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Case reports

Speech-language-hearing teletherapy for children with autism spectrum disorders during the covid-19 pandemic

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ABSTRACT

This paper aimed to investigate the contribution of speech-language-hearing teletherapy to the development of communication skills in children with autism spectrum disorders during the coronavirus-19 pandemic. This qualitative, interventive, longitudinal case series study analyzed data from the medical records of patients, based on instructions given to their families via speech-language-hearing teletherapy during social isolation. It was part of a public outreach program conducted in a speech-language-hearing teaching clinic, aiming to analyze results in the field of language. All children progressed in various aspects, such as the development of communication skills, expanded vocabulary, increased naming and asking, morphosyntactic development, and advancements in the use of augmentative and alternative communication. Also, shared attention and eye contact increased, the interaction with the family improved, and inadequate behaviors decreased; there was greater autonomy in daily routine and greater attention during activities; increased interest in toys during play and longer and more frequent playing, associated with decreased screen time. In conclusion, the results demonstrated progress in communication and social interaction after the speech-language-hearing teletherapy for children presented with autism spectrum disorders during the coronavirus-19 pandemic.

Keywords: Autistic Disorder; Speech, Language and Hearing Sciences; Telemedicine; Child Language

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INTRODUCTION

The Coronavirus-19 (COVID-19) pandemic, which affected the world in 2020, required social distancing measures that interrupted optional in-person treatments, impacting the population's healthcare. Due to isolation, people no longer had the assistance of health professionals and stopped attending schools, clinics, and social interaction places, discontinuing rapport, therapy, and education[1].

The pandemic brought sudden changes to people's routines, negatively impacting the lives of individuals with autism spectrum disorders (ASD) and their families, aggravating their overall clinical condition[2].

As an alternative, health services needed to adapt, triggering remote healthcare. Hence, with the increasing offer of distance services and constant development of new information and communication technologies (ICT), the Brazilian Federal Speech-Language-Hearing (SLH) Council (CFFa) promulgated Resolution no. 580/2020, which regulates SLH teletherapy as a means of SLH therapy conducted with ICT[3]. It also issued the Good SLH Practice Guidelines, providing SLH therapists with the necessary information for their professional activity in this modality.

SLH teletherapy for ASD patients has been addressed in studies and can be used in SLH intervention to teach strategies to parents so they can contribute more effectively to improving their children's communication and behavior[4].

ASD is a neurodevelopmental condition characterized by persistent deficits in communication, social interaction, and limited and repetitive patterns of behavior, interest, or activities. It is characterized as a global developmental disorder, represented by atypical development of social interaction, cognitive capacity, and communication, as well as a limited repertoire of activities and interests[5].

Social communication changes are universal in children with ASD, regardless of their age and level of development, and are likewise manifest in nonverbal communication. Such difficulties occur in both receptive and expressive language[6], and linguistic impairments can be present in morphology, phonology, syntax, semantics, and pragmatics[7].

Approximately 40% of children with ASD do not have functional communication[8], which is the most impaired pragmatic competence in these individuals. Functional communication – i.e., pragmatic language skills – involves the use of language in context, with both verbal and nonverbal communication. Its development encompasses the interconnection with social and emotional aspects, enabling the development of social competencies that help individuals to interpret and solve problems, social information, and situational expectations by using strategies in spontaneous contexts[9].

Augmentative and alternative communication (AAC) is one of the intervention approaches to develop functional communication in children with ASD. It aims to help them acquire and develop verbal language and social interaction and, in the case of nonverbal children, structure nonverbal language and expression[10]. SLH intervention with AAC broadens communicative intention and diminishes inadequate behaviors, enabling children to express their intentions and needs better[11].

Another essential aspect of SLH intervention in children with ASD is parental active participation. Including and equipping parents is essential to maintain the strategies used in therapy, as their participation takes the intervention to the children's natural environments, making it easier to generalize their learning and potentialize the quality and effectiveness of communication in the context to which children belong, improving their and their families' quality of life[4].

Studies demonstrate the effectiveness and feasibility of training the parents of children with ASD. Parental participation is important to the development of communication skills and the implementation of alternative communication resources at home. Instructions given to the parents of children with ASD through teleconsultation proved to be effective and promising, especially to cope with behavioral challenges[2,12].

However, there is a scarcity of studies on the development of communication skills in children submitted to SLH teleconsultations, hence, this research aimed to investigate the contribution of SLH teletherapy in the development of communication skills in children with ASD, during the COVID-19 pandemic.

CASE REPORT

This study was approved by the Research Ethics Committee of the *Universidade Federal de Pernambuco* (UFPE), Brazil, under evaluation report no. 4.784.524, CAAE no. 47284621.0.0000.5208, complying with the ethical principles and current laws, in accordance with Resolution 466/2012 of the National Health Council.

This qualitative, descriptive, interventive, longitudinal case series study collected and analyzed secondary data from medical records of eight children with ASD, aged 2 to 8 years, treated in the outreach and research program named "*Autismo Comunica*" (Autism Communicates), in asynchronous teleconsultation with writing tasks and exchange of audios and videos, between February and November 2020.

The study included medical records of children aged 2 to 8 years, diagnosed with ASD based on DSM-V criteria of the American Psychiatric Association, with a mild or moderate degree on the Childhood Autism Rating Scale (CARS), with nonverbal or minimally verbal skills. Children with no access to ICT were excluded from the research, as they would not be able to attend asynchronous teleconsultations.

Initially, the profile of the children undergoing treatment was outlined by tabulating and analyzing their main data and identifying their clinical profile, according to sex, age, whether they were nonverbal (to indicate the presence or absence of verbalization – i.e., oral language), whether they already used AAC before teleconsultations, whether they were already undergoing in-person treatment before teleconsultations, and the number of teleconsultation sessions conducted throughout the remote intervention.

Children were considered nonverbal or minimally verbal when their repertoire of spoken words was too small or had too strict forms of communication. The characterization of the subjects is shown in Chart 1.

Chart 1. Characterization of participants in the research on speech-language-hearing teletherapy for children with autism spectrum disorders during the COVID-19 pandemic, Recife, 2020

Child	Sex	Age	Nonverbal	Already used AAC	Already had in-person treatment	Number of sessions
C (1)	M	3 years and 11 months	yes	no	no	30
C (2)	M	2 years and 6 months	yes	no	no	25
C (3)	M	3 years and 5 months	yes	no	no	28
C (4)	M	4 years	yes	yes	yes	29
C (5)	M	8 years and 1 month	yes	yes	yes	24
C (6)	M	4 years and 10 months	no	yes	yes	30
C (7)	M	4 years and 4 months	yes	no	no	24
C (8)	M	5 years and 6 months	no	yes	yes	24

Captions: C = child; M = male; AAC = augmentative and alternative communication

Asynchronous teleconsultations took place weekly with the children's parents/guardians, in which written messages were sent via e-mail or WhatsApp with instructions and activities to develop communication skills and maintain care according to the specific needs of each case, pointed out by the families – e.g., routine, behavior, emotional aspects, and so forth. Instructions were individualized and directed to the parents so they could develop the AAC strategies with children at home. The instructions were planned according to the families' needs and the children's communication skills according to the Development of Communication Skills in Autism (DHACA, in Portuguese)[13] and aimed to establish communication situations through play activities, using various toys (kitchenware, dolls, cars, balls, shape sorters, etc.).

Some children used the DHACA communication book[13], which has a larger single page with 66 pictograms of essential vocabulary and other smaller overlapping pages with a single line of 10 pictograms. These pages are organized by lexical category, comprising accessory vocabulary, progressively included in the therapy process.

DHACA[13] is a method based on the socio-pragmatic theory and aims to develop communication skills with AAC. It focuses on four skills: building sentences with "I want" plus another word; building sentences with "I want" plus another two words; building sentences with four or more words; and building narratives[13].

DHACA[13] involves three important aspects: 1) priority given to play activities, planned according to each child's preferences by previously assessing them; 2) the participation of family/caregivers, given the importance of otherness in communication; 3) its use in the child's sociocultural context.

In the instructions, parents were encouraged to use the communication book with the child in interactive communication. Activities and strategies were suggested for using it at home, considering the objectives of the skill in question and enabling greater stimulation opportunities. The activities suggested had good acceptance among parents, who gave asynchronous feedback to the therapists.

The clinical fellows (therapists) and SLH pathologists (supervisors) met to discuss and develop the instructions and plan the ones for the following week. Weekly supervision was synchronous and carried out in Google Meet. Synchronous teleconsultations also took place in Google Meet only to reassess children along with their parents after the period of instructions, supervised by the project coordinator.

Each set of instructions and family feedback were described in the patients' medical records to indicate their progress and the parent's reports regarding the instructions.

Data analysis

Content analysis was based on all written material in each child's medical records, using the topic modality proposed by Bardin[14]. This analysis consists of a set of quantitative communication analysis techniques with systematic procedures of message content description, making it possible to infer knowledge regarding message production/reception conditions, grouping them into topic categories.

The content analysis was organized into three stages: 1) pre-analysis: reading the written material in the patients' medical records regarding the main therapy progresses and the parents' statements, recorded in written messages (e-mail, WhatsApp); 2) exploration of the material: classifying and organizing information into topic categories; 3) treatment of the results, inferences, and interpretation: verifying overlapping topic categories, in which similar content was present in the statements.

Chart 2. Analysis of the categories of children 1 to 3 after speech-language-hearing intervention via hybrid teleconsultation, Recife, 2020

Child 1
- AAC use: Loose images and activity system: using the bathroom and taking a shower.
- Family adherence: Frequently.
- COVID-19 impact:
Child: Increased inflexible and inadequate behavior; more frequent anxiety episodes; sleep disorganization; and difficulties understanding "no".
Family: Increased level of family stress; reported maternal psychosocial overload.
- Instructions:
Behavior: Routine flexibilization; videos on how to improve eye contact; how to cope with inadequate behavior.
Communication development: Instructions on AAC use, with the exchange of images. Stimulating the interaction between siblings with music; stimulating conversations to form sentences in turns; narrating daily activities.
- Post-intervention family feedback:
Behavior and biopsychosocial aspects: increased shared attention, better acceptance of a flexible routine; increased interest in playing and toys, and better interaction with the family.
*Mother and child began follow-up with a psychologist (after the 12th session); the child also began making meditation.
Communication development: Increased eye contact; pointing at things more often, increased communicative response; improved comprehension of social norms. Began asking for foods that were not within their reach; expanded their vocabulary and naming; greater verbal production and more use of spontaneous speech, and built 2-word sentences. Began answering simple questions.
Child 2
- AAC use: DHACA communication book and Visual Planner.
- Family adherence: Frequently.
- COVID-19 impact:
Child: Increased level of hyperactivity and anxiety; sleep disorganization.
Family: Family health problems.
- Instructions:
Behavior: Use of positive reinforcement; how to cope with inadequate behavior. Stimulating play with social engagement and make believe. Encouraging the child's independence. Decreased screen time.
Communication development: Using the communication book between communication partners, as well as modeling strategies. Stimulating the function of asking with the communication book, using physical, visual, and verbal cues; and introducing the lexical category of 'colors'. Providing everyday opportunities to use the communication book: describing actions that took place during the activities and plays to understand contexts; Stimulating them to take turns.
- Post-intervention family feedback:
Behavior and biopsychosocial aspects: Understanding the visual planner, decreasing their disorganization; increasing the search for autonomy in daily routine. Started trying to eat on his own; increased attention during activities and in everyday situations.
Communication development: Increased imitation skills and eye contact; better comprehension of adverbs of place "over" and "below"; increased communicative intention and vocalizations with rhythm and intonation. Began answering questions with "yes" or "no" and using isolated words.
Child 3
- AAC use: Loose images and activity system: using the bathroom and brushing the teeth.
- Family adherence: Frequently.
- COVID-19 impact:
Child: Increased inadequate behaviors.
Family: Overload and health problems. The guardian underwent a surgical procedure; the guardian needed to listen more to the child.
- Instructions:
Behavior: Using positive reinforcement; how to cope with inadequate behavior. Implementing a visual routine to use the bathroom. Stimulating functional play.
Communication development: Using activities with vowels, numbers, and shape sorters; describing actions that took place during the activities and plays to understand contexts. Stimulating eye contact, shared attention, and pointing to things; naming objects + verbalizing sentences, and introducing lexical categories of numbers and colors. Exchanging images during communication and doing activities in pairs.
- Post-intervention family feedback:
Behavior and biopsychosocial aspects: Increased search for autonomy in daily routine: using bathroom routine, sitting on the toilet, and defecating; decreased resistance to brushing the teeth. Increased interest in toys with longer and more frequent plays.
Communication development: Developing new skills, such as pointing to things, waving goodbye, and blowing a kiss. A greater understanding of simple orders. Increased communicative intention and vocalizations. Progress in exchanging images, distinguishing them. Using onomatopoeias and naming vowels "a"; "o"; "u"; expanded vocabulary and greater use of isolated words.

Caption: AAC = augmentative and alternative communication, DHACA = Development of Communication Skills in Autism

Chart 3. Analysis of the categories of children 4 to 6 after speech-language-hearing intervention via hybrid teleconsultation, Recife, 2020

Child 4
- AAC use: Loose figures.
- Family adherence: Sometimes.
- COVID-19 impact:
Child: Increased inadequate behavior.
Family: Increased level of family stress; the guardian reported psychological problems secondary to the pandemic.
- Instructions:
Behavior: Using social stories regarding the pandemic; using positive reinforcement; how to cope with inadequate behaviors. Stimulating symbolic and functional plays and plays to interact with siblings. Decreased screen time.
Communication development: Stimulating the use of oral language and expanding the use of spontaneous asking. Stimulating eye contact, interaction, engagement, and interest in discourse. Using modeling and visual and verbal cues to encourage AAC use.
- Post-intervention family feedback:
Communication development: Increased communication interaction and expanded vocabulary. Implementing the sentence "I WANT" in AAC. Began using isolated words and expanded the frequency and use of spontaneous asking.
Child 5
- AAC use: DHACA communication book, adapted with pictograms and Brazilian Sign Language.
- Family adherence: Always.
- COVID-19 impact:
Family: family disorganization due to the lack of a person to be effective with the child throughout the day, as the parents worked and can only be with him at night.
- Instructions:
Behavior: Instructions on independence in everyday activities. Stimulating how to play with rules and examples of plays is favorable to the child.
Communication development: Instructive videos in sign language, instructing on the use of the adapted DHACA communication book. Stimulating the family to teach Brazilian Sign Language to the child and using AAC. Teaching new signs in Brazilian Sign Language: animals, means of transportation, and fruits. Development of skills in the adapted DHACA communication book: building sentences, using physical and visual cues. Reading books in Brazilian Sign Language.
- Post-intervention family feedback:
Behavior and biopsychosocial aspects: Greater autonomy in everyday activities.
Communication development: Effectively using the DHACA communication book. Increased eye contact. Learning new signs in Brazilian Sign Language.
Child 6
- AAC use: DHACA communication book.
- Family adherence: Always.
- COVID-19 impact:
Child: Increased inadequate behaviors.
Family: The guardian was concerned with the child's development in isolation. Family overload.
- Instructions:
Behavior: How to cope with inflexible behavior and stimulate routine flexibility. How to cope with inadequate behavior. Stimulating eye contact and symbolic and functional plays. The guardian was instructed to follow the child's lead during the play.
Communication development: Using the DHACA communication book with 2 to 4 words to structure sentences and stimulate oral language; stimulating language functions: making comments, asking questions, and asking for things; expanding vocabulary in the categories of foods, colors, and toys with the DHACA communication book.
- Post-intervention family feedback:
Behavior and biopsychosocial aspects: Began psycho-pedagogical follow-up at school. Increased interest during activities and in toys/objects. Greater attention to the sister during play and greater initiative and cooperation, such as putting the toys back in place.
Communication development: Verbalizing 2-word sentences in response to someone. Expanding the language functions: comments, questions, asking, developing functional communication. Morphosyntactic development with 3-word sentences with the DHACA communication book. Expanded vocabulary in the categories of foods, cartoons, colors, and toys.

Caption: AAC = augmentative and alternative communication, DHACA = Development of Communication Skills in Autism

Chart 4. Analysis of the categories of children 7 and 8 after speech-language-hearing intervention via hybrid teleconsultation, Recife, 2020

Child 7
- AAC use: visual planner and DHACA communication book.
- Family adherence: Sometimes.
- COVID-19 impact:
Child: Increased inadequate behavior due to stress and isolation; sensory disorganization.
Family: The father refused to play with the child.
- Instructions:
Behavior: How to cope with inadequate behaviors. Stimulating eye contact. Stimulating sensory plays.
Communication development: The importance of visual support to the child; using physical, visual, and verbal cues with the DHACA communication book. Encouraging the child and communication partners to use the DHACA communication book.
- Post-intervention family feedback:
Behavior and biopsychosocial aspects: Increased imitative skills.
Communication development: Began verbalizing isolated words. Discriminating preferences when asking parents/guardians for things with the DHACA communication book.
Child 8
- AAC use: DHACA communication book.
- Family adherence: Always.
- COVID-19 impact:
Child: Increased inadequate behavior.
Family: Disorganization of the family's sleep routine; increased level of family stress; father diagnosed with depression (reported in the 8th session); overloaded mother.
- Instructions:
Behavior: Decreased screen time; eliminating distractors, such as television, during activities and plays. Stimulating the child's engagement during activities.
Communication development: Using simple commands and narratives during plays. Activities associating words and images. Stimulating morphosyntactic development and vocabulary expansion with the DHACA book: activities to stimulate reading and writing sentences with subject, verb, and complement; activities associated with adverbs and possessive pronouns. Activities involving naming and feelings.
- Post-intervention family feedback:
Behavior and biopsychosocial aspects: Increased engagement during activities; accepting "no"; decreased inflexibility during activities; improved interaction with other children.
*The child's medication dosage was increased due to inadequate behaviors and sleep disorganization (approximately by the 17th session).
Communication development: Increased communication skills; spontaneous verbalizations and more frequent use of the DHACA communication book. Began making comments on cartoons he watched and singing complete songs, such as "Happy birthday to you". Developing functional communication. Understanding the feelings of sadness and anger. Presenting bilingual skills. Expanded vocabulary (colors, numbers, animals, feelings, foods, and toys). Morphosyntactic development with 4-word sentences, using nouns, adverbs, pronouns, and adjectives. Associating images with written words. Developing sentence reading.

Caption: AAC = augmentative and alternative communication; DHACA = Development of Communication Skills in Autism

RESULTS

As seen in Chart 1, the analysis included medical records of eight children with ASD. They were all males, aged from 2 years and 6 months to 8 years and 1 month. Six of them were nonverbal; four already used AAC and were receiving in-person treatment before beginning asynchronous teleconsultations; the other four had never used AAC and began the intervention in the asynchronous modality. The number of sessions ranged from 24 to 30 teleconsultations.

Based on the content analysis, five topic categories were listed: 1. AAC use – description of AAC resources used throughout the intervention; 2. Family adherence – frequency of family participation and commitment to carry out the activities; 3. Impact of COVID-19 – changes brought about by social isolation and consequences of the pandemic to the children and families; 4. Instructions – main instructions given in teleconsultations; and 5. Family feedback – progress of the children according to the parents'/guardians' reports, use of the instructions given in teleconsultation, and gains obtained by the children.

The children who had not yet used AAC began using it, while those who already used it increased their skills with DHACA[13]. In general, family adherence was good – three of them always participated actively and followed the instructions, three participated often, and only two

families followed instructions sometimes. The main impacts of the pandemic were related to changes in the routine and, consequently, the children's behavior, causing overload and stress at home.

The instructions given to the families in teleconsultations were categorized into 1) behavior – reorganizing the routine and coping with inadequate behavior, and 2) communication development – strategies to develop communication skills in the routine. Family feedback was categorized into biopsychosocial aspects and behaviors, and communication.

The family feedback demonstrated progress in all children, such as increased shared attention, eye contact, and communication skills. Concerning behavior, the following stood out: improved interaction with the family and decreased inadequate behavior; greater autonomy in daily routine and greater attention during activities; increased interest in toys, playing for longer and more often, in combination with decreased screen time. As for communication aspects, they expanded their vocabulary, naming and asking more often (function of asking), and morphosyntactic development, with progress in AAC use.

DISCUSSION

The COVID-19 pandemic posed unimaginable challenges for the 21st century. Following the World Health Organization recommendations, many countries used social isolation and quarantine as strategies to cope with the pandemic, while only essential services remained available. The population had to adjust as schools, clinics, and other social interaction spaces were temporarily closed, consequently interrupting their relationships with teachers, therapists, and other family members to avoid the risk of contamination[1].

Such measures impacted child development, especially in those with ASD and their families. There were reports of increased inadequate behavior in children and daily overload to parents due to the changes in the routine – corroborating the literature[15,16] that indicates that changes in the routine posed a great challenge during the pandemic, forcing parents to make new adjustments in the home routine so their children would not lose the behavior and habit progress they had achieved.

Difficulties faced during the pandemic were also found in research[17] that aimed to understand the influence of social isolation during the COVID-19 pandemic on children with ASD and their daily routines; it verified that the social isolation not only changed their routines and life habits but also impacted their mental health, increasing the anxiety and depression symptoms, stereotypies, hypersensitivity, and aggressiveness.

Mental health impairment in individuals with ASD caused great suffering because they are sensitive to changes in their routine[18]. Also, their psychosocial suffering possibly increased in terms of aggression, tantrums, refusal to participate in daily activities, and so on[19]. Moreover, not only the children with ASD had mental health impairments but also their parents/families had anxiety episodes due to the interruption in their daily routines and difficulties attending health services[20].

Parents' health and well-being are directly related to the quality of care they can provide to their children[21]. This study had reports of anxiety episodes, causing irregular sleep, sensory disorganization, and increasingly inadequate behavior on the part of children with ASD. The parents/guardians also reported they had psychosocial overload, anxiety, worries, and stressful behavior.

To address this situation and improve the mental health of both parents/families and children with ASD, health professionals continued following up on these children through online healthcare[22]. Remote health service, known as telehealth, can use any telecommunication tool (e.g., safe phone services, videoconference, e-mail, messages, and mobile applications, with or without video calls), particularly as a strategy during the pandemic, to carry on prevention, diagnosis, and treatment[23].

The studies demonstrate positive results of teleconsultation on technology use and home exercises. Furthermore, the social distancing measures increased the time families had at home to care for the children and, in some cases, they could get better organized to do the daily exercises, which led to positive results on the user's prognosis[24,25].

Corroborating the use of teleconsultation, a study[26] conducted during the pandemic in a clinic in Rio Grande do Sul analyzed health professionals' experience with teleconsultation. This modality aimed to meet the needs of patients and families through clinical listening, adequate assessment, rapport, and continued intervention. Thus, it was demonstrated that teleconsultation was feasible, though challenging, and that it could provide certain gains, such as addressing issues that did not appear during in-person treatment

and ensuring the greater engagement of families in the therapy process.

The present study also verified the families' engagement with teleconsultation, especially in carrying out the instructions they received on the children's behavior and communication development. Communication development instructions focused on alternative communication by exchanging images, using the communication book, modeling, and physical, verbal, and visual cues during stimulation, with AAC resources. They also stimulated the acquisition and development of lexical categories (naming colors, music, toys, numbers, and foods).

After the teleconsultation intervention with AAC resources, the families reported that children with ASD had increased shared attention, improved eye contact, used imitation and gestures, improved understanding of social norms, expanded expressive vocabulary, increased communicative intention, vocalizations with rhythm and intonation, and so forth.

A study[27] aimed to describe the necessary assessment and training procedures in a teleconsultation program. It is a case study involving two individuals with ASD: an 11-year-old child and a postgraduate student. Data revealed that the participants improved their language development, social skills, and learning skills, contributing to teleconsultation services.

AAC can be used as a therapeutic tool to promote functional communication, thus developing the subject's communication skills. Among the main benefits of using AAC, the literature[13] highlights the greater socio-communicative possibilities, enabling better linguistic expression and autonomy and interaction opportunities, avoiding social exclusion and possible isolation.

Corroborating the importance of AAC, a systematic review[28] points out the use of AAC systems in language development, identifying that these resources make it easier to code auditory stimulation, increasing the children's speech intelligibility and verbal production. Hence, ACC can be used for verbal stimulation.

The present study gave other instructions regarding the behavior of children with ASD to help parents cope with inadequate behaviors, aiming for positive reinforcements, eye contact, and adjustments in their routine flexibility. After the instructions, the families reported improved family interaction and child behavior, increased effort to obtain autonomy in the daily routine, greater attention during activities and interest for toys during play, greater frequency and time playing, motor skills development (opening and closing packages), and so on.

All instructions given to parents/families were based on the needs they pointed out. However, it was verified that all of them likewise needed instructions to restructure their routine and behavior. Most families received instructions on the management of inappropriate behaviors – except for two, which used the communication book with tabs and the DHACA method and participated in in-person treatment before the pandemic.

The main characteristics of individuals with ASD include inflexibility toward changes and excessive adherence to routines, which leads to inadequate behavior (aggravated by the COVID-19 pandemic), including self-injury, aggressiveness toward others, and tantrums. The most frequent preexisting behaviors were tantrums, and behavior problems were more intense in one out of every three children[29].

The results obtained with the instructions point to improvements in the topic categories and in the children's behavior and communication, directly impacting the family relationship. The role of the family is essential in the therapy process; when they receive instructions, they further enhance intervention effectiveness[30]. It was verified that, although interventions were conducted remotely during the pandemic, which posed various difficulties, the instructions had positive effects on those families.

Hence, the parental role is important to the development of intervention programs that include families. SLH therapists must encourage and instruct parents/guardians to be more active in providing communication settings appropriate to children with ASD enabling successful interactive experiences[2].

Teleconsultation proved to be a feasible tool to offer services to the parents of children with ASD, as seen in this study[31], which conducted an intervention in the parents to implement strategies to improve their children's communication skills. The results indicate that the parents encouraged their children's communication, awareness, and autonomy, showing the importance of teleconsultation.

The present study had some limitations, such as the irregular attendance on the part of some parents/guardians and the difficulties of using technology in teleconsultation, as there were some problems with an Internet connection, hindering the process of instructing the families.

CONCLUSION

The results demonstrated that SLH teleconsultation for children presented with ASD, during social isolation, due to the COVID-19 pandemic, was a feasible option that led to progress in children's communication. This may be a first step to broadening new assistance approaches for individuals with ASD and their families, not only in situations of social distancing but also for children and families that live in more isolated areas, with no possibility of attending health services in person.

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