

Functional Communication Profile-Revised: Application and Comparison with the Functional Communicative Profile-Checklist

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Abstract

Assessment techniques regarding language and communication abilities of children with ASD must focus on functional communication and are essential to the assessment of the intervention proposals outcomes. The purpose of this study is to compare the results of two different protocols that assess the functional communicative profile. Participants were 50 children and adolescents with ages between 3 years 9 months and 14 years 8 months of both genders with diagnosis within the ASD. They were assessed by FCP-Rr and FCP-C. The results showed that although both instruments didn't result in equivalent data, they provided important information about the communication of children and adolescents with ASD because they used the same paradigms of analysis. The comparison of FCP-C and the FCP-Rr results in important information to the comprehensive understanding of children and adolescents with ASD because they use the same paradigms of variable analysis. Results also indicate that disorders in receptive language interfere directly in the interpersonal communication of these subjects while only severe disorders of expressive communication have significant effects on interpersonal communication.

Keywords

Autistic Disorder, Speech, Language and Hearing Sciences, Child Language, Functional Communication Profile, Questionnaires

1. Introduction

Since the first descriptions of autism by (Kanner, 1943) several studies have been conducted with the purpose of

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identifying and describing each subject's characteristics and propose more efficient intervention procedures.

Autism is classified as a Pervasive Developmental Disorder on the DSM 5, and is described by the American Psychiatric Association as a complex group of disorders in the areas of social communication and social cognition (APA, 2013).

The central role of language is probably one of the few agreement points in all descriptions of autism (Fernandes, 2000). The functional perspective of language use takes into account, besides the functions and communicative means, the context in which communication happens. It shows that considering the non-verbal aspects of communication is essential to its comprehensive assessment (Emerson, 2001).

The difficulties in communication occur in varying degrees, both in verbal and non-verbal ability of sharing information with others. Some children don't develop communication abilities. Other children present an immature language, characterized by the use of jargon, echolalia, pronoun reversal, abnormal prosody, monotonous tone of voice and other disorders. The language and communication deficits tend to persist through adulthood (Gadia et al., 2004). Those individuals that acquire verbal abilities can show persistent deficits in their capacity to establish and maintain conversation. These difficulties can manifest as lack of reciprocity, difficulties to understand language subtleties, jokes and sarcasm, as well as problems to understand body language and facial expressions

Language as a communicative mean between people has systematic rules that are used to convey thoughts and cooperate in social interactions (Bess & Humes, 1998). The systematic assessment of communicative competence includes a clear understanding of the contexts where the child uses his/her linguistic abilities.

Assessment techniques must focus on the differential diagnosis and the functional communication development. Determining standard evaluation criteria is essential to the assessment of intervention proposals (Fernandes, 2003).

The speech-language pathologist must assess the association of language abilities and communicative competence of children with ASD. Language ability refers to the child's capacity to understand and formulate spoken or written symbolic systems. Communicative competence refers to the capacity to use language as an interactive tool in different social contexts regardless of the communicative means used (Bara et al., 2001).

Used to assess communication, the Functional Communicative Profile-Revised (FCP-R) provides a sensible and organized method to the assessment of individual communicative abilities according to their age and acquired or developmental deficits (Kleiman, 2003).

The purpose of this study is to propose a reduced instrument based on the FCP-R and compare its results with those obtained with the Functional Communicative Profile-Checklist (FCP-C).

2. Methods

Participants were 50 children and adolescents with ages between 3 years 9 months and 14 years 8 months of both genders with diagnosis within the ASD. All attended speech-language therapy at a specialized service at a University clinic for at least 6 months and for no more than 2 years.

They were assessed by:

- FCP-Rr—a reduced protocol based on the FCP-R (developed by the authors) that comprises the areas of Behavior, Attention, Receptive Language, Expressive Language and Social/Pragmatics. This instrument was applied during an interview with the speech-language therapists. The scoring system was adapted, with a proportion analysis, from the original suggested by Santos & Fernandes (2012). The protocol was applied as an interview with the therapists. The questions included in the reduced version were the ones considered the most appropriate to the Brazilian reality and the ones identified as the most relevant of the complete form.
- FCP-C—a list of communicative functions expressed by the participants, also applied during an interview with the speech-language pathologist. It considers 20 communicative functions, their frequency—as always (A), many times (MT), rarely (R) or never (N)—and the communicative means used to express them—as Verbal (VE), Vocal (VO) and Gestual (G). The communicative functions were divided in two groups: more interpersonal and less interpersonal for the analysis of PFC-C according Cardoso & Fernandes (2003). The percentage of occurrence of communicative functions was obtained through every assigned possible occurrence (A, MT, R, N) and the communicative mean was calculated for each communicative function (only were considered the communicative functions that effectively occurred, regardless of the amount—A, MT and R) for both more and less interpersonal functions. From the percentages of occurrence, the communication

interactiveness was determined by the proportion of communicative acts with interpersonal functions expressed.

The obtained data from FCP-Rr and FCP-C were characterized through descriptive analysis. This data were compared individually by t-Student test and the significant level adopted was 0.05 (5%). The correlation test was conducted in order to verify linear correlations.

The data relating to the frequency of the communicative acts with interpersonal functions obtained in FCP-C were analyzed according to their averages, separated by domain and then by degree of severity according to the FCP-Rr.

3. Results and Discussion

The data obtained in the FCP-Rr are described in **Figure 1** and its analysis presented thereafter.

The results indicate that in the Behavior domain the moderate classification was representative for the studied population. For the Attentiveness domain, the more prevalent classifications were mild and moderate. To the Receptive Language domain the classification comprehended between regular and mild was considered representative of this domain.

To the Expressive Language, the classifications with higher prevalence were: mild, moderate and severe (respectively). Thus, it is possible to state that the mild classification for the Expressive Language domain is representative for the studied population; however, the answers varies between mild, moderate and severe, being this classification of variation (light to severe) representative for this domain. For the Pragmatic/Social domain, the severe classification is considered significant regarding the others.

Data obtained in the FCP-C are described at **Figure 2** and **Figure 3**.

The data obtained in the FCP-C showed that “many times” is the classification with higher prevalence to the more interpersonal functions although the occurrence for other classifications is also prevalent. The preferred mean of communication to this population was gestural.

The descriptive statistical analysis of FCP-C is presented at **Table 1**.

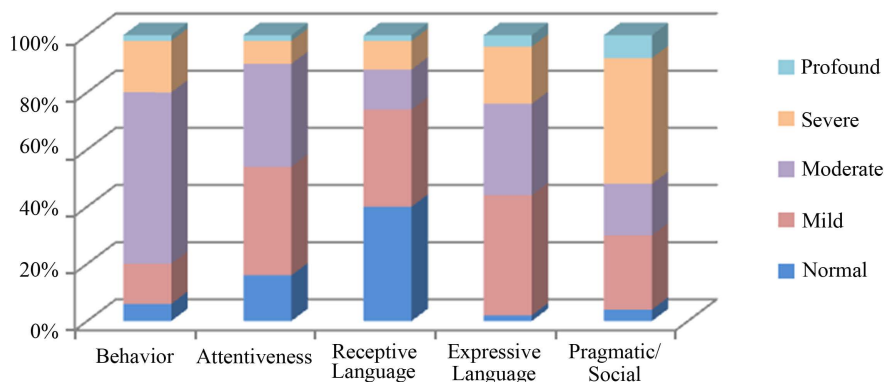


Figure 1. Proportional distribution of the answers on the FCP-Rr domains.

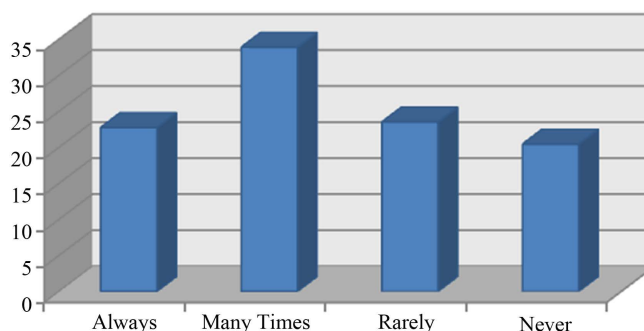


Figure 2. Mean distribution regarding the frequency to the more interpersonal functions.

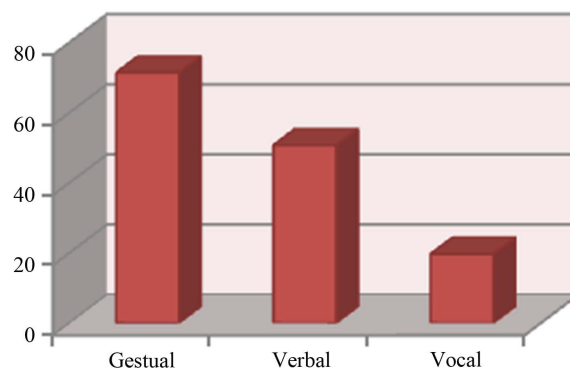


Figure 3. Mean distribution regarding the communicative means to the more interpersonal functions.

Table 1. Descriptive statistic of PFC-C.

Mean	65.14
Standard deviation	0.85
Median	65
Standard deviation	6.02
Variance	36.2

To conduct the comparison of a population that presents variable data is a challenge that, sometimes, can show conflicting results. In this study, to minimize this effect we used the median (65%) as a pattern of interactivity presented by this group. Thus, the individuals above 65% of interactivity were considered more interactive.

Table 2 presents the data distribution of interactivity.

The comparison between the data of PFC-Rr and the data obtained from the proportion of interactivity in FCP-C are in the following tables and it's analysis presented thereafter.

The comparison of the Behavior domain of the FCP-Rr and the FCP-C resulted in a negative association suggesting that as the severity of the behavior disorder increases the communicative interaction, as assessed by the FCP-C, decreases. Therefore, Behavior seems to interfere in communication interaction. The results were similar in the Attentiveness domain, revealing evidence of the interference among different areas (**Table 3**).

In the Receptive Language domain of the FCP-Rr, besides a clear interference of the communication interaction there was a clear heterogeneity among subjects. It was shown that even the slightest disorder in receptive language may interfere with communicative interaction. A study that analyzed the pragmatic, vocabulary and grammatical abilities of children with ASD (Mülher & Fernandes, 2009) also pointed out to the important role of language to the social interaction of these individuals (**Table 4**).

However, there seems to be direct interference of Expressive Language only if the disorder is characterized as severe. Wetherby, Prizant, & Schuler (2000) have shown a strong association of joint attention abilities and communicative reciprocity with expressive language, agreeing with the present study. There were no linear associations with the Pragmatic/Social domain between the FCP-C and the FCP-Rr, thus confirming the proximity of the protocols (**Table 5** and **Table 6**).

The frequency of the more interactive functions observed by the FCP-C seems to be directly related to the major difficulties in attention/concentration, receptive and expressive language, pragmatic and social abilities of individuals with ASD. Other studies (Mundy & Neal, 2000; Jones & Carr, 2004; Tierney et al., 2012, Varanda & Fernandes, 2011) point out to the relevance of attention, concentration and language abilities to the social development of ASD individuals (**Table 7**).

The association between PFC-C and FCP-Rr is presented in **Figure 4**.

Studies (Farah, Perissionoto, & Chiari, 2009; Lord, 2000) indicate that the severity of autism directly affects the evolution of communicative processes of autistic individuals. Thus, identification of the severity may contribute to the understanding of the therapeutic processes.

Table 2. Data distribution of interactivity from the median.

More interpersonal	Less interpersonal	<i>p</i> -value
60%	40%	0.0006*

*Significant difference—t-student test—5%.

Table 3. Association between behavior domain of FCP-Rr and the proportion of interactivity of FCP-C.

Severity	Normal		Mild		Moderate		Severe		Profound	
Behavior	6%		14%		60%		18%		2%	
Interactivity	More	Less	More	Less	More	Less	More	Less	More	Less
	3	0	6	1	18	12	2	7	0	1
<i>p</i>-value	0.27		0.004*		0.009*		0.008*		0.72	
Correlation coefficient	-0.11187									

*Significant data—t-student test.

Table 4. Association between attentiveness domain of FCP-Rr and the proportion of interactivity of FCP-C.

Severity	Normal		Mild		Moderate		Severe		Profound	
Attentiveness	16%		38%		36%		8%		2%	
Interactivity	More	Less	More	Less	More	Less	More	Less	More	Less
	8	0	13	6	7	11	1	3	0	1
<i>p</i>-value	0.005*		0.002*		0.03*		0.18		0.72	
Correlation coefficient	-0.45416									

*Significant data—t-student test.

Table 5. Association between receptive language domain of FCP-Rr and the proportion of interactivity on FCP-C.

Severity	Normal		Mild		Moderate		Severe		Profound	
Receptive language	40%		34%		14%		10%		2%	
Interactivity	More	Less	More	Less	More	Less	More	Less	More	Less
	17	3	6	11	5	2	1	4	0	1
<i>p</i>-value	<0.001*		0.01*		0.07		0.06		0.72	
Correlation coefficient	-0.68858									

*Significant data—t-student test.

Table 6. Association between expressive language domain of FCP-Rr and the proportion of interactivity on FCP-C.

Severity	Normal		Mild		Moderate		Severe		Profound	
Expressive	2%		42%		32%		20%		4%	
Interactivity	More	Less	More	Less	More	Less	More	Less	More	Less
	1	0	13	5	9	7	2	8	1	1
<i>p</i>-value	0.72		<0.001*		0.16		0.002*		1	
Correlation coefficient	0.11216									

*Significant data—t-student test.

Table 7. Association between pragmatic/social domain of FCP-Rr and the proportion of interactivity on FCP-C.

Severity	Normal		Mild		Moderate		Severe		Profound	
Pragmatic/Social	4%		26%		18%		44%		8%	
Interactivity	More	Less	More	Less	More	Less	More	Less	More	Less
	2	0	11	2	5	4	11	11	0	4
p-value	0.46		<0.001*		0.37		1		0.14	
Correlation coefficient	0.00328									

*Significant data—t-student test.

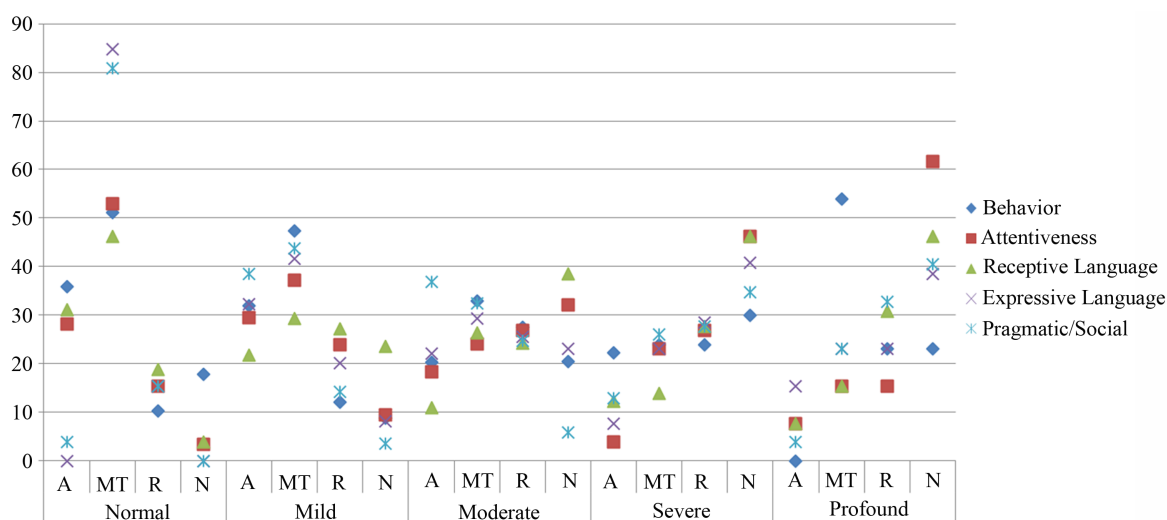


Figure 4. Distribution of the interactivity proportion of FCP-C regarding the classification on FCP-Rr domains average.

The use of objective protocols in the clinical practice not always had been systematic; gradually the need for insertion of these tools in the practice of Brazilian Speech Language Pathologist was observed (Marchesan, 2003). References in the area of language also highlight the importance of using objective instruments (Wertzner, Amaro, & Teramoto, 2005, Cardoso & Fernandes, 2006) for assessing and monitoring the clinical outcomes. Besides greater reliability of the obtained data, the importance of systematically evaluating and measuring progress of patients throughout the therapeutic process is evident.

Because of the phenotypic variation, often the protocols fail to provide accurate records of individuals in the autism spectrum. Its implementation and critical evaluation as complementary to other forms of analysis can bring good parameters to the assessment of individual characteristics. It also allow individuals to be compared with themselves over time or in different situations, providing useful information to therapeutic decisions and scientific research. Many studies have used this parameter—the subject as its own control (Moreira & Fernandes, 2010; Fernandes et al., 2010; Windholz, 1995).

To differentiate the autism spectrum disorders, the severity in language deficits is very important. Currently in Brazil, although we can count with important contributions (Andrade, Befi-Lopes, Fernandes, & Wertzner, 2000; Zorzi & Hage, 2004), there is still a lack of formal and objective instruments that are commercially available and appropriate to the language assessment and diagnosis (Velloso et al., 2011).

The use of objective protocols is very important to Speech Language clinic with autism spectrum disorders, but should be used with criticism and individually.

4. Conclusion

The results show that the comparison of FCP-R and PFC-C doesn't result in equivalent data since they have different approaches. The FCP-C provides a detailed review of the use of language regarding to the occurrence,

frequency and use, bringing quantitative impressions of the language characteristics of individuals with autism. However, the FCP-R only considers the occurrence of the communicative acts, regardless of the situation in which they are expressed. It is observed that the areas of formal language and interactivity are interrelated; another important factor to consider while planning therapeutic procedures.

The comparison of FCP-C and the FCP-Rr results in important information to the comprehensive understanding of children and adolescents with ASD because they use the same paradigms of variable analysis. Results indicate that disorders in receptive language interfere directly in the interpersonal communication of these subjects while only severe disorders of expressive communication have significant effects on interpersonal communication.

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