

Autism Spectrum Disorder and cognitive restoration: Connections between cognition and development

Trastorno del Espectro Autista y recuperación cognitiva: Vínculos entre cognición y desarrollo

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Manuscript information:

Recibido/Received: 21/11/25

Revisado/Reviewed: 21/01/25

Aceptado/Accepted: 22/01/26

ABSTRACT

Keywords:

Development, autism spectrum disorder, cognitive restructuring, social skills.

This article investigates the relationship between cognitive development and Autism Spectrum Disorder (ASD), focusing on the application of cognitive restructuring to enhance social skills. The study, of an exploratory and descriptive nature, employed a qualitative approach, analyzing three bibliographic articles published between 2019 and 2025. The research addresses ASD, defined by the DSM-5 (2022) as a condition characterized by deficits in communication, social interaction, and patterns of restrictive and repetitive behaviors. Cognitive rigidity, one of the features of ASD, affects flexibility of thought and adaptation to new situations, generating interpersonal and learning challenges.

In this context, the study emphasizes the importance of cognitive restructuring to enhance mental flexibility and adaptive skills. The research also examines Social Skills Training (SST) as a complementary strategy, since the autistic brain has the capacity to focus on details and organize ideas through images, which can be utilized educationally. The

study's results demonstrate that the integration of cognitive restructuring and social skills training is a promising approach to improving autonomy, learning, and quality of life for individuals with ASD.

RESUMEN

Palabras clave:

Desarrollo, Trastorno del espectro autista, reestructuración cognitiva, habilidades sociales.

Este artículo investiga la relación entre el desarrollo cognitivo y el Trastorno del Espectro Autista (TEA), centrándose en la aplicación de la reestructuración cognitiva para mejorar las habilidades sociales. El estudio, de carácter exploratorio y descriptivo, empleó un enfoque cualitativo y analizó tres artículos bibliográficos publicados entre 2019 y 2025. La investigación aborda el TEA, definido por el DSM-5 (2022) como una condición caracterizada por déficits en la comunicación, la interacción social y patrones de comportamiento restrictivos y repetitivos. La rigidez cognitiva, una de las características del TEA, afecta la flexibilidad de pensamiento y la adaptación a nuevas situaciones, generando dificultades interpersonales y de aprendizaje. En este contexto, el estudio destaca la importancia de la reestructuración cognitiva para potenciar la flexibilidad de pensamiento y las habilidades adaptativas. La investigación también explora el Entrenamiento en Habilidades Sociales (EHS) como estrategia complementaria, dado que el cerebro autista posee la capacidad de prestar atención a los detalles y organizar ideas mediante imágenes, lo cual puede utilizarse con fines educativos. Los resultados del estudio muestran que la integración de la reestructuración cognitiva y el entrenamiento en habilidades sociales es una vía prometedora para incrementar la autonomía, el aprendizaje y la calidad de vida de las personas con TEA.

Introduction

Autism Spectrum Disorder (ASD), according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5, 2022), is characterized by persistent deficits in two main areas: communication and social interaction, and the occurrence of restrictive and repetitive patterns of behavior. Deficits in communication and social interaction are manifested by failures in socioemotional reciprocity, including difficulties in initiating and maintaining conversations, expressing and understanding emotions, as well as little or no visual contact and verbal communication.

Individuals with ASD may also have difficulty adapting to new social environments and sharing experiences with their peers. In the patterns of restrictive and repetitive behaviors, there is a variety of manifestations, such as stereotyped motor movements; hand balancing, walking on the tip of the feet, rotation behavior on the axis itself, rigidity in thinking and inflexible adherence to routines. Fixed and intense interests are also common, as well as an uncommon sensory sensitivity, which may result in high tolerance or extreme aversion to sounds, textures or other environmental stimuli. The way the brain of a person with autism processes information directly impacts his or her interaction with others. The cognitive system, which encompasses perception, knowledge acquisition, memory and problem solving, is structural. Among the characteristics of ASD, cognitive rigidity directly affects communication and adaptation skills, externalizing itself in difficulties in adapting to changes and resistance to new activities, environments, people and experiences, due to a preference for established patterns and concrete thoughts.

According to Hayes (2004), the lack of flexibility of thoughts and behaviors prevents adaptation to new situations. When not encouraged, they can generate significant challenges in interpersonal relationships, academic performance and in the labor market. Difficulties in adapting to changes and resistance to new activities, environments, people and experiences, due to following established patterns and concrete thoughts, can affect the social skills of autistic people, especially if they need more flexibility in their daily lives.

In this context, the importance of analyzing how cognitive dysfunctions in ASD impact development, the learning process and adaptive, communicative and social skills is highlighted. This analysis is fundamental, because difficulties in information processing directly influence the ability to interpret social signals, adapt to new routines and acquire knowledge essential for autonomy.

Thus, the present focus is to understand how cognitive restructuring can influence the learning and development process, acting directly on the rigidity of thoughts, on dysfunctional patterns and on the way autistic people interpret and respond to social situations.

Method

This study is characterized as a qualitative, exploratory and descriptive research, based on a literature review. The main objective was to understand the cognitive and social development of individuals with Autism Spectrum Disorder (ASD) and the application of cognitive restructuring as a therapeutic resource aimed at increasing flexibility of thought and adaptive skills.

The data collection was performed through a theoretical repertoire with banks of national data, such as PePSIC, Repositório da Cogna Educação, Repositório da Universidade Federal de Minas Gerais (UFMG) and Revista Psicologia: Science and Profession. The search

contemplated publications between 2004 and 2025, using stories about Autism Spectrum Disorder, cognitive restructuring, social skills and cognitive behavioral therapy (CBT).

Initially, ten studies were used, three of which were selected for analysis. Among the inclusion criteria, it was established that the publications should follow the Portuguese language standard, the direct approach to ASD in association with cognitive restructuring or social skills training, and the theoretical and methodological relevance to the research topic. Among the main works analyzed are Costa (2022), Consolini, Lopes and Lopes (2021) and Novais (2025), which discuss the training of social skills in young people with ASD, the application of CBT in high-functioning autism and cognitive rigidity in the educational context. In addition, the research was based on classic theoretical references, such as Beck (2013), Hayes (2004) and Del Prette and Del Prette (2013; 2017), which encompass the concepts of cognition, flexibility of thought and development of social skills.

The analysis of the data was performed based on the technique of data analysis proposed by Bardin (2016), allowing the identification and categorization of information in three main axes: intellectual and cognitive advancement in people with ASD; the impacts of cognitive restructuring on adaptive and communicative skills; and the contributions of social skills training to learning and emotional development. This methodology made it possible to build a broad understanding of the connections between cognition and development in ASD, showing how cognitive and behavioral interventions can promote autonomy, learning and quality of life of people with Autism Spectrum Disorder.

Results

Cognitive restructuring emerges as a fundamental intervention to work on these dysfunctional thinking patterns, allowing the individual with ASD to interpret and respond in a more adaptive way to social situations. Cognitive-Behavioral Therapy (CBT) is highlighted as the main approach for this restructuring, with adapted techniques, such as the use of visual resources and concrete language, which are aligned to the way the autistic brain processes information.

In addition, the Social Skills Training (THS) is presented as a complementary method that, when integrated with cognitive restructuring, can improve the quality of life and autonomy of the individual. The analysis of the articles shows that these interventions, when applied in an integrated manner, reduce symptoms such as anxiety and depression, and favor learning and adaptation, showing the effectiveness of this approach in the cognitive and social development of people with ASD.

In context, behavioral therapy is characterized by social education involving cognitive training paths aiming at sociability. The results obtained report the increasing cognitive flexibility for behavioral training for individuals with Autism Spectrum Disorder, evidencing the strong impact of cognitive restoration. In this sense, it has promoted broad and efficient psychological indexes for interventions that favor the functional development of this group that presents neurodevelopment disorder.

It was observed that ASD is strongly marked by the limited capacity to adapt to new routines and situations, resulting in cognitive rigidity. Strategically, Acceptance and Commitment Therapy (ACT), which is the third wave of cognitive therapies, understands cognition as a method that proposes the growth of selections of malleable and effective behaviors (Hayes 2011). The application of this technique broadens social engagement and encourages acceptance of internal experiences, emotional adjustment and functional habituation to the environment.

The inclusion of cognitive reinstatement, social skills training and the organization of mental schemas is a promising way forward and is indicated for the increasing intellectual development of people with ASD, providing not only social and communicative development, but also helps these individuals to be able to have an autonomous and emotionally healthy life. The achievement of these therapeutic interventions highlights the objective of cognitive behavioral therapy, contextualizing the integration of third wave therapies to the link between cognition and development within the Autism Spectrum Disorder.

Theoretical reference

Consolini, Lopes & Lopes, 2019.	He cites that communication and social interaction difficulties can generate relevant prejudices in personal relationships, in the school course and in professional insertion.
Consolini, Lopes & Lopes, 2019.	Cognitive restructuring is an important strategy to favor flexibility of thought, expanding communication and adaptation.
Consolini, Lopes & Lopes, 2019.	The integration between cognitive restructuring and social skills training is configured as a promising way to expand autonomy, promote learning and improve the quality of life of people with ASD, proving effective in cognitive and adaptive development of the public.
Beck, 2013.	" The therapist's main goal is to modify the patient's belief system and thought patterns. By promoting this cognitive change, we seek to achieve a significant and lasting alteration both in the emotional responses and in the behaviors presented by the individual".
Steinmetz, Costa, 2024.	By documenting and questioning the evidence of one's own thoughts, the patient develops the ability to generate rational and more adaptive, assuming greater control over their emotional state.
Del Prette and Del Prette, 2013.	They define the development of social skills as a set of behaviors learned throughout life.
Horse, 2021.	It determines three basic itens for the implementation of social training, the type of behavioral skill, the individual cognitive variations and the environmental context.
Del Prette & Del Prette, 2017.	Social skills are classified into essential categories, such as assertiveness, communication, civility and empathy, which are crucial for interaction.

Discussion and Conclusions

This study concludes that through therapeutic interventions and specialized support, it is possible to observe significant improvements in the behaviors presented by individuals with Autism Spectrum Disorder (ASD). The analysis shows that cognitive dysfunctions, especially cognitive rigidity, which compromises the ability to adapt to changes, have a substantial impact on the overall development, communication and social skills of these individuals.

In this context, cognitive restructuring, conducted by Cognitive Behavioral Therapy (CBT), is configured as a fundamental intervention to promote greater cognitive flexibility and improvement of adaptive skills, enabling the individual to understand and respond in a more functional way to the demands of the environment. Third wave therapies contribute significantly by favoring the acceptance of internal emotional experiences and healthier management of thoughts, promoting greater autonomy and the emission of more adjusted behaviors.

The study also highlights that the integration between cognitive restructuring and social skills training (SST) constitutes a promising strategy, by exploring the capacity of the autistic brain to process information in a visual and detailed way, favoring learning. The joint application of these approaches has been shown to be effective in reducing symptoms such as anxiety and depression, while promoting progress in autonomy, cognitive development and quality of life of individuals with ASD.

Thus, it was concluded that cognitive remediation is effective in the improvement of learning and in the development of social skills, showing its relevance both in clinical and educational contexts.

Acknowledgments

We would like to express our deep gratitude to our professor-guide, Adriely Xavier Fernandes, for all the support and guidance given throughout the development of this work, as well as for the trust placed in the potential of our article for this prestigious journal.

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