Social cognition and theory of mind impairments in OCD pediatric patients: a systematic review.

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Introduction

Obsessive compulsive disorder (OCD) is a severe psychiatric disorder, characterized by obsessions and compulsions (American Psychiatric Association, 2013). Deficits in theory of mind and social cognition have been reported in populations such as autism and schizophrenia, but also in OCD. These patients show alterations in recognition of facial expressions of disgust and cognitive empathy, which may contribute to deficits in social functioning and difficulties in emotion regulation in patients with OCD (Jansen et al., 2020). However, the studies analyzing theory of mind and social cognition in OCD have been mainly in samples of adult patients, being research in pediatric patients substantially scarce. However, It is worth considering and evaluating the existence of these deficits in the pediatric population, given their possible negative impact in this population (Geller et al., 2021). This systematic review provides an overview of the main alterations in social cognition and theory of mind in pediatric OCD.

Methods

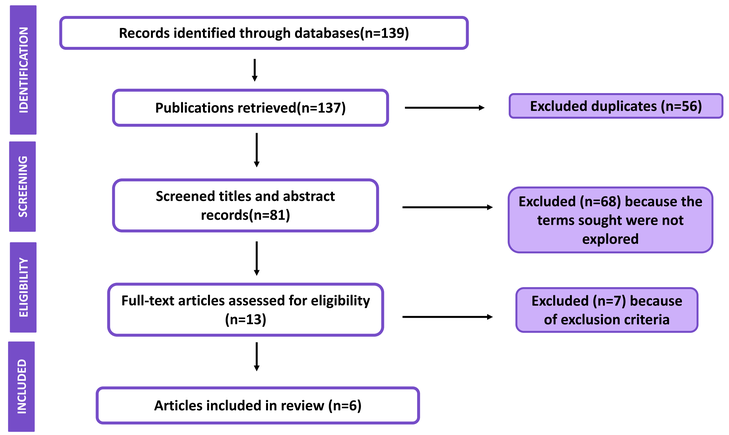
An extensive literature review was conducted using Pubmed, Psycinfo, Psycarticles, Medline, Web of Science and Scopus databases, searching for peer-reviewed articles published from 2000 to 2024 (see Fig.1 for a detailed description).

Search strategy included the terms:

- **Pubmed:** (Obsessive-compulsive disorder OR OCD OR obsessive-compulsive disorder OR obsessive-compulsive OR obsessive compulsive") AND (Theory of Mind OR Mentalization OR social cognition OR theory of mind OR emotion perception OR emotion recognition OR attributional bias OR social perception) AND (pediatric OR paediatric OR kid* OR youth* OR minor* OR infant* OR child* OR adolesce*).
- **Psycinfo and Psycarticles:** AB(obsessive-compulsive disorder OR obsessive compulsive disorder OR OCD) AND AB(social cognition OR theory of mind OR emotion perception OR emotion recognition OR attributional bias OR social perception) AND (pediatric OR paediatric OR kid* OR youth* OR minor* OR infant* OR child* OR adolesce*).
- **Medline:** abstract(obsessive-compulsive disorder OR obsessive compulsive disorder OR OCD) AND abstract(social cognition OR theory of mind OR emotion perception OR emotion recognition OR attributional bias OR social perception) AND abstract (pediatric OR paediatric OR kid* OR youth* OR minor* OR infant* OR child* OR adolesce*).
- **Web of Science:** AB(obsessive-compulsive disorder OR obsessive compulsive disorder OR obsessive-compulsive OR obsessive compulsive OR OCD) AND AB(social cognition OR theory of mind OR emotion perception OR emotion recognition OR attributional bias OR social perception) AND AB(pediatric OR paediatric OR kid* OR youth* OR minor* OR infant* OR child* OR adolesc*)
- **Scopus:** TITLE-ABS-KEY ({obsessive-compulsive disorder} OR {obsessive compulsive disorder} OR {OCD}) AND TITLE-ABS-KEY ({social cognition} OR {theory of mind} OR {emotion perception} OR {emotion recognition} OR {attributional bias} OR {social perception}) AND TITLE-ABS-KEY ({pediatric} OR {paediatric} OR {kid*} OR {youth*} OR {minor*} OR {infant*} OR {child*} OR{adolesce*})

Exclusion criteria: Studies included age > 18 in OCD patients, publication not in English, articles not being clinical trials and observational studies, and OCD symptoms attributable to medical cause (i.e. PANDAS).
The **risk of bias** was assessed using The Newcastle-Ottawa Scale and the JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies according to Ma et al. (2019) recommendations.

Figure. 1.
PRISMA Flow-chart



Results

The final sample consisted in 6 articles and 195 OCD subjects.

- Most of the samples were composed of OCD adolescents samples.
- Most used test was the Reading The Mind in the Eyes Test to measure Social Cognition and ToM (see Table 1).
- Specific impairments in social cognition were founded only in the two case-control studies (Dagdelen et al., 2019; Yacizi et al., 2019), showing possible patterns of deficits in social cognition, theory of mind and emotion regulation abilities (for additional details, see Table 1).
- According to both two quality scales rates, case-control studies are of poorer high-quality (see Table 2).

Table 1. Characteristics and results of the articles included in review

Author/authors	n (OCD)	Design	Social Cognition and ToM Assessment tools	Results
Allen et al., (2006)	11, children	Cross-sectional study (including other anxiety disorders group and control group comparison)	Photographic Images of Facial Emotion Expressions	OCD did not differ significantly from control group.
Baribeau et al., (2015)	42, children and adolescents	Cross-sectional study (including ADHD, ASD and Control group comparisons)	Social Communication Questionnaire (SCQ) , Reading the Mind in the Eyes Test (RMET)	OCD did not differ significantly from control group. Other patients scored below OCD patients (ADHD, ASD).
Dagdelen (2016)	30, adolescents	Cross-sectional study (including ADHD group comparisons)	First Level False Belief Tests (Sally-Anne and Smarties Test), Second Level False Belief Tests (Chocolate bar task and ice-cream truck task), RTMET (Child Version), Hinting Task	The group of OCD patients performed better than ADHD group in both first level and second level belief tests (lower rate of failure rate), RTMET and Hinting Tasks.
Sturm et al., (2018)	32, children and adolescents	Cross-sectional study (including TD, severe mood dysregulation and ASD group comparisons)	Social Responsiveness Scale	Severe mood dysregulation group exhibited significantly greater impairment than OCD and TD groups in social cognition and social communication. For social awareness and social motivation, severe mood dysregulation and ASD groups were the most impaired ones, respectively. OCD and TD did not significantly differ in the two scales.
Dagdelen et al., (2019)	30, adolescents	Case-Control study	Hinting Task, RTMET, First order false beliefs test, second-order false beliefs test	OCD group tended to make significantly higher number of errors in all false belief tests. OCD did not differ significantly from control group in RTMET and Hinting tests.
Yacizi et al., (2019)	50, adolescents	Case-Control study	RTMET, The Difficulties in Emotion Regulation Scale	Deficits in theory of mind and emotion regulation skills in OCD patients.

Table 2. Quality assessment of the articles included in review

Author/authors	Assessment Tool	Quality
Allen et al., (2006)	JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies	3/8 "Yes", Medium Quality
Baribeau et al., (2015)	JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies	6/8 "Yes", High Quality
Dagdelen (2016)	JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies	4/8 "Yes", Medium Quality
Sturm et al., (2018)	JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies	6/8 "Yes", High Quality
Dagdelen et al., (2019)	The Newcastle-Ottawa Scale (NOS) for case-control study	Poor
Yacizi et al., (2019)	The Newcastle-Ottawa Scale (NOS) for case-control study	Poor

Conclusions

- Not consistent impairments of theory of mind and social cognition in pediatric OCD patients.
- Better social cognition and theory of mind skills than other psychiatric groups (ADHD, ASD and severe mood dysregulation groups).
- Additional studies are needed to address this issue, given the important functional disturbances that may involve these difficulties in childhood.

References: