Social skills training with video modeling in ASD

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Abstract

According to the DSM-5, autism spectrum disorder (ASD) is characterized by pervasive deficits in social interaction and communication behavior, along with restricted and repetitive patterns of behavior. Social functioning is a predictor of workplace success. Deficit in this area for people with ASD, particularly high functioning mode (HF-ASD) implies difficulties managing and maintaining work. Soft skills are needed to secure and maintain adult employment. From a cognitive point of view, people with autism have a deficit in the acquisition of Theory of Mind (ToM), with the inability to recognize their own and others' mental states and lack of joint attention. According to several studies, innovative technologies can improve performance, including social performance, of people with ASD. For example, video modeling facilitates the teaching of social skills in the form of peer video modeling (PVM) and self-video modeling (SVM) in individuals with ASD. Video modeling is useful for teaching skills such as: independence, play and communication but also acquiring conversational skills, acquiring the ability to comment and compliment, acquiring pragmatic skills, and acquiring and enhancing the ability to initiate and sustain social relationships.

Keywords

Social skills; training; videomodeling; autism; ASD.

1. Introduction

In recent decades, researchers have attempted to categorize heterogeneity in autism spectrum disorders (ASDs) [1]. This effort has been largely unsuccessful because the distinct and empirically defined subgroups have yet to be reliably identified. The Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) used a multi-category system for diagnosing pervasive developmental disorders (PDD), which included autistic disorder, Asperger's disorder, pervasive developmental disorder not otherwise specified, childhood disintegrative disorder, and Rett disorder, which has created challenges to this effort. Several studies have reported limited reliability in how DSM-IV subtypes are assigned [2], [4], with similar main symptom presentations in categorical diagnoses [3] and poor predictive ability of outcomes on subsequent baseline these subtypes [5, 6]. Consequently, the fifth edition of the DSM (DSM-5) replaces the multicategory system with a single diagnostic dimension: ASD. The change in DSM-5 that has received the most media attention is the removal of the DSM-IV clinical subtypes. Over the past two decades, increased access to large and diverse samples has given researchers the ability to determine that, in many cases, ASD symptoms are best represented in a two-domain model of social communication deficits and interests. restricted and repetitive/behavioral (RRB) [7-8], rather than the DSM-IV triad of symptoms that models communication deficits separate from social

impairments. Additionally, although the DSM-IV criteria for Autistic Disorder required a delay or complete lack of expressive language development, this requirement was eliminated in DSM-5 because research has shown that this feature is neither specific nor universal for individuals with ASD [9-10]. According to the DSM-5, autism spectrum disorders (ASDs) are detected by pervasive deficits in social interaction and communication behavior, along with restricted and repetitive patterns of behavior, that impact multiple domains of functioning throughout the life span. life. The social impairment of autism spectrum disorder (ASD) is permanent [11]. Social dysfunction leads to poor functional outcomes in people with ASD, even in the absence of a comorbidity with an intellectual disability. Social impairment increases risk of bullying and dropping out of school), lower access to higher education, employment, independent living, long-standing friendships, intimate relationships, and overall lower quality of life Comorbid social anxiety is common and is associated with increased avoidance of use strategies, weak social skills and functioning, reduced sociability, motivation, and social participation [12]. Social isolation and feelings of loneliness are associated with increased depressive symptoms and suicidal thoughts in adults with ASD). The socio-communicative deficit (or social functioning) is in fact considered "fundamental" and the primary objectives of cognitive and psychosocial interventions focus on this. Osterling and Dawson [13] demonstrated that children diagnosed with ASD exhibit significantly fewer social skills. Children with ASDs do not point and display behaviors, look less at people, and do not orient themselves when called by name than their typically developing peers. Similarly, Osterling et al. [13] found that children diagnosed with ASD or intellectual disability used fewer gestures and showed more repetitive motor movements than typically developing peers. One of the most consistent social deficits in children with ASD is the lack of nonverbal social gestures such as pointing, showing, and giving. Pointing begins to develop around 8 months of age and should constitute the majority of gestures by 12 months of age [14]. Consequently, the child does not know how to express what he wants in the social environment, especially subjects with milder disabilities show a lack of language learning skills and poor conversation skills, together with a total lack of promotion of social interaction and a reduced ability to share interests, affections and emotions. Individuals without previously diagnosed cognitive impairment and speech delay such as Asperger's Syndrome, fall into the category of mild clinical severity of symptoms (level 1). In these subjects the deficit is mainly communicative/social; therefore, it becomes a priority to work on these social skills to ensure real inclusion [15].

2. Soft Skills in ASD

The transversal competencies are linked to the world of work and are necessary to ensure and maintain employment of the adult with ASD. Soft skills are essential and include communicating effectively maintaining a positive attitude working in teams and cooperation maintaining professionalism, following work and social rules resolving conflicts and standing up for yourself. However, these skills often remain lifelong deficits and barriers to employment for people with ASD. Social functioning is a predictor of workplace success [16]. Research focuses particularly on deficits in this area for individuals with high-functioning ASD (HF-ASD). ASD-HF adults have average to above average intelligence and often desire to work, but usually lack appropriate social communication, complex interpersonal skills, and subtle emotion perception. For example, self-reported social "awkwardness" lack of spontaneous speech, inappropriate use of slang, inability to differentiate tone of voice, and inefficiency in verbal and/or non-verbal communication can complicate workplace interactions and ultimately lead to job loss. He is also poor in hygiene and grooming skills, has difficulty understanding even facial expressions and may act inappropriately with individuals of the opposite sex. For that matter, these social deficits make it difficult for people to navigate and access community resources [17]. The social skill deficits identified in children with Level 1 ASD and those in HFA adults are the same and include:

lack of orientation toward social stimulation and inadequate use of eye contact, problems with social initiation, difficulty with interactions, difficulty making interpretation of both verbal and non-verbal social cues, inappropriate emotions, responses and lack of empathy, difficulty sharing emotional experiences or understanding other's point of view, lack of reciprocity and developing friendships From a cognitive point of view, several authors have tried to study the functioning of people with autism and have hypothesized a deficit in the acquisition of Theory of Mind (ToM); [18]. This deficit is manifested by the inability to recognize one's own and others' mental states, lack of shared attention, intentional communication and the ability to imitate. As the body of literature on such interventions evolves, the operational question begins to shift beyond 'what works', towards the more nuanced questions 'how does it work, for whom, under what conditions' as well as 'when' (i.e., in as a stage of cognitive and psychosocial development). Treatment research related to ASD is just beginning to explore the common and unique processes by which these interventions "work," the conditions under which they "work best," and for whom each type of treatment might be optimal. Such research is crucial in moving the field towards a more mature stage where cognitive and psychosocial interventions can be personalized and optimized.

2.1. Social Skills Training (SST)

Social skills training (SST) is probably the most widely used intervention approach to improve social functioning in older children and young adults with ASD. Often delivered in a group setting, SST is based on the premise that structured learning of specific prosocial behaviors, coupled with opportunities for in-session practice and out-of-session generalization strategies, are ideal for generating generalized improvements in appropriate social behavior [20]. The duration of the SST varies, from as little as 4 weeks to several years. Although qualitative and quantitative reviews of the effectiveness of SST programs for youth with ASD do not exist, a large number of favorable findings exist. The most recently published reviews suggest that SSTs can largely be considered empirically supported for ASD populations, [21] although the ages and developmental levels for which this is the case are limited. While such group-based programs have dominated this literature, in practice these interventions include a wide range of approaches such as social stories, peer-mediated training and intervention, video modeling of appropriate skills, [22], and Pivotal Response. Several other psychosocial intervention approaches are also being explored to address social communication deficits in ASD. For example, there are programs to teach emotion regulation strategies through experiential and cognitive means. These approaches are based on models implicating poor executive functioning or emotional regulation in the complex social deficits of ASD. A related approach uses mindfulness-based interventions to help youth with ASD experience increased awareness of themselves [23] and their behaviors during difficult interactions. Such an approach would help individuals with ASD who suffer from a lack of awareness of their behavior and internal states during social interactions, and therefore may benefit from greater attention to their subjective experience.

2.1.1. Video modeling (VM)

Video modeling exploits the fact that subjects with ASD are motivated by an attraction to new technologies, such as tablets, smartphones and PCs. These devices could facilitate the teaching of social skills in the form of peer video modeling (PVM) and self-video modeling (SVM) in individuals with ASD especially ASD-HF. Video modeling is a method used by applied behavior analysis (ABA) to teach a variety of skills: independence, play and communication [24] There are numerous studies in the literature that describe the effectiveness of this strategy also for social tasks complex: acquisition of conversational skills [25-26] acquisition of the ability to comment and compliment [27]; acquisition of pragmatic skills [28]; and the acquisition and enhancement of the ability to initiate and sustain social

relationships. Usually, the MV is structured so that the child can watch a recorded video of a specific task to develop the graded ability to perform the task independently [29] The video clearly highlights the basic prompts and stimuli to perform the task [30] the sequence of antecedent environmental stimuli, the behavioral response emitted and the environmental consequences. In PVM, the subject of the video is represented by a peer, and he is instructed to clearly carry out the task. Conversely, in SVM, the subject of the video is represented by the trainee. Therefore, the subject can watch himself in the video performing the task. During the video recording, the subject receives continuous instructions [31]. Video Modeling (VM) is a method that involves demonstrating a specific behavior by means of a video representation of that behavior. An intervention using video modeling consists of two phases: the affected person watching a video presentation and imitating the behavior modeled in the video on a subsequent occasion. The video presentation includes defined behaviors that can be modeled by peers, siblings, or adults in an attempt to acquire new behaviors or modify current ones. The modeling intervention typically includes viewing modified representations of a child-appropriate behavior on a screen; viewing repeated excerpts of the same behaviors or various examples of the behavior that are presented to the child and evaluating with the child the behavior seen (e.g. surveying different situations, people or resources). In addition, a regular retrospective evaluation of the tapes is possible if required. Video modeling is considered a successful intervention approach with favorable outcomes in several fields including social communication and interactive functioning useful for improving different behaviors of different age groups and cultures. Several benefits have been associated with using video modeling. For example, aspects and information unrelated to the modeled behavior or competence can be removed through video editing. Furthermore, it can be implemented with minimal interaction or contact with humans and thus reduces the likelihood of anxiety or distress in the person receiving the intervention. Furthermore, video modeling is useful in increasing an individual's attention span and motivation to acquire the skill of a modeled behavior and does not require any previous training or education. In addition, it is quite cheap and easy to access, as videos viewed and repeatedly from a tablet can be. Furthermore, advances in technology have resulted in various devices on which videos can be viewed such as camcorders, televisions, laptops, computers, phones and tablets [32]. Several studies have investigated the effects of video modeling in interventions with children with ASD and found that it makes a perhaps influential contribution to interventions associated with building social competencies and social skills in such children. For example, [33] Charlop and colleagues evaluated the outcome of a video modeling intervention on the conversational skills of three children with autism, aged 6 years to 8 years with mental ages ranging from 3 years, 10 months to 6 years, 6 months. The results indicated that not only were the children able to learn conversational skills through video modeling, the skills were also generalized and they were able to maintain these skills over a period of 15 months. [34] Charlop-Christy used video modeling and in vivo modeling in a multiple baseline design across and within the child for five children with autism, ages 7-11 years. For the behavior under consideration, developing skills, video modeling was found to be a faster means of acquiring tasks and was also successful in supporting skill generalization. [35] Charlop-Christy and Daneshvar reported that video modeling was successful in teaching perspective taking quickly. Their study of three children with autism, ages 6 to 10, found that the use of video modeling led to generalization of both stimulus and response. [36] Haring, Breen, Weiner, Kennedy, & Bednersh (1995) used three sets of treatments to teach six generalized purchasing skills to students with moderate and severe disabilities, ages 10-16 years. These were: in vivo training followed by video training, video training followed by in vivo and video training, and parallel in vivo training. This study found that video or in vivo training separately did not lead to generalized purchasing abilities. However, a combination of the two (either sequentially or in parallel) has been successful. [37] Le Blanc and colleagues evaluated video modeling with reinforcement in teaching perspective-taking skills. The subjects of this study were three children with autism, ages 7 to 13. A multiple base design was used for the study. This study found limited

effectiveness in generalizing skills as only two children were able to successfully perform an untaught task. Additionally, [38] Nikopoulos and Keenan examined the efficacy of video modeling on social initiation and gaming behavior. The study involved three children with autism, aged 7 to 9 years, in a multiple baseline between subjects. The videos used in this intervention involved a simple play interaction between a typical developing peer as a model and the experimenter using a single toy. The results of this study indicated that video modeling using a peer had been effective in improving participants' social initiation and playful (mutual) behavior. Furthermore, maintenance of these skills was observed after monthly and quarterly follow-up periods. A study of [39] Shipley-Benamou, Lutzker, and Taubman used multiple probe design through tasks and iterated between subjects in a video modeling intervention to impart practical life skills to three children with autism, aged 5 years, 1 month, and 5 years , 5 months. The videos used in the intervention were developed from the participant's perspective. Overall, the instructional videos were created from five selected activities. These videos were found to be effective in supporting purposeful skill development in all three children. Furthermore, maintenance of skills was evident after the use of the videos and a follow-up after one month. In their study, Hine and Wolery [40] again used point-of-view video modeling to communicate choosing play skills to two preschoolers with autism, aged 30 to 43 months. In other words, the videos were created from the child's point of view and without models to show children the environment they would see when they engage in the behavior under consideration. Hine and Wolery [40] used a multi-probe design among participants and two behaviors were chosen to evaluate the effectiveness of the intervention. Findings from the study suggested that point of view modeling could be effectively used to impart toy-play skills to young children with autism. More recently, [41] Boudreau and Harvey and other authors [46,47] used video self-modeling to increase play initiation for three children, ages 4 to 7 years, with ASD using a multiple baseline between-subjects experimental design. Study subjects watched videos of themselves participating in regular age-appropriate social initiations before engaging in playtime with three typically developing peers. The social initiations of participants with ASD and their peers were measured using a partial interval recording system. Study results indicated that video self-modeling was effective in increasing game initiation in participants with ASD to levels equivalent to their peer participants. Furthermore, two of the participants with ASD showed further improvement in the number of initiations two weeks after the intervention indicating that proficiency maintenance was achieved in their cases. [42] Macpherson, Charlop, and colleagues used a multiple reference design between subjects to investigate the outcomes of a handheld video modeling intervention. This intervention was performed in a natural setting (the playground) and aimed to improve the giving of compliments (verbal and gestural) in five children with autism, ages 9 years, 5 months to 11 years, 11 months. The video modeling intervention was implemented using an iPad during an athletic match (kickball). The videos contained a familiar adult displaying three sets of compliments (verbals and gestures). Video modeling was found effective in increasing verbal compliments given to peers. Additionally, [43] Spriggs and colleagues evaluated the effectiveness of video modeling and observational learning in teaching age-appropriate play and leisure skills to four students with ASD, ages 8 to 11. . The results of this study indicate a useful association between video modeling and increased playtime. The use of video modeling in its many variations has been included among the best practices for the treatment of children with ASD and for teaching skills through imitative processes [44,46,47] this is because humans automatically imitate the actions of others and learn to understand them precisely through imitation; the imitative process allows, in fact, the construction of relationships between individuals [45].

3. Conclusion

Several studies over time have given validity and effectiveness to the use of video modeling to improve the social skills of individuals with ASD, whether they are children or adults. Video modeling circumvents the signifying deficit of others' actions and the mirroring deficit in individuals with ASD.

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