

Availability of Speech-Language Therapy to Individuals with ASD

Defense-Netrval* and Fernandes

School of Medicine, Universidade de São Paulo, USP, Brazil

Abstract

The significant increase in the prevalence of Autism Spectrum Disorders (ASD) and of the high costs of necessary therapeutic interventions and health care attention represent a great concern in public health. Once communication impairments are one of the diagnostic criteria for ASD, Speech-Language Therapy (SLT) should be one of the most important therapeutic interventions provided to these subjects. The aim of this study was to associate the offer of SLT services and the number of ASD individuals that use mainly speech to communicate and attend different institutions of a large metropolis in Brazil. A total of 915 individuals, attending one of 25 institutions of different types, were considered. The Student's t-test was used to compare the institutions with and without SLT services and the proportion of verbal ASD individuals. The results indicate that there aren't significant differences between the proportion of verbal ASD individuals and the provision of SLT services in the different institutions. Implications and limitations of this study are discussed and it is suggested that the analysis considering verbal and non-verbal individuals, whether and where they receive any SLT and its results can also indicate the better alternatives for public services.

Keywords: Autism; Language; Institutions; Speech language therapy

Introduction

Autism Spectrum Disorder (ASD) represents a great concern in public health because of the significant increase in its prevalence, as shown by recent epidemiological studies [1-5] and of the high costs of necessary therapeutic interventions and health care attention [6,7].

Speech-language therapy (SLT) is one of the most important interventions to ASD individuals, because communication is one of the areas that comprise the diagnostic criteria of ASD [8,9].

Considering the symptoms associated to social communication in ASD, SLT is of utmost relevance, as described by Hess et al. [10] and Defense [11]. However, not all institutions that provide education/treatment for individuals with ASD provide speech-language therapy services. The identification of this specific situation is relevant to the discussions about the focus of public health resources that should be provided to these individuals.

As happened in several countries, Brazilian public health system started to include the specific needs of ASD individuals and to provide services designed to address them [12-14]. At the same time, ASD children started to be included in regular schools that have special classes and in regular classes with individual follow-up when possible.

The need for effective intervention models as well as information regarding the factors that affect the intervention procedures directed recent research to assess which services are being offered to ASD individuals and which would be the most effective [3,15].

However, there is still the need for information about how the services are being delivered to the population.

The outline of this distribution on a large and well-developed city in Brazil may lead to some impression about what is happening in under-served regions of majority countries.

This research aimed to associate the offer of SLT services and the number of ASD individuals that use mainly speech to communicate (verbal ASD) and attend different institutions as well as whether there are differences in the number of verbal ASD individuals receiving SLT services in the different types of institutions. The institutions that participated in the research complied with specific prerequisites and

were located in a large metropolis in Brazil.

Materials and Methods

This research was approved by the School of Medicine, Universidade de São Paulo's Research Ethics Committee with protocol #131/12.

The researchers developed a questionnaire answered by professionals working in different institutions which offer assistance to ASD individuals. This questionnaire was based on the Outcome Indicator based on the Balanced Scorecard Instrument for Performance Measures [16] and reported by Moraes [17]. It has 23 objective questions, but only 13 of them are mandatory and the others assess the interviewees' characteristics. Five of the mandatory questions refer to the number ASD subjects attending the institutions, the provision of SLT services and the number of subjects with and without spoken communication.

The prerequisites for the institutions to participate in this research were to offer specialized treatment to individuals with ASD of varying ages and to be located in the same Brazilian metropolis. A fieldwork consisting of networks was determined: A significant institution from each of the four major metropolitan regions (North, South, East and West) was identified and each of them was asked to indicate other three institutions; the same request was made for each of them successively until the minimum of 25 participants was attained.

The institutions selected to participate in this research were special day-care centers, clinics, clinical-schools (institutions that provide clinical and educational intervention to the students/clients with independent methods and systems), parents' associations (the result of joint efforts of parents that organize therapeutic services to

*Corresponding author: Defense-Netrval, School of Medicine, Universidade de São Paulo, USP, Brazil, E-mail: danielledefense@usp.br

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their children usually without any specific framework), special schools and regular schools with inclusion classes that complied with the prerequisites previously determined.

The first researcher made the first contact with the institutions by telephone, asking to speak to the director and/or coordinator. Then she identified herself, made a brief report about the research and questioned about the possibility of a meeting for further explanation of the proposal and possible collaboration. When this direct contact with the institution's principal wasn't possible by telephone, it was tried by e-mail.

An initial network with 62 institutions was determined, but only 25 of them agreed to participate in the research, ergo, only 40.32% of the initial sample. The institutions that joined were 3 Clinical-Schools (CS), 6 Parents' Associations (PA), 7 Special Schools (SS), 2 Regular Schools with inclusion classes (RS), 3 Clinics (C) and 4 Special Day-Care centers (SDC). The representatives of these institutions signed the Consent Form and agreed on a date to return the questionnaire.

Data gathering consisted in only one moment of the research – i.e. one individual interview in each institution - and was conducted during a period of ten months. A great amount of time was necessary to make the personal interviews in different regions of a very large city, since most of the contacts by telephone or email didn't result in collaboration with the research.

The answers about the number of individuals attending the institution, the number of them who used spoken communication and the offer of SLT services underwent statistical analyses by the Student T Test.

Results

The Student's t-test shown in Table 1 was conducted by comparing the institutions with and without SLT services and the proportion of verbal ASD individuals. This result indicates that there aren't significant differences between the proportion of verbal ASD individuals and the provision of SLT services in the different institutions. It can also be observed that all CS and SDC provide SLT services, while in all C and RS these services are not available.

Table 2 compares the different types of institutions, the offer of SLT services and its relation to the proportion of verbal ASD individuals. The statistical analyses demonstrated that there are statistically significant differences (results are shown in bold). RSs have the largest proportion of verbal ASD individuals while CSs have the lowest one.

The overall results indicate that, among the 915 ASD individuals attending the 25 assessed institutions, over 49% do not use speech as the main communicative mean and 21.5% of them attend institutions that do not provide SLT services.

Discussion

The increased prevalence of ASD may be related to the expansion on diagnostic criteria and the increased recognition of these disorders [18]. The DSM criteria, for example, have become increasingly comprehensive (DSM-IV tr, 1994). The notion of a spectrum of autistic disorders also resulted in the inclusion of some other disorders [19]. Studies suggest that the prevalence of ASD is estimated in one to every 110 children in the United States [1] and 1% in the United Kingdom [20].

The increased prevalence and advanced public health policies in Brazil have generated the implementation of a large number of

Type of institution	Number of ASD individuals	Verbal ASD subjects		SLT services
		number	percentage	
PA	7	2	28,57	N
PA	14	5	35,71	N
PA	176	85	48,29	Y
PA	61	20	32,78	Y
PA	43	24	55,81	Y
PA	14	10	71,42	N
C	80	38	47,5	N
C	7	5	71,42	N
C	16	6	37,5	N
SS	28	16	57,14	N
SS	80	35	43,75	Y
SS	16	8	50	Y
SS	32	19	59,37	Y
SS	41	27	65,85	Y
SS	5	3	60	Y
SS	11	8	72,72	Y
CS	59	21	35,59	Y
CS	3	1	33,33	Y
CS	62	15	24,19	Y
RS	4	2	50	N
RS	32	21	65,62	N
SDC	83	43	51,80	Y
SDC	6	4	66,66	Y
SDC	8	7	87,5	Y
SDC	45	25	55,55	Y
TOTAL	915	450		N-9 Y=16
(p) value=0,87873				

Legend: N=no; Y=yes; CS=clinical-schools; PA=parents' associations; SS=special schools; RS=regular schools with inclusion classes; C=clinics; SDC=special day-care centers

Table 1: Individual relationship between the offers of SLT services, the number of verbal ASD individuals and types of institutions.

p-value	PA	C	SS	CS	RS	SDC
PA	1	0,586453	0,102207	0,193646	0,367533	0,0930507
C	0,5864528	1	0,472358	0,118647	0,717158	0,3444889
SS						
	0,1022072	0,472358	1	0,002027	0,941848	0,3825776
CS						
	0,193646	0,118647	0,002027	1	0,035785	0,0180475
RS						
	0,3675331	0,717158	0,941848	0,035785	1	0,5901046
SDC	0,0930507	0,344489	0,382578	0,018048	0,590105	1

Legend: CS=clinical-schools; PA=parents' associations; SS=special schools; RS=regular schools with inclusion classes; C=clinics; SDC=special day-care centers

Table 2: Association between the different types of institutions and the proportion of verbal ASD individuals student's t-test.

institutions offering educational and therapeutic services to individuals with ASD. These advances, however, pose the challenge of identifying the kind of service that is being provided to the ASD individuals and whether they meet their specific needs.

SLT has been described by many authors as one of the fundamental areas of intervention to promote better development of ASD individuals. A study with ASD children and adolescents has shown that there is evolution in language skills, regardless of age, when the individual receives intervention even though the social skill may remain impaired [11]. Hess et al. [10] also pointed out that SLT is the most appropriate

(70% indicator) among other therapies in the treatment of ASD children.

Chuthapisith and Ruangdaraganon [2] stated that for the early ASD diagnosis, the delay in language development should be detected as soon as possible. In approximately 25% to 30% of children with ASD, parents report a significant loss or regression in language development. The regression feature occurs between the 15th and the 24th months of life [19,21]. Therefore, the participation of the Speech-Language Pathologist (SLP) in the multidisciplinary team that works with persons with ASD should bear no discussion. However, either due to lack of number of professionals in some regions or to budget restraints, this is not a rule in several contexts. The result of the present study, indicating that almost 50% of the 915 ASD individuals assessed attend institutions that do not offer SLT services may be just a sample of the larger difficulties faced by this population and their families, not only in Brazil, but probably in several other majority countries.

Fernanda Dreux Miranda Fernandes et al. [22] point out that language and communication difficulties of ASD individuals persist throughout their lives, that this intervention must take place as soon as possible and that access to SLT must be available to this population. Regarding the different language abilities presented by ASD individuals [23], it is clear that not just the ones that do not use spoken language as a means of communication would benefit from SLT interventions. This is a limitation of the present study, because the individual records of language assessment were not made available to the researchers in most of the institutions.

The results showing that there were no differences in the proportion of verbal ASD individuals related to the availability of SLT in the institutions or to the type of institution seem to indicate that this is not a factor considered when choosing the institution the individual will attend to. Especially considering the diversity of the ASD phenotype framework [3], the high prevalence of mental retardation and genetic syndromes associated to ASD [1,2,24] or the studies that reported that about 30% of ASD individuals show no verbal communication [15,25], the main criteria when enrolling an ASD individual in some institution is the possibility of receiving some specialized attention.

The statistical difference in the numbers of subjects with verbal communication assisted in special schools, special schools with clinic, regular schools with inclusion classes and day-care institutions, where SLT services are provided may be related to the type of institution. However, a prior study indicated that the environmental context do not have a relevant role in the results of language therapy [26].

Conclusion

This research reports the intervention and educational services available to 915 ASD individuals that attend specialized services. Less than 50% of them receive any speech-language therapy at the main institution they attend. No effect of type of institution or use of speech was observed. The larger proportion of individuals that use speech as a communicative means was observed in regular schools with special classes.

It should be considered that some of these individuals attend to speech-language therapy in other services (mostly university clinics and private clinics), but this information about all individuals was not available.

One of the most important restrictions of this research was the lack of complete information about the ASD individuals. Many institutions

didn't allow the researcher to have any contact with these data. Another study-even with a smaller number of subjects involved-with more detailed data about each individual may provide relevant information about the processes developed by each institution. The analysis considering verbal and non-verbal individuals, whether and where they receive any SLT and its results can also indicate the better alternatives for public services.

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