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Interaction between the social cognition of autistic adolescents and the cognitive load of caregivers: A systematic review

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ADMINISTRATIVE INFORMATION

Support - Not applicable.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 8 June 2026 and was last updated on 8 June 2026.

INTRODUCTION

Review question / Objective P (Population): adolescents with autism and primary caregivers. I (Intervention): measurement of the caregiver's cognitive load resulting from the adolescent with autism's social cognition. C (Comparator): comparison of cognitive load and social cognition. O (Outcomes): high cognitive load in the caregiver due to the adolescent with autism's poor performance in social cognition. P (Población), adolescentes autistas y cuidadores primarios. I (Intervención), medición de la carga cognitiva del cuidador como consecuencia de la cognición social del adolescente autista. C (Comparador), comparación de la carga cognitiva y cognición social. O (Resultados) alta carga cognitiva en el cuidador a raíz del bajo desempeño en la cognición social del adolescente autista.

Rationale One of the stages of the life cycle recognized for the wide range of neurological, physical, cognitive, and emotional changes it entails is adolescence, a stage during which

complex cognitive functions develop, such as emotional regulation, social interaction, and abstract thinking. Theory of Mind is one of these functions, understood as the ability that allows us to attribute mental states, beliefs, and intentions to other people; it is linked to executive functions, which are a set of cognitive processes that allow us to control attention, inhibit automatic responses, and adapt to changing contexts. In relation to Autism Spectrum Disorder (ASD), deficits that may exist in Theory of Mind and executive functions are associated with impairments in social cognition, specifically empathy, cognitive flexibility, and emotional regulation—phenomena that do not occur in isolation but also affect the functional system of the primary caregiver.

Condition being studied Adolescence is a critical stage of human development, characterized by complex reorganization of the brain, which directly impacts each person's cognition, emotional regulation, and social behavior. During this stage, social cognition reaches levels of development that

enable the development of empathy, irony, and perspective-taking. However, in the case of adolescents with autism, the development of these abilities follows an atypical path, creating significant challenges in understanding others' mental states and communicating with them.

These specific differences are not isolated phenomena that affect only the neurodivergent adolescent, but rather have a systemic impact on their immediate environment, specifically on their primary caregivers. Recent research suggests that the demands of emotional and behavioral co-regulation place constant and direct pressure on the caregiver's functioning, affecting their ability to process simultaneous tasks, more commonly known as dual-tasking. Despite the clinical relevance of this issue, there remains a research gap in understanding how social cognition deficits in adolescents with autism specifically interact with their caregiver's cognitive load.

METHODS

Search strategy A systematic search was conducted in the PubMed, Web of Science, and ScienceDirect databases between 2020 and 2025, using the following search terms and Boolean operators: Caregiver AND autism, caregiver AND cognitive burden, caregiver AND dual-task, caregiver AND cognitive stimulation, caregiver AND bottleneck theory, and autistic teenager AND social cognition. The following filters were applied: publications between 2020 and 2025, articles published in English or Spanish, full-text availability, and studies involving human participants, primarily.

Participant or population Caregivers of children and adolescents diagnosed with Autism Spectrum Disorder.

Intervention Not applicable.

Comparator Not applicable.

Study designs to be included The studies examine the role of caregivers of children diagnosed with autism and its relationship to dual-task performance. Studies from the past 5 years..

Eligibility criteria The studies examine the role of caregivers of children diagnosed with autism and its relationship to dual-task performance. Studies from the past 5 years..

Information sources A systematic search was conducted in the PubMed, Web of Science, and ScienceDirect databases for the years 2020

through 2025, using the following terms and Boolean operators:

Caregiver AND autism; caregiver AND cognitive burden; caregiver AND dual-task; caregiver AND cognitive stimulation; caregiver AND bottleneck theory; autistic teenager AND social cognition.

Main outcome(s) This research study proposes that the social cognition of neurotypical adolescents results from the interaction between ToM and EFs. In adolescents with autism, the asynchronous development of these two systems may limit social integration, leading to a greater need for supervision and, consequently, a higher mental load for their primary caregivers.

Recent scientific evidence (2020–2025) indicates that everyday emotional regulation predicts social symptoms and that cognitive flexibility is a central disadvantage; for this reason, we conclude that the interaction between the adolescent's cognitive rigidity and the caregiver's burden is bidirectional.

Understanding these interactions provides us with a relevant and solid foundation for designing interventions that not only strengthen the social thinking and skills of adolescents with autism but also promote the emotional and cognitive well-being of their caregivers.

Additional outcome(s) These findings allow us to construct a framework for understanding and interpreting the diagnosis of autism spectrum disorder and the developmental stage of adolescence within the life cycle. ToM, executive functions, and social cognition can be recognized as interdependent functions of neurocognitive development. The maturation of emotional regulation facilitates the execution of mentalization processes by allowing us to optimize inhibitory control, information maintenance, and perspective-taking. In turn, ToM provides social content to emotional regulation, guiding its use in interpersonal life.

In adolescents with autism, this coordination appears to be impaired. Complexities in EFs would limit the ability to inhibit one's own perspective or sustain attention on others' emotions, while deficits in ToM would prevent contextualizing one's own actions according to social norms. The result of this would be cognitive and social fragmentation, which is evident in behavioral rigidity and reduced empathy.

This cognitive fragmentation in adolescents does not affect only the individual but also directly impacts their environment. Because adolescents lack the capacity for self-regulation and theory of mind (ToM), caregivers are forced to externally compensate for these executive functions. Research findings suggest that this demand for

external co-regulation is what overwhelms the adult caregiver's working memory, leading to cognitive overload and poor dual-task performance.

From a more applied perspective, these findings suggest that the most effective interventions should integrate both domains; that is, programs that combine executive function (EF) training—such as support for working memory, flexibility, and planning—with mentalization training—such as emotional identification and perspective-taking—show significant improvements in the social cognition of adolescents with autism.

Data management This systematic review search of the selected databases, following the application of eligibility criteria and the removal of duplicates, resulted in the final selection of 17 studies published between 2020 and 2025. The screening process focused on studies that examined the relationship between the neurocognitive symptoms of autism and the functional response of the family environment.

Quality assessment / Risk of bias analysis This manuscript was previously reviewed and revised by expert colleagues in the field prior to submission.

Strategy of data synthesis A systematic search was conducted in the PubMed, Web of Science, and ScienceDirect databases for the years 2020 through 2025, using the following terms and Boolean operators:

Caregiver AND autism; caregiver AND cognitive burden; caregiver AND dual-task; caregiver AND cognitive stimulation; caregiver AND bottleneck theory; autistic teenager AND social cognition.

The filters applied included: publications from 2020 to 2025; languages: English and Spanish; full-text access; and studies primarily involving human subjects.

Subgroup analysis Not applicable.

Sensitivity analysis To assess the sensitivity of the findings, we examined whether the general conclusions held when considering only studies directly related to autism and caregivers, excluding those from different clinical populations (e.g., caregivers of older adults or individuals with substance use disorders). The main findings regarding the relationship between social cognition, executive functions, and caregiver cognitive load remained consistent, although the amount of available evidence decreased. This suggests that the conclusions drawn demonstrate adequate conceptual stability.

Language restriction Yes. Language restrictions were applied, including only articles published in English and Spanish due to their accessibility and relevance to the review.

Country(ies) involved Chile - Universidad Adventista de Chile.

Other relevant information According to the 17 studies included in your review, the authors' affiliations are from the following countries: Sweden, Spain, France, Portugal, the United States, Italy, Qatar, the Netherlands, and others.

Keywords autism; adolescence; theory of mind; executive functions; social cognition; primary caregivers; dual task.

Dissemination plans Scientific journal.

Contributions of each author

Author 1 - Sara Ojeda-Martin.

- PRISMA method

- Literature review

- Summary of findings

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Author 2 - Diego Bello-Espinoza.

- Review of inclusive technical terminology

- Limitations

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