The development of social-conversational skills in children with autism spectrum disorder: similarities and differences with typically developing children and late talkers. Pilot study.

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Abstract

Many studies have emphasised the importance of the development of pragmatic skills in young children. Pragmatic deficits, reflected in poor conversational skills, are considered the hallmark of language impairment in Autism Spectrum Disorder (ASD). Our study has compared the assertive and responsive skills of a group of 600 typically developing children, 83 late talkers (LT) and 29 children with ASD (of which 24 boys and 5 girls) aged between 27 and 60 months using the questionnaires the "Child's First Vocabulary- Gestures, Words and Phrases"- PVB and "The Child's Socio-Conversational Skills"- ASCB. The analysis of the results showed that the socio-conversational abilities of children with autism improve with increasing age, that the gap in these abilities between children with typical development and those with ASD is very wide and the differences between the two samples are statistically significant. Moreover, the percentage of LTs with immature assertive and responsive skills is lower than the percentage of autistic children; in fact, despite difficulties in lexical and morphosyntactic development, the absence of deficits in social interaction allows LTs to perform better.

INTRODUZIONE

Many studies have emphasised the importance of the development of pragmatic skills in young children; indeed, shared attention and mutual involvement facilitate vocabulary acquisition and language learning (Bruinsma et al., 2004). In autism spectrum disorder (ASD), communication and language appear to be some of the most impaired areas (Agostini, et al., 2019). In particular, one study shows that pragmatic deficits, reflected in poor speaking skills, are considered the hallmark of language impairment in ASD (Stefanatos & Baron, 2011). A study (Bauminger-Zviely, et al., 2014) compared the interactions of a group of typically developing (TD) and a group of high-functioning ASD children (HFASD). The results revealed differences between the groups in pragmatic skills and conversational quality, with the TD group showing greater ability. However, HFASD children with higher Intellectual Quotient (IQ) conversed in a more socially complex manner. Girls with ASD, on the other hand, generally show lower cognitive abilities (Jacquemont et al., 2014). In the literature, there are studies analysing social-conversational skills, i.e. assertiveness and responsiveness, in TD children (Bonifacio, et al., 2013) and late talkers (children aged between 24 and 36 months with a delay in expressive language, who at 24 months have an expressive vocabulary <50 words or who do not combine 2 words, but with intact comprehension, in the absence of neurological, sensory, cognitive, relational and environmental deprivation deficits). Responsiveness is defined as the ability to communicate with one's interlocutor and to be able to maintain the topic of conversation between turns in a coherent manner; assertiveness, on the other hand, allows one to initiate the exchange by drawing the interlocutor's attention, open a dialogue or formulate questions and/or requests (Bonifacio et al., 2017b). The results show that in TD children assertive socio-conversational skills develop more slowly than responsive ones, that the greatest difficulties concern "Making proposals" and "Maintaining contingency" and that scores increase with age (Bonifacio, et al., 2013). In the LT group, the scores obtained in the assertiveness scale are lower than in the TD peers. In responsive skills, on the other hand, no significant differences emerge between the two groups (Bonifacio et al., 2017a). The aim of the study was therefore to analyse the correlation between socio-conversational skills in children with ASD and gender, age, presence of comprehension difficulties, and intellectual level, and to compare the results obtained with the performance of TD and LT children in order to outline similarities and differences in the development of these skills.

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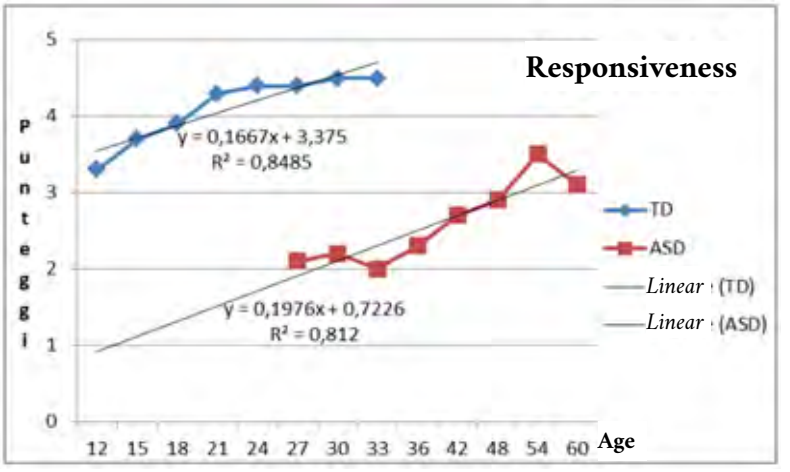
MATERIALS AND METHODS

The study compares the results of three different samples. Sample 1, consisting of 600 typically developing children (47.3% male and 52.6% female) aged between 12 and 36 months was analyzed in the study conducted by Bonifacio et al. (2013). Sample 2, consisting of 83 late talkers (51 males and 32 females) was investigated in the study by Bonifacio et al. (2017a). Sample 3, composed by 29 autistic children (24 males, 5 females) of which 13 (45%) were aged between 27 and 36 months and 16 (55%) were aged between 36 and 60 months, is recruited in our study. For Sample 3 the inclusion criteria include an IQ in normal, borderline or mild intellectual disability, expressive vocabulary size of less than 50 words at 24 months or a diagnosis of a Language Disorder diagnosis for children older than 36 months. Exclusion criteria include comorbidity with other genetic and syndromic disorders, diagnoses of parental psychiatric disorders and medium, severe and profound intellectual disability.

The assessment instruments used to collect the necessary data are the questionnaire "The Child's First Vocabulary - Gestures, Words and Phrases"-PVB (Caselli, et al., 2015) and the questionnaire "The Child's Socio-Conversational Abilities"-ASCB (Bonifacio et al., 2017b) . This instrument was created to allow the analysis of assertiveness and responsiveness in children aged between 12 and 36 months; it consists of 25 questions and is divided into 6 subscales: Asking Questions, Making Requests, Making Proposals, Answering Questions, Responding to Requests and Maintaining Contingency. Questions can be scored from 1 (never) to 5 (always). An observational, analytical, cross-sectional, non-randomised study was designed. After consulting the medical records, analysing the speech pathology report and each child's PVB questionnaire, a population was recruited that was consistent with the inclusion and exclusion criteria reported in the sample. Parents were asked to complete the ASCB questionnaire and the informed consent form. The returned/returned questionnaires were corrected in order to elaborate the socio-conversational skills profile of each child. The resulting data were analysed using Microsoft Excel, while p-values were calculated using Statpages.

RESULTS AND DISCUSSION

Children with an Autism Spectrum Disorder aged 27 to 36 months obtain as PmAss (Mean Score on the Assertiveness scale) = 2.6 (0.58 standard deviations[ds]) and as PmResp (Mean Score on the Responsiveness scale) = 2.1 (0.51 ds); skills are at "Level 1- Absent" in 100% of the children in this age group. Children with ASD between 37 and 60 months of age obtain as PmAss = 3.1 (0.71 ds), assertiveness is at "Level 2-Emergent" from 49 months while PmResp is 3.0 (0.76 ds). Responsiveness is thus at "Level 2-Emergent" in the 43-54 month age group. In Graph 1 it can be seen that the speed at which Responsiveness develops is similar in the two samples, as the coefficient of the linear trend line is similar. However, this also denotes that the gap between the two populations remains constant as the age of the children increases. Furthermore, it can be seen from the graph that the highest score (3.5) obtained by children with autism is at 54 months of age. This value is obtained by typically developing children at an age between 15 and 18 months. The values obtained are statistically significant, both in the sample aged 27 to 36 months and in the sample aged 36 to 60 months, and calculated on the entire population, with a p-value < 0.0001. Graph 2 shows that the speed at which Assertiveness develops is different for the two samples. In fact, it grows much faster in typically developing children than in children with ASD. Comparing the linear trend lines (TD) and (ASD), it can be seen that the gap becomes wider and wider as the age of the sample increases. Furthermore, it can be observed from the graph that the highest score (3.2) obtained by children with autism is at 54 months of age. This value is obtained by typically developing children at an age between 12 and 15 months. The values obtained are statistically significant, both in the sample aged 27 to 36 months and in the sample aged 36 to 60 months, and calculated on the entire population, with a p-value < 0.0001. The scores increase because the breadth of vocabu-



Graph 1

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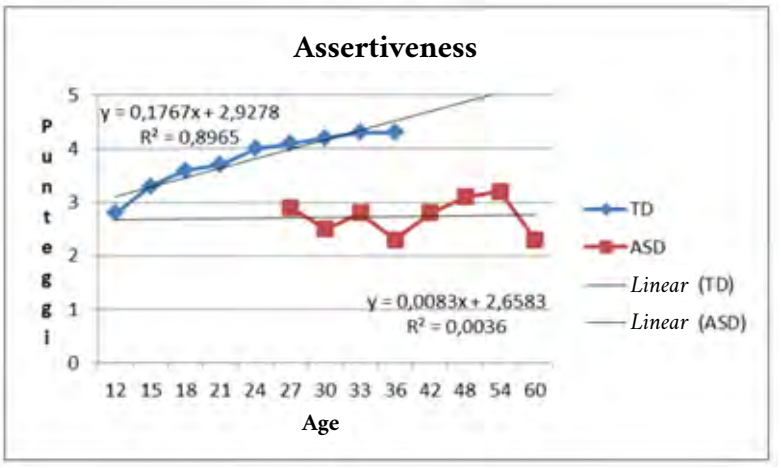
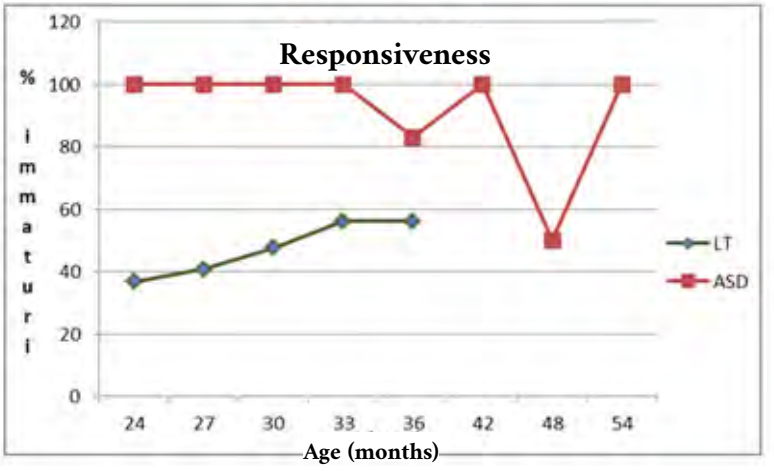


Graph 2

lary increases in direct proportion to age. "Asking questions" and "Maintaining contingency" appear to be the most difficult skills to acquire, both for children under 36 months and for older children. In order to develop these two skills, it is necessary to integrate several skills; autistic children often fail to create learning networks and cannot develop the equivalence and equality criteria needed to generalise the acquired skills. Furthermore, this result accords with the data in the literature that report difficulties in maintaining topic coherence in the communicative exchange, in maintaining the rules of the communicative turn (Groen et al., 2008) and in linguistic discourse management (Capelli, 2012). Socio-conversational skills are 'absent' in 55.5% of our sample.

These children are defined as 'inactive communicators' because they 'produce few communicative acts and present as isolated children'. Isolation and difficulties in social interaction are in fact among the behavioural criteria defining the diagnosis of autism spectrum disorder. To assess the influence of IQ, the sample was divided into three subgroups: Mild intellectual disability - Borderline IQ - Normal IQ. The PmAss increases from 2.7 to 3.2 to 3.8 points respectively; the PmResp increases from 2.5 to 3 to 4.1. Children with a language comprehension deficit scored PmAss= PmResp=2.7, whereas children with no receptive deficit scored PmAss=2.8 and PmResp=2.6. To assess the role of gender difference, the sample was divided into boys and girls; the former obtained PmAss=2.9 and PmResp= 2.7, while the girls PmAss=2.7 and PmResp= 2. Finally, the scores obtained by TD children, LT children and children with ASD were compared. TD children obtained PmAss=3.8 (0.5 ds) and PmResp= 4.0 (0.5ds).

The percentage of LT aged 27-36 months with immature abilities (< 1.5 ds) is 48.8% for assertiveness and 48.1% for responsiveness. The percentage of autistic children aged 27 to 36 months with "immature" assertiveness skills is 100%, in the next age group 83.25%; in the responsiveness scale, the percentage of "immature" autistic children aged 27 to 36 months is 100%, in the next age group 83%. In graph3, it can be seen that for Responsiveness, the percentage of immature children aged between 27 and 36 months in the sample in children with autism is 100%; this percentage then tends to decrease as the age of the children increases. In the sample of late talkers, on the other hand, although the percentages of immaturity have an increasing trend, they settle at 56.2 %. This value is reached by children with autism at 54 months. This difference could be due to the absence of deficits in comprehension, non-verbal communication



Graph 3

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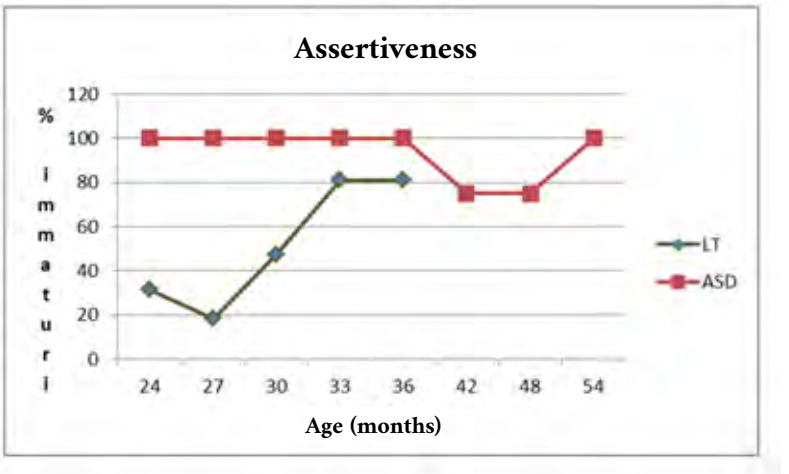

Graph 4

and social interaction, which makes it easier for the population of late talkers to display responsive behaviour. Assertiveness shows a similar trend. In graph 4, the percentage of immature children aged between 27 and 36 months in the sample in children with autism is 100%. In the sample of late talkers, on the other hand, although the percentages of immaturity have an increasing trend, they settle at 81.2%. A similar value is only reached by autistic children between 48 and 54 months of age. Furthermore, it must be borne in mind that the comparison is made with the normative values of younger children (the data of children with autism between 37 and 60 months of age were compared with the data of typically developing children in the 33-36 month range) .

The development of responsive skills, on the other hand, is slower and more complicated for children with autism. In fact, the percentages of autistic children with 'immature' skills are higher than those of late talkers both in the 27-36 month age group and in the 36-60 month age group.

The analysis of the results showed that the socio-conversational skills of autistic children improve with increasing age; this trend is in agreement with the data present in the literature on TD children (Bonifacio, et al., 2013). Furthermore, it has been shown that in the population with ASD a higher IQ results in higher assertiveness and responsiveness scores, as in the study conducted by Bauminger-Zviely, et al. (2014). Girls with ASD, having lower cognitive abilities (Jacquemont, et al., 2014), score lower than boys. This bias could be due to the difficulties in diagnosing ASD in girls with a high IQ. From the analysis of the results, there is no evidence that the absence of deficits in comprehension is correlated with better performance, as it was hypothesised; the scores are similar because the subgroup of children with good comprehension is between 27 and 37 months old, while the other subgroup contains children with a higher age and has been shown that the age has a positively influence. The gap between children with typical development and those with ASD is very wide and the differences between the two samples are statistically significant (p-value < 0.0001). The difficulties of autistic children in the pragmatic domain are in fact reported in several studies (Bauminger-Zviely, et al., 2014) (Stefanatos & Baron, 2011). Finally, the percentage of LTs with immature assertive and responsive skills is lower than the percentage of autistic children; in fact, despite difficulties in lexical and morphosyntactic development, the absence of deficits in social interaction allows LTs to perform better.

This study shows that social-conversational skills represent a particularly difficult area for children with autism spectrum disorder and therefore points to a need for rehabilitation. Furthermore, this study has identified an area of great fragility for children with ASD, and this is an element that must be taken into consideration during the speech assessment.

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