

Habilidades sociais de adultos com o diagnóstico de transtorno do espectro autista: uma revisão sistemática

Social skills training possibilities for adults with autism spectrum disorder: a systematic review

Habilidades sociales de adultos diagnosticados con transtorno del espectro autista: una revisión sistemática

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Resumo

O homem enquanto ser social necessita de um repertório comportamental que oriente suas relações em sociedade. Esse conjunto variado de comportamentos é denominado habilidade social, e pode ser aprendido durante todo o ciclo de vida. Pessoas com atraso no neurodesenvolvimento, diferente de pessoas consideradas típicas, apresentam como sintoma proeminente um déficit nas relações sociais, necessitando de espaços reforçadores que propiciem a construção de um repertório comportamental socialmente habilidoso. O Transtorno do Espectro Autista (TEA) tem despertado o interesse de diversas áreas do conhecimento, entretanto, o foco dos estudos na área ainda permanece na infância. Isto posto, o presente estudo teve como finalidade investigar as possibilidades de intervenção com adultos diagnosticados com TEA, como ferramenta para o treinamento de habilidades sociais

(THS), tentativa sistemática de ensinar estratégias e habilidades interpessoais no intuito de melhorar a qualidade das interações que permeiam as relações interpessoais. Para tanto, a metodologia utilizada baseou-se em um levantamento bibliográfico na Biblioteca Virtual em Saúde (BVS), a partir dos unitermos “habilidades sociais”, “adultos” e “autismo”, nas línguas portuguesa, espanhola e inglesa. Foram incluídas produções disponíveis na íntegra, e que apresentavam no resumo intervenções com adultos com TEA e sua relação com o desenvolvimento de habilidades sociais. Foram analisados na íntegra os estudos resultantes dessa seleção. Os resultados discorrem sobre a eficácia de intervenções com adultos com TEA, para o desenvolvimento de habilidades sociais. Conclui-se que o THS é uma possibilidade de intervenção eficaz com adultos atípicos.

Palavras-chave: Treinamento de habilidades sociais; Adultos; Autismo.

Abstract

Man, as a social being, needs a behavioral repertoire that guides his relations in society. This varied set of behaviors is called social skills, and can be learned throughout the life cycle. People with neurodevelopmental disorder have a deficit in social relationships as a prominent symptom, requiring reinforcing spaces that enable the construction of a socially skilled behavioral repertoire. Autistic Spectrum Disorder (ASD) has aroused the interest of several areas, however, the focus of studies remains in childhood. This study aimed to investigate possibilities of intervention with adults diagnosed with ASD, as a tool for social skills training (SST), a systematic attempt to teach strategies and interpersonal skills in order to improve the quality of the interactions that permeate interpersonal relationships. The methodology was based on a systematic review in the Virtual Health Library, by using the uni-terms “social skills”, “adults”, “autism”. Included were productions available in full, which presented interventions with adults with ASD and the development of social skills. The studies resulting from this selection were fully analyzed. The results discuss the effectiveness of interventions with this population for the development of social skills. It is concluded that SST is a possibility of effective intervention with atypical adults.

Keywords: Social skills training; Adults; Autism.

Resumen

El hombre como ser social incluso si uno necesita mantener un repertorio conductual que guíe sus relaciones en la sociedad. Este conjunto variado de comportamientos se llama habilidades sociales y se puede aprender a lo largo del ciclo de vida. Las personas con trastorno del

neurodesarrollo diferente de las personas típicas, tienen un déficit en las relaciones sociales como síntoma prominente, lo que requiere espacios de refuerzo que permitan la construcción de un repertorio conductual socialmente calificado. El trastorno del espectro autista (TEA) ha despertado el interés de varias áreas de conocimiento, sin embargo, el enfoque de los estudios aún permanece en la infancia. Dicho esto, el presente estudio tuvo como objetivo investigar las posibilidades de intervención con adultos diagnosticados con TEA, como una herramienta para el entrenamiento de habilidades sociales (EHS), un intento sistemático de enseñar estrategias y habilidades interpersonales para mejorar la calidad de interacciones que impregnan las relaciones interpersonales. Para este fin, la metodología utilizada se basó en el levantamiento bibliográfico en la Biblioteca Virtual en Salud (BVS), basada en los términos "habilidades sociales", "adultos" y "autismo", en portugués, español y inglés. Se incluyeron producciones disponibles en su totalidad, que presentaron intervenciones con adultos con TEA y su relación con el desarrollo de habilidades sociales en el resumen. Los estudios resultantes de esta selección se analizaron completamente. Los resultados discuten la efectividad de las intervenciones con adultos con TEA, para el desarrollo de habilidades sociales. Se concluye que la EHS es posibilidad de intervención efectiva con adultos atípicos.

Palabras clave: Entrenamiento de habilidades sociales; Adultos; Autismo.

1. Introduction

Man, as a social being, and Social Skills

Literature points to an understanding that man is, by nature, social (Marx, 2010). Although man has a singularity, belongs to a collectivity. It's in the social environment that man presents links with other men, his relationship with others and the relationship of others with himself (Evangelista, Baptista & Verissimo, 2017).

Thus, as a social being, man needs a variety of behaviors that guide his social relationships. This behavioral repertoire has been commonly called Social Skills (SS) in literature, with a consensus that it can be instructed throughout life (Bolsoni-Silva & Carrara, 2010).

In this sense, SS refer to different categories of social behaviors that are learned and emitted when they are in the presence of specific interpersonal demands (Del Prette & Del

Prette, 2012). It is emphasized, therefore, that there is a specific occasion, from which the subject is invited to have a social performance, always in relation to one or more people.

SS would then be a set of behaviors emitted by someone who effectively expresses feelings, attitudes and opinions (Caballo, 2003), and which guide their social performance in relation to the people around them.

Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is a neurodevelopmental disability characterized by difficulties with social communication and social interaction across multiple contexts coupled with restrictive and repetitive behaviors, interests or activities (American Psychiatric Association [APA], 2013).

The losses in social communication can be evidenced by deficits in socioemotional reciprocity, qualitative losses in social interaction, difficulties in adapting to other contexts, making friends, starting a dialogue or maintaining a conversation sharing interests; difficulty in spontaneous nonverbal communicative behaviors, in understanding other people's interests and feelings, as well as in responding to other people's emotions, and atypical attachment (Rubim, Da Hora & Lobato, 2020).

Then, people with ASD may exhibit comorbid difficulties in language and learning as well as challenging behaviors that are necessary to social interaction across multiple contexts. Considering the diagnostic criteria, it reflects how this social performance would be in people within the spectrum.

Possibilities for adults on the spectrum

The literature argues that the repertoire necessary to be skilled in social relations can be taught, and therefore learned. Thus, people diagnosed with ASD need reinforcing spaces that enable the construction of this repertoire (Felix, Santos & Asfora, 2017; Santos, Lucchesi, Del Prette & Almeida, 2014).

Therefore, arises the possibility of Social Skills Training (SST), a systematic teaching of management and interpersonal skills, with a view to improving the quality of interactions that permeate interpersonal relationships (Comodo & Dias, 2017).

SST aims to overcome deficits in social performance by developing a socially desired repertoire. Sensitivity to contingencies is worked on, which select more functional behaviors,

establishing socially competent behaviors to face demands for social interactions (Bolsoni-Silva, 2002; Del Prette & Del Prette, 2011).

Purpose of the Present Study

ASD has aroused the interest of several areas of knowledge. However, much of the research focus remains in childhood. Few studies have evaluated the few existing evidence-based social interventions for adults with atypical development. In this sense, the present study investigates SST as a possibility of intervention with adults on the spectrum.

2. Method

A research is done to achieve new knowledge as stated by Pereira et al. (2018). The present study comprises an integrative literature review, considering the possibility of conducting a comprehensive analysis on the subject to obtain greater knowledge, through what is already present in the scientific literature.

The work was developed in a sequential manner, following the guidelines of Mendes, Silveira & Galvão (2008): (1) identification of the theme and establishment of the guiding question; (2) definition of selection criteria; (3) definition of the information to be extracted from the selected studies; (4) evaluation of selected studies; (5) interpretation of results; and, (6) presentation of the knowledge synthesis.

Development of research questions

For the development of the present research, based on data collection in the literature, uniterms related to the following guiding question were delimited: What are the possibilities of intervention with adults diagnosed with ASD have been shown to be a tool for social skills training?

Literature Search: Identification of relevant studies

In order to outline the panorama of publications, a time frame has not been established. Search descriptors were established: "Social Skills Training", "Adults" and "Autism" in Portuguese, Spanish and English. The Boolean operators used were *or* and *and*,

configuring the following combinations: (autism *OR* autism spectrum disorder) AND (adults *OR* young people) AND (social skills training).

The survey of the studies was carried out in March 2020. The Virtual Health Library (VHL) was determined as a search source, for gathering, organizing and disseminating health information, making available bibliographic referential and full-text databases for research, providing greater visibility of national and international productions (BVS, 2014).

Eligibility Criteria: Study Selection

In data collection, the following inclusion criteria for publications were adopted: (a) available in full, with free access; (b) texts written in Portuguese, Spanish or English; and, (c) those that presented in the summary interventions related to Social Skills Training with adults with ASD. As exclusion criteria, the following publications were disregarded: not located in full; duplicated; and that did not show SST-related interventions with adults with ASD.

Data Extraction

Two reviewers independently extracted data on characteristics of the study, characteristics of the population, characteristics of the interventions, outcome measures, and results.

It is noteworthy that, first, titles and abstracts of the productions listed in the database were carefully analyzed, considering the descriptors and objectives of the research, previously defined. Subsequently, a more detailed reading of the main findings of each study was carried out, analyzing which ones answered the guiding question.

Risk of Bias in Individuals Studies

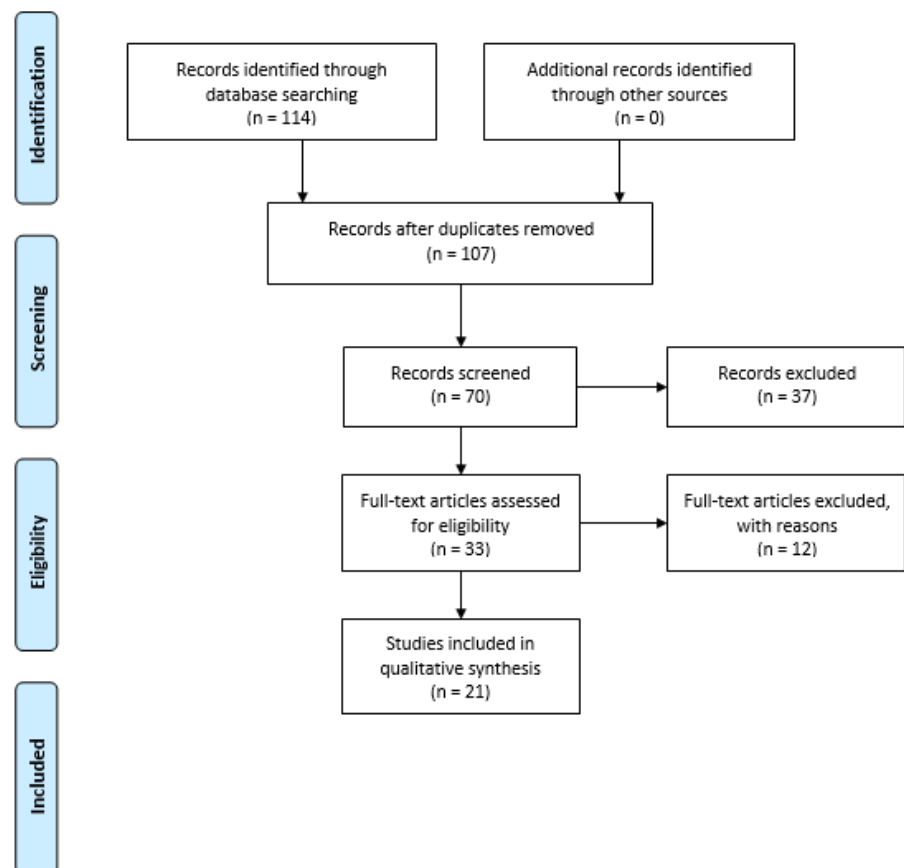
Risk of bias was assessed by 2 reviewers independently. The criteria recommended in the Cochrane Risk of Bias Tool were used (Higgins & Green, 2010), discrepancies were rechecked by the same two reviewers and consensus achieved by discussion.

To ensure methodological quality, the present integrative review was designed and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Moher, Liberati, Tetzlaff & Altman, 2009). We used the PRISMA checklist when writing our report.

3. Results and Discussions

At the end of the selection, there were 114 studies in the consulted database, of which 21 were part of the review, for answering the guiding question. Results for the search strategy are summarized in Figure 1.

Figure 1. Flow chart of search strategy based on PRISMA flow diagram.



Source: The author (2020)

The publications selected for the integrative review were read in full and subject to categorical analysis, with information extracted for tabulation and organization of relevant data, in six categories: (1) Author; (2) Year of publication; (3) Country / Locality; (4) Characteristics of Participants; (5) Contexts of interventions; and, (6) Intervention focuses. The results were presented in a descriptive manner.

The 21 studies that are part of the proposed review are distributed geographically, with 16 published in the United States (USA), and 1 study in each of the following countries: Ireland, Japan, China, Australia and England.

The studies are more frequent in 2018, with 5 studies published on each year, respectively, followed by 3 studies published in 2016 and 2017, 2 studies published in 1984, 2013 and 2015, and only 1 study published in each of the following years: 2011 and 2012.

The studies that make up the present literature review, as well as their characterization in terms of time, geography, sample selection characteristics, context and focuses of the interventions, are listed in Table 1.

Table 1. *Characterization of the analyzed studies.*

N	Author	Year	Locality	Characteristics	Contexts	Focuses
1	Mesibov	1984	USA	15 verbal autistic adolescents and adults.	Social Relationship.	Conversation and Interaction.
2	Gaylord-Ross, Haring, Breen & Pitts-Conway	1984	USA	3 autistic youth and nonhandicapped youth.	Social Relationship.	Conversation and Interaction (Communication Skills).
3	Ratto, Turner-Brown, Rupp, Mesibov & Penn	2011	USA	Adolescents and High-Functioning Adults with Autism and Asperger Syndrome.	Social Relationship.	Conversation and Interaction (Communication Skills).
4	Gantman, Kapp, Orenski & Laugeson.	2012	USA	Young adults with high-functioning autism aged 18-23 years old.	Social Relationship.	Emotion Recognition, Social Responsiveness, Empathy.
5	Liu, Wong, Chung, Kwok, Lam, Yuen, Arblaster & Kwan.	2013	Australia	Adults with autism and intellectual disabilities.	Work.	Emotional Control and Communication Skills.
6	Kandalaft, Didehbani, Krawczyk, Allen & Chapman	2013	USA	8 young adults with high-functioning autism.	Social Relationship.	Emotion Recognition and Communication Skills.
7	Cassidy, Mitchell, Chapman & Ropar.	2015	England	17 Adolescents and adults with ASD and 17 neurotypical adults.	Social Relationship.	Emotion Recognition.
8	Laugeson, Gantman, Kapp, Orenski & Ellingsen.	2015	USA	22 young adults (18—24 years old).	Social Relationship.	Social Engagement, Emotion Recognition.

Table 1 (Continuation). *Characterization of the analyzed studies.*

N	Author	Year	Locality	Characteristics	Contexts	Focuses
9	McVey, Dolan, Willar, Pleiss, Karst, Casnar, Caiozzo, Vogt, Gordon, Nakia & Hecke.	2016	USA	56 adults with ASD.	Social Relationship.	Responsiveness, Knowledge, Empathy, Direct Interactions, Social Anxiety.
10	Gilson & Carter	2016	USA	College students with autism or intellectual disability.	Work.	Engagement and Social Interaction.
11	Koegel, Ashbaugh, Navab & Koegel.	2016	USA	Young adults with autism.	Social Relationship.	Emotion Recognition.
12	Lerman, White, Grob & Laudont.	2017	USA	8 individuals aged 16 to 32 years old, with ASD.	Work.	Emotional Control and Communication Skills.
13	Tanaka, Negoro, Iwasaka & Nakamura.	2017	Japan	10 adults with autism.	Social Relationship.	Narrative skills.
14	Mcvey, Schiltz, Haengel, Dolan, Willar, Pleiss, Karst, Carson, Caiozzo, Vogt & Hecke.	2017	USA	Female adults with autism.	Social Relationship.	Emotion Recognition.
15	Grob, Lerman, Langlinais & Villante.	2018	USA	3 adults 19-27 years old, with the diagnosis of ASD.	Work.	Emotional Control and Communication Skills.

Source: The author

After analyzing the results, it was found that the possibilities of intervention contexts with adults with ASD most used for Social Skills Training, can be divided into three areas: work, university and interpersonal relationships. It can be seen that most of the studies were related to social interactions – there were 13 studies in the area of interpersonal relationships in general, followed by 8 studies in the work context, and only 1 study in the academic context.

In sequence, after a thorough analysis, it was noted which were the focus of the interventions in each context mentioned above, with the following distribution being verified:

(a) Work: job interview; engagement and involvement in tasks; issuing appropriate responses to feedback; ask for help and make requests; emotional control.

(b) University: self-confidence; empathy; decreased problem behaviors; communication and social interaction; self-esteem.

(c) Interpersonal Relations: interaction and social communication; empathy; know, identify and express feelings and emotions; social functioning.

The studies analyzed in this integrative review sought to discuss the importance of interventions that aim the acquisition of social skills in adults diagnosed with ASD. In addition, to raise knowledge about the possibility of Social Skills Training (SST) and its effectiveness. In this sense, the discussion of this study will be presented in two thematic categories: social skills training as a strategy for developing social skills in adults with ASD, and its implications for the care of atypical people.

Deficits in the social skills of people with ASD require interventions with proven effectiveness. One possibility is SST. The identified and presented SST interventions were selected according to the results of the integrative review, but they must be adapted considering each case, leaving the decision to the professional.

With the literature review carried out, it was found that interventions that impact the SS of adults with ASD, are distributed in 3 areas. For an adult with ASD there are a lot of challenges regarding the contexts showed. Difficulties and challenges to find an employment (Shattuck, Narendorf & Cooper, 2012; Taylor & Seltzer, 2011), social isolation (Howlin, Moss & Savage, 2013), lack of independent living skills, few close relationships, and poor quality of life (Barneveld, Swaab, Fagel, van Engeland, & de Sonnevile, 2014; Billstedt, Gillberg & Gillberg, 2005; Howlin, Goode & Hulton, 2004) are typical for this population. For better understanding, this discussion is organized around the following contexts: university, work, and interpersonal relationship.

In the higher education context, it is important to emphasize that an increasing number of students with ASD are entering University (Hillier, Goldstein, Murphy, Trietsch, Keeves & Queenan, 2018), but there is still a lack of evidence-based interventions to help this population to improve psychological and functional outcomes (Gelbar, Smith & Reichow, 2014). Also, they don't receive yet adequate social and educational support (Cai & Richdale, 2016).

However, the literature points that university students with ASD can cope with the intellectual demands, but struggle with: communication challenges, greater independence, executive functioning skills, low self-esteem, maintaining motivation, emotion modulation, self-advocacy, and sensory overload, besides adjusting to changes in routine, a sporadic class schedule, and comorbid psychopathology, such as stress and anxiety, that can interfere with academic success and other daily living issues that they experiment on academic context (Alverson, Lindstrom & Hirano, 2015; Glennon, 2016; Madriaga & Goodley, 2010; Van Hess, Movson & Roeyers, 2015).

In this sense, Hillier, Goldstein, Murphy, Trietsch, Keeves, Mendes & Queenan (2018) demonstrated the efficacy of a guided curriculum used on weekly discussions regarding a variety of topics, such as: time and stress management, managing group work, and social communication, focused on self-esteem, loneliness, anxiety and depression. This study on academic context showed functional changes in academic and social skills, facilitating the integration of students with ASD into campus social life, improving peer attitudes and reducing isolation.

Regarding the work context, adults in the spectrum face a lot of difficulties (Cimera & Cowan, 2009). Individuals with ASD, compared to their peers without disabilities, have high rates of unemployment and underemployment (Liu, Wong, Kwok, Lam, Yuen, Arblaster & Kwan, 2013). Those difficulties are related to adaptive behavior and social relationships (Howlin *et al.*, 2004; Roux, Shattuck & Cooper, 2013; Shattuck *et al.*, 2012).

Specific problems in the job include an inability to form appropriate peer relationships, a limited understanding of social cues and a few or none engagement into social situations, demonstrating that social-communication skills rather than job-specific skills constitute the greatest barrier to employment success for adults with ASD, as they represent an important indicator of job performance (Hillier, Campbell & Mastriani, 2007; Chen, Leader, Sung & Leahy, 2015).

Although a growing number of studies have evaluated SST with the atypical population that reached the adulthood (Hood, Luczynski, & Mitteer, 2017; Nuernberger, Ringdahl, Vargo, Crumpecker, & Gunnarsson, 2013), the field would benefit from further research on social interactions that seems to be specific to job spaces (Anderson, Moore, Rause Finkelstein, Pearl & Stevenson, 2017; Seaman & Cannella-Malone, 2016). In other words, support programs should address social skills, possibly even more than job-related skills.

It means that the interaction deficits including socialization, communication, emotional control and stereotypical behaviors need to be work with atypical people that need to gain and maintain an employment (Brereton, Tonge & Einfeld, 2006; Shattuck, Seltzer, Greenberg, Orsmond, Bolt, Kring, Lounds & Lord, 2007; Hume, Loftin & Lantz, 2009; Saldana, Alvarez, Lobaton, Lopez, Moreno & Rojano, 2009). The literature presents that appropriate training and education can help adults with ASD to gain and maintain employment, because employment-related interventions increase outcomes in the workplace, skills and quality of life (Hendricks & Wehman, 2009, García-Villamizar & Hughes, 2007; García-Villamizar et al., 2002; Howlin et al., 2005).

In this sense, the study of Liu, Wong, Kwok, Lam, Yuen, Arblaster & Kwan (2013) demonstrate that interventions on workplace social behaviors are promising. They indicate that a structured program, based on the psychoeducational approach, can be successful in training and improving workplace social skills.

Also, the study of Baker-Ériczén, Fitch, Kinnear, Jenkins, Twamley, Smith, Montano, Feder, Crooke, Winner & Leon (2018), utilized the Supported Employment, Comprehensive Cognitive Enhancement, and Social Skills and demonstrated that this intervention can be incorporated into professional training programs to improve cognitive, social and professional outcomes to people with ASD.

The study of Grob, Lerman, Langlinais & Villante (2018), examined the efficacy of a treatment package for teaching social skills that are critical to job success, such as responding appropriately to feedback and asking for a task model from the supervisor. They evaluated the effectiveness of Behavioral Skills Training and stimulus prompts for teaching a variety of job-related social skills to adults with ASD. It was demonstrated that this could be an efficient Social Skills Training with this population.

Gilson & Carter (2016) used a multiple-probe experimental design across three college students with ASD and examined the effects of a coaching package on task engagement and social interactions. They verified that for all participants, interactions increased and task engagement was maintained, as well as indicate supporting employment preparation within postsecondary education programs.

Lerman, White, Grob & Laudont (2017) evaluated methods for assessing and improving critical vocational-related social skills for 8 adults with ASD aged 16-32 years old. They arranged conditions that simulated on-the-job experiences in a clinic setting, including asking for help or for more materials, responding to corrective feedback. This study, under controlled environment, suggests that the assessment can be useful to identify specific social

skills that could be targeted for planning effective interventions and extend to naturalistic environments.

Oswald, Winder-Patel, Ruder, Xing, Stahmer & Solomon (2018) and Walsh, Holloway & Lydon (2018) investigated the efficacy of ACCESS Program – Acquiring Career, Coping, Executive Control and Social Skills Program. The first study tested the program with 44 adults with ASD and provided its evidence acceptability and effectiveness, demonstrating that significantly improved adaptive and self-determination. The second study utilized, besides the ACCESS Program, a video modeling to increase communication skills needed to workplace inclusion across three areas: peer-related, adult-related and self-related social skills. The results accomplish two master goals that were verified the maintenance and generalization: significant increases in SS, as well as a significant decrease in problem behaviors.

Finally, the study of Connor, Sung, Srain, Zeng & Frabizi (2019) indicates significant improvements in skills linked to employment outcomes. Their intervention addressed social cognition, social function, and social confidence of adults diagnosed with ASD, demonstrating that SST is suitable for atypical individuals. Furthermore, there were significant reductions in anxiety and a trend toward lessening depressive symptoms. Also, social functioning may have broader impacts on psychological wellness, and social and vocational participation.

Regarding the interpersonal relationship context, Mesibov (1984) implemented an SST program based on modeling, coaching and role-playing, with 15 verbal autistic adolescents and adults, demonstrating its efficacy on the progress of communication skills. The goal was to improve positive peer-related social experiences in a supportive atmosphere and to learn useful skills in this way, including how to meet other people, stay on a topic of conversation, ask questions, pay attention, express one's feelings and emotions.

Gaylord-Ross, Haring, Breen & Pitts-Conway (1984) emphasized the importance of teaching generalized social responding in particular environments. They conducted two experiments to increase the initiations and duration of social interactions between autistic and nonhandicapped youths, by using leisure objects (radio, video game and gum), and taught the students to use them and subsequently instructed in the related social skills. All participants learned and generalized the social responses to other non-handicapped peers in the same leisure setting.

The study of Ratto, Turner-Brown, Rupp, Mesibov & Penn (2011) piloted a role play assessment of conversational skills for adolescents and young adults with high-functioning autism and Asperger syndrome. The participants completed two semi-structured role plays, in which social context was manipulated. An interaction effect was found for several items, indicating the potential utility of the training in the evaluation and development of social skills.

Gantman, Kapp, Orenski & Laugeson (2012), Laugeson, Gantman, Kapp, Orenski & Ellingsen (2015), and McVey, Dolan, Willar, Pleiss, Karst, Casnar, Caiozzo, Vogt, Gordon, Nakia & Hecke (2016) used a randomized controlled trial design and tested the effectiveness of an evidence-based caregiver-assisted social skills intervention known as PEERS to young adults with high-functioning autism. These studies support the effectiveness of using PEERS, revealing improvement on SS knowledge, social responsiveness, empathy, frequency of get-togethers, direct interactions and social engagement, as well as reduced behavior problems and social anxiety. Also, the achievements were maintained and generalized, demonstrating further empirical support for the intervention.

The study of McVey, Schiltz, Haendel, Dolan, Willar, Pleiss, Karst, Carson, Caiozzo, Vogt & Hecke (2017) also examined the impact of the Program for the Education and Enrichment of Relational Skills – PEERS intervention in social behaviors of people with ASD. Because of the scarcity of research on the effect of intervention on social skills in adult women with ASD, they had a sample with only the female sex, with a view to examine whether the response to treatment among women differed from men. They concluded that women and men respond similarly to the PEERS intervention, that demonstrated its efficacy on developing SS knowledge, direct interactions and social responsiveness.

The study of Kandalaft, Didehbani, Krawczyk, Allen & Chapman (2013) investigated the feasibility of an engaging virtual reality social cognition training intervention focused on enhancing SS, social cognition and social functioning with adults diagnosed with ASD. Significant increases on social cognitive measures of emotion recognition was demonstrated, as well as in real life, social and occupation functioning were found post-training, suggesting that the virtual reality platform is a promising tool for improving SS and functioning in ASD.

Koegel, Ashbaugh, Navab & Koegel (2016) examined the effectiveness of a video feedback intervention to improve empathic verbal statements and questions, using a multiple baseline. After the intervention, all participants improved verbal expression of empathic statements and questions during the conversation with generalization and maintenance of

gains. In addition, each participant improved their overall level of empathy and confidence in communication skills.

Leung, Chan, Yeung & Tsui (2019) considered that Context Based Social Competence Training for Adults with Autism Spectrum Disorder (CBT-CSCA) demonstrated effectiveness and outlined the adaptations of its adult version, examining its treatment efficacy with individuals in the spectrum. Significant improvements were shown in overall social competence, providing evidence support to the applicability and effectiveness of social competence training for adults with ASD in Chinese culture.

Cassidy, Mitchell, Chapman & Ropar (2015) taught adults with ASD the attribution of different emotions from different stimuli (dynamic - video; and static - figures) representing demands of daily life. The results showed that, although adults with ASD understood which emotions were appropriate for each situation, they found it difficult to interpret subtle emotional responses. It is clear, therefore, the importance of interventions focused on teaching the recognition of emotions for atypical population.

Tanaka, Negoro, Iwasaka & Nakamura (2017) with the objective of investigating with adults with ASD, the effectiveness of a computer system for training social skills, integrated audiovisual resources. They assessed the effectiveness of the system by comparing pre- and post-training scores and identified significant improvements in social skills, with an increase in overall narrative skills, and the ability to maintain the effects of training.

As we showed on this discussion, transition into adulthood is a challenge for individuals with ASD. Social impairments interfere with the process of building relationships, functioning occupationally, and participating and integrating into the community, all of which are aspects of social functioning. Despite that, little to no evidence-based social skills interventions exist for this population that encounter significant challenges during the transition into adulthood. We finalize this discussion affirming that SST is a well-established method for obtaining appropriate skills in social interaction.

4. Final Considerations

The development of this study allowed to verify a set of possible interventions for the social skills training in adults diagnosed with Autism Spectrum Disorder, which are divided into three major areas, namely: organizational (work context), academic (university context), and interpersonal relationships (social interactions).

These results are of great value to outline possibilities for interventions in these areas, with Social Skills Training being an effective possibility for working with atypical adults in the most varied contexts.

The results found may contribute to the practice of professionals who work in the context of SST and with adults with neurodevelopmental disorders, specifically with those diagnosed with Autism Spectrum Disorder, allowing them to adjust the planning of interventions.

However, there are some limitations of the study, which influence the results obtained, namely: the possibility of other interventions for the development of specific and necessary social skills associated with ASD, bibliographic scarcity and restricted to the reality of other societies, not allowing generalizations of the data.

It is not the intention of this study to exhaust the discussion about the theme, but to corroborate it, recommending further studies in the area.

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