The interference of expressive language status on Autism Behavior Checklist scores in verbal and non-verbal autistic children

A interferência do status de linguagem expressiva na pontuação do Autism Behavior Checklist em autistas verbais e não verbais

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ABSTRACT

Purpose: To verify the interference of status of expressive language scores on the *Autism Behavior Checklist* (ABC), comparing verbal and non-verbal autistic children. **Methods:** The sample consisted of 68 autistic children, of both genders, between 3 and 12 years, divided into two groups: 28 non-verbal (Group GNV) and 40 verbal children (GV). We used the ABC, which includes 57 maladaptive behaviors, which was completed by the mothers during an interview. **Results:** The GNV and GV did not differ in mean Total ABC score. In the verbal scale, the average score of GV was greater than that of GNV. When we excluded the behaviors in that area, the average total score was reduced. However, there was no difference in the means of other areas. **Conclusion:** Verbal children showed more deficits in the language area than non-verbal children. When excluding all non-adaptive behaviors in that area, there was no significant difference between groups.

Keywords: Autistic disorder; Language; Communication; Child development disorders, Pervasive; Child

RESUMO

Objetivo: Verificar a interferência do status da linguagem expressiva na pontuação do *Autism Behavior Checklist* (ABC), comparando crianças autistas não verbais e verbais. **Métodos:** A amostra foi constituída por 68 crianças autistas, de ambos os gêneros, entre 3 e 12 anos, divididas em dois grupos: 28 crianças não verbais (Grupo GNV) e 40 verbais (Grupo GV). Utilizamos o ABC, composto por 57 comportamentos não adaptativos, que foi respondido pelas mães, em forma de entrevista. **Resultados:** Os GNV e GV não diferiram entre si na pontuação média Total do ABC. Na área *verbal*, a pontuação média do GV foi maior que a do GNV. Quando se excluiu os comportamentos dessa área, a pontuação média total foi reduzida. No entanto, não houve diferença nas médias das outras áreas. **Conclusão:** As crianças verbais apresentaram maior prejuízo na área *Linguagem* do que as crianças não verbais. Ao excluirmos todos os comportamentos não adaptativos dessa área, não houve diferença significativa entre os grupos.

Descritores: Transtorno autístico; Linguagem; Comunicação; Transtornos globais do desenvolvimento infantil; Criança

INTRODUCTION

Autism Spectrum disorder is characterized by severe and persistent impairment of social interaction and verbal and non-verbal communication as well as a restricted repertoire of activities and interests[1,2].

Several tools are used to identify and characterize behavioral manifestations of this condition. The Autism Behavior Checklist (ABC), for example, is a listing of non-adaptive behaviors[3], pre-translated and validated for the Portuguese language[4], which seeks to identify autistic children.

The ABC is one of five subtests that make up the Autism Screening Instrument for Educational Planning-2 (ASIEP-2)[3]. It is used more frequently during the initial diagnostic process with suspected autistic individuals. The other four ASIEP subtests evaluate vocal behavior, social interaction, speed of learning, and school performance. The ABC can be applied to individuals from 18 months old to adult. It allows the detailed description of an individual's atypical behavioral characteristics and incorporates weighted scores (ranging from 1 to 4 points) that vary according to the occurrence of each behavior disorder.

The instrument contains several areas of development: 9 non-adaptive behaviors in the sensory area, 12 in relational, 12 in use of body and object, 13 in language, and 11 in personal-social.

The behavioral characteristics that best describe the individual are marked, and the points are added up. From the overall score, a behavioral profile is plotted, which allows the clinicians to analyze the severity of the condition and monitor the development of their patients.

A score of 68 has been considered to have high probability for detecting autism; in the original study[3], 99% of children who achieved a score equal to or above 68 had such a diagnosis. Between 67 and 54 points, there is a moderate probability of classification, and between 53 and 47 points, the probability is low. In this case, the authors recommend the use of other components of the ASIEP-2.

Although the ABC is widely referred to in the literature and used in clinical practice, some studies have pointed to interference of items featuring verbal production in the degree of severity observed in the final result[2-9].

Because the language area is composed of 13 items, 7 of which feature verbal disabilities affecting syntactic, semantic, and pragmatic aspects (inappropriate use of pronouns; monotone speech without rhythm, rarely uses "I" or "yes," uses between 0 and 5 daily words, constantly repeats words or sounds, repeats questions and statements spoken by other people, uses more than 15 and less than 30 sentences to communicate daily), the overall result would suffer interference, since verbal autistic children use more punctuation than non-verbal children.

Thus, the aim of this study was to investigate the interference of the ABC score in the area of expressive language, comparing verbal and non-verbal autistic children.

The hypothesis that we consider in this study is that, despite the fact that items of verbal language contemplate some maladaptive behaviors, this should not directly affect the final score of the instrument, since non-verbal children have more severe adaptive damage that verbal children with more maladaptive behaviors.

METHODS

This is a cross-sectional study approved by the Ethics Committee (CEP) of the Universidade Federal de São Paulo (UNIFESP), Case No. 0334/06.

All those involved were aware of the methodological procedures and signed an informed consent form.

Sample

The sample consisted of 68 autistic children of both genders, aged between 3 and 12 years old, and diagnosed and attended by a multidisciplinary team according to the criteria of the DSM IV TR[1].

As inclusion criteria, we considered multidisciplinary diagnosis and age. The exclusion criterion was the presence of comorbidities involving motor, visual, hearing, and/or physical disabilities.

In the psychological assessment, all patients showed intellectual impairment from mild to moderate degrees, obtained by applying the Stanford-Binet Intelligence Scale[10,11].

Neurological evaluation included clinical assessment and analysis of tests, whose results were considered within normal limits by the neurologist, except for the behavioral changes.

In the audiological assessment, all participants' hearing thresholds were within normal parameters.

Of the participants, 28 were considered non-verbal as they showed vocalizations as the predominant communication method during the study period, and 40 were classified as verbal, since they produced verbal emissions involving at least 75% of the phonemes of the Portuguese language[12].

All children were enrolled in regular public schools, 36 in kindergarten and 32 in elementary school; from the latter group, two children attended special education classes.

Mothers were, on average, 33 years old, had 10 years of schooling, and belonged to socioeconomic class C according to the criteria of ABEP[13].

The Autism Behavior Checklist was administered during the clinical evaluation of the child in the form of questionnaire and responded to in an interview to minimize the effect of maternal education. For data analysis, the children were divided into two groups: 28 non-verbal children (Group GANV) and 40 verbal children (Group GAV).

Statistical analysis

Descriptive measures and the Student t test were used for

Table 1. Total values and areas of both groups in ABC

ABC	GANV		GAV		p-value
	Mean	SD	Mean	SD	
Sensorial	13.03	6.18	11.6	6.65	0.37
Relational	21.57	8.31	19.27	8.13	0.26
Body	17.10	8.02	16.05	8.63	0.60
Language	8.96	3.28	15.92	6.33	0.00
Personal/social	13.96	4.67	14.77	4.49	0.47
Total	74.28	19.46	77.62	25.28	0.54

Student t test (p<0.05)

Note: GANV = Group non-verbal autistic; GAV = Group verbal autistic; ABC = Autism Behavior Checklist

data analysis to compare the mean scores of groups, both in total values and for each of the areas of the ABC. We considered a significance level of 5%.

RESULTS

The GANV and GAV groups did not differ in total scores or in the sensory, relational, use of object and body, and social personal areas. Only in the language area, the GV had a significantly higher mean (p<0.000).

When excluding all behaviors of this area, the mean total values and areas showed no significant difference.

The total values and areas compared between groups are described in Table 1.

DISCUSSION

It is known that the initial study with the ABC focused on a single cutoff score for identifying risk for autism and did not take into consideration that the behavioral profiles may differ by age, symptoms, and severity level[2,4,7].

Non-verbal children, for example, may not receive points on various items of expressive language (e.g., inappropriate use of pronouns, monotone speech without rhythm, rare use of "I" or "yes," use of 0–5 words daily, constantly repeating words or sounds and phrases and questions spoken by others, use of more than 15 and less than 30 sentences daily to communicate). As a result, these children may, in principle, have lower scores in the language area than verbal children, which would lower the apparent damage to their adaptive behavior. However, as can be seen in the analysis of the results, there was no difference between the totals of the ABC groups GANV and GAV. The same occurred in the sensory relational, use of object and body, and personal/ social areas, although the contents of the first three areas tended to be higher in the GANV.

Regarding the language area, in which the GAV showed a higher average, we highlight that the presence of verbalization or atypias related to speech increased the score in this area. Thus, the verbal autistic children had higher scores, although their expressive language was not always functional[4-6,14-18].

If we exclude the area of language behaviors, the mean total

values and of other areas showed no significant difference[6,7]. This is probably because there was a tendency for higher severity in the GANV, especially in the values of the sensory, relational, and use of body and object areas. Despite the entries of verbal language contemplating some maladaptive behaviors and having high verbal scores in children, this does not interfere directly with the final score of the sample.

Importantly, all mothers were able to identify maladaptive behaviors in their children, regardless of the presence or absence of verbal communication[4,7,14-18].

CONCLUSION

Both verbal and non-verbal autistic children showed atypical behavior, demonstrating severe impairment in adaptive development.

Verbal children showed more deficits than non-verbal children in the language area. When excluding all non-adaptive behaviors in that area, there was no significant difference between groups.

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