the end of the first year of life is widely recognized as a basic milestone in the infant's development.

Shared intentionality drives human cooperation. This unique human ability allows people not only to understand that others act intentionally but also to share common goals. Humans are from a very early age motivated to share their goals and communicate about the coordinated strategies necessary to achieve them (McClung et al., 2017). However, this is not universal; children with ASD have particular difficulties in shared intentionality which account for the social-cognitive impairments they display (Tomasello et al., 2005).

Several neurodevelopmental disorders that impair the individual's social functioning are manifested in reduced eye contact or atypical gaze behavior and may be detected in early infancy (Niedźwiecka et al., 2017; Yirmiya et al., 2006). According to the findings of the present study, children with ASD made much fewer gaze alternations than TD children, a finding which was also reported in the retrospective study of Clifford and Dissanayke (2008). Using eye tracking technology, Thorup et al. (2018) found that reduced alternating gaze during social interaction in infancy is associated with elevated symptoms of ASD in toddlerhood. Similarly, prospective studies focusing on initiating joint attention have reported fewer gaze alternations in 14-month-old infants who later received an ASD diagnosis (Landa et al., 2007; Macari et al., 2012).

Gaze alternation which indicates intentional communication is impaired in children with ASD. This deficit in intentionality is also confirmed by the long time these children spent focusing their attention on a different object than the one indicated by the mother. This finding is consistent with reports that children with ASD are less likely to orient socially (Dawson et al., 1998) and more likely to ignore the social aspects of the communicative context (Adamson et al., 2010). These results support the view that the social difficulties associated with ASD are in part due to lowered levels of motivation to engage with people (Carr, 2007; Dawson et al., 2004).

Moreover, it is well established that children with ASD gesture at a lower rate than TD children (Shumway & Wetherby, 2009) and demonstrate an atypical developmental trajectory for gesturing (Paparella et al., 2011). The social communicative gestures, such as pointing, showing and offering, were the most affected (Barbaro & Dissanayake, 2013; Werner & Dawson, 2005; Wetherby et al., 2004). The findings of the present study confirmed that children with ASD produced significantly less communicative gestures than TD children. According to Manwaring et al. (2018), not all types of deictic gestures are equally impaired in toddlers with ASD. These researchers suggest that reduced pointing in the second year is a marker for delay, but that reduced showing may be a more specific marker of ASD, at least until closer to two years of age.

In relation to exploratory play, no marked differences were found between the groups in the present sample. This finding is also confirmed by other studies (Baranek et al., 2005; Wilson et al., 2017) but comes in contrast to findings showing that children with ASD spend more time in exploratory play than TD children (Bentenuto et al., 2016; Dominguez et al., 2006).

Furthermore, in accordance with other work (Jarrold et al., 1993; Williams et al., 2001), the present study showed that children with ASD show severe difficulties in producing functional play. In particular, none of the ASD participants in the present sample played functionally with the toys. A recent study conducted by Wilson et al. (2017) presented the low frequency of high-level play behaviors exhibited by infants in natural contexts, especially by infants with ASD and other developmental disorders (DD). Their findings demonstrated that functional play acts were exhibited by 41% of the TD group but only by 13% of the DD group and 9% of the ASD group. However, it should also be noted that there are other studies that do not report differences between the

groups in functional play (Baron-Cohen, 1987; Dominguez et al., 2006; Libby et al., 1998). Discrepancies in findings may be attributed to the definition of functional play, the specific nature of the play setting, the structure of the coding system and the time interval method of analysis which was employed.

Conclusions

The pattern of intentional communication exhibited by children with ASD during interaction with their mother may reveal deficits in innate motives for intersubjective communication, which constitute a core characteristic of the disorder (Trevarthen & Daniel, 2005). According to Fuchs (2015), ASD is a paradigmatic disorder of intersubjectivity. Several research projects have shown that deficits in intersubjective behaviors are the best way to discriminate children with ASD from those with typical development during the first year of life (Muratori & Maestro, 2007). The representative patterns of interaction that were revealed in the present study may be used as a potential tool for early identification of children at risk of ASD well before other behaviors become fully manifested.

Acknowledgements

This research was supported by the State Scholarships Foundation (IKY) under the "Granting Scholarships for Postgraduate Studies of the second cycle (PhD)" Action of the operational programme "Development of Human Resources, Education and Lifelong Learning" co-funded by the European Social Fund (NSRF 2014-20) and the project "BabyAffect", which was implemented under the "ARISTEIA II" Action of the operational programme "Education and Lifelong Learning" and was co-funded by the European Social Fund (ESF) and Greek National Resources (NSRF 2007-13).

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Appendix

Coding scheme

Gaze direction	
Looking at partner's eyes/face	Gaze clearly directed to partner's face
Looking at partner's hands or body	Gaze directed to partner's hands or body
Looking at object	Partner focuses attention on one object from those provided by the researcher
Looking around	Partner does not focus attention on anything in particular
Fixing gaze while listening to a sound	Partner fixates gaze while listening to a sound
Blank stare/still face	Partner looks without focusing
Action on object	
Pointing	Extending index finger towards a topic in the environment
Showing	Holding out an object to the partner but does not give it to her
Offering	Holding out an object to the partner and gives it to her
Holding an object / Inspecting an object	Attempting to modify the orientation of an object
Exploring	Mouthing, banging, bouncing, swinging, rolling, shaking, pushing or pulling an object. These actions are not conventional.
Relational use of objects in non-conventional manner	E.g. putting nesting cups in line
Functional play	Manipulating objects in ways that are socially and functionally intended (e.g. rolling a ball, pushing-pulling a car, taking a piece out of a puzzle)
Combinatorial functional play	Using two or more objects in conventional way (e.g. stirring spoon in cup, putting pieces of puzzle together)
Cooperative functional play	Using an object that is related to partner's object in a conventional way, so as to achieve a goal with partner (e.g. mother opens a box and child puts something in it)
Symbolic play	Involves pretense or complex play actions that incorporate items, attributes, or contexts not actually present, or the substitution of objects
Action on partner	
Touches other's body	One of the partners touches the other's body while interacting

Imposes action	One of the partners clearly imposes an action to the other
Pushes or pulls towards	One of the partners pulls towards or pushes away the other
Moving away from other	One of the partners moves away from the other
Moving towards other	One of the partners moves towards the other
Emotions	
Positive	Happy face, bright eyes, elongated mouth, stretched lips
Negative	Furrowed brow, wrinkles around the eyes and the nose, tight lips, mouth either open or closed, corners of the mouth slightly downward or pulled downward
Neutral	Absence of positive or negative facial expressions

ΨΥΧΟΛΟΓΙΑ | PSYCHOLOGY, 26 (1), 56-72

Ελληνική Ψυχολογική Εταιρεία
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ΕΜΠΕΙΡΙΚΗ ΕΡΓΑΣΙΑ | RESEARCH PAPER

Αμοιβαία εμπροθεσιμότητα στα παιδιά με Διαταραχή Αυτιστικού Φάσματος (ΔΑΦ)

Ασημένια ΠΑΠΟΥΛΙΔΗ[1], Χριστίνα Φ. ΠΑΠΑΗΛΙΟΥ[2], Σταυρούλα ΣΑΜΑΡΤΖΗ[1]

[1] Τμήμα Ψυχολογίας, Πάντειον Πανεπιστήμιο Κοινωνικών και Πολιτικών Επιστημών
[2] Τμήμα Αγωγής και Φροντίδας στην Πρώιμη Παιδική Ηλικία, Πανεπιστήμιο Δυτικής Αττικής

ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ

Αλληλεπίδραση μητέρας-παιδιού
Εμπροθεσιμότητα
Διυποκειμενικότητα
Διαταραχή Αυτιστικού Φάσματος

ΣΤΟΙΧΕΙΑ ΕΠΙΚΟΙΝΩΝΙΑΣ

Ασημένια Παπουλίδη
Πάντειον Πανεπιστήμιο Κοινωνικών και Πολιτικών Επιστημών, Τμήμα Ψυχολογίας, Λεωφόρος Συγγρού 136, Αθήνα 17671, Ελλάδα
Email:
a.papoulidi@panteion.gr

ΠΕΡΙΛΗΨΗ

Είναι καλά τεκμηριωμένο ότι η ικανότητα και το κίνητρο εμπλοκής με άλλους σε συνεργατικές δραστηριότητες με κοινούς στόχους και αμοιβαίες προθέσεις είναι τα θεμελιώδη ερείσματα της ανθρώπινης μοναδικότητας. Ωστόσο, τα παιδιά με Διαταραχή Αυτιστικού Φάσματος (ΔΑΦ) παρουσιάζουν δυσκολίες στο να μοιράζονται τα κίνητρα, τις προθέσεις και τα συναισθήματά τους με άλλους σχετικά με θέματα του περιβάλλοντος και εμφανίζουν χαμηλά επίπεδα εμπλοκής. Ο σκοπός της παρούσας έρευνας ήταν να συγκρίνει τα επίπεδα εμπροθεσιμότητας και κοινωνικής εμπλοκής 10 παιδιών με ΔΑΦ και 10 τυπικά αναπτυσσόμενων παιδιών, αντιστοιχισμένων ως προς τη νοητική τους ηλικία, κατά τη διάρκεια ελεύθερου παιχνιδιού με τη μητέρα τους. Τα παιδιά μαγνητοσκοπήθηκαν καθώς έπαιζαν με τη μητέρα τους σε νατουραλιστικές συνθήκες με παιχνίδια που τους χορήγησε η ερευνήτρια. Για τη μικροανάλυση των μαγνητοσκοπήσεων χρησιμοποιήθηκε ο Γλωσσικός Επισημειωτής EUDICO, ο οποίος επιτρέπει την ανάλυση αμοιβαίων συμπεριφορών και εντοπίζει αμυδρές ποιοτικές διαφορές στην κοινωνική εμπλοκή. Τα αποτελέσματα έδειξαν ότι τα παιδιά με ΔΑΦ παρουσίαζαν ελλείμματα στον αλληλοσυντονισμό της προσοχής, δεν εμφάνιζαν λειτουργικό παιχνίδι και χρησιμοποιούσαν λιγότερες επικοινωνιακές χειρονομίες από τους συνομηλίκους τους στην ομάδα ελέγχου. Αυτές οι διαφορές μεταξύ των δύο ομάδων στον τρόπο επικοινωνίας οδήγησαν στην ανάδειξη δύο διακριτών μοτίβων εμπλοκής, τα οποία απεικονίζουν το διαφορετικό επίπεδο εμπροθεσιμότητας που έχουν αυτές οι ομάδες στο να μοιράζονται τις εμπειρίες τους κατά τη διάρκεια αλληλεπιδράσεων μητέρας-παιδιού. Τα αντιπροσωπευτικά μοτίβα αλληλεπίδρασης που προέκυψαν μπορούν να χρησιμοποιηθούν ως πιθανό εργαλείο για την έγκαιρη ανίχνευση των παιδιών υψηλού κινδύνου για ΔΑΦ πολύ πριν από την πλήρη εκδήλωση άλλων συμπεριφορών.

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