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Review/Meta-analyses

# Early life experiences and social cognition in major psychiatric disorders: A systematic review

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ABSTRACT

*Objective:* To present a systematic review of the literature on the associations between early social environment, early life adversity, and social cognition in major psychiatric disorders, including schizophrenia, bipolar disorder, borderline personality disorder, major depressive disorder and posttraumatic stress disorder.
*Method:* Relevant studies were identified via electronic and manual searches of the literature and included articles written in English and published in peer-reviewed journals up to May 2018. Quality assessment was performed using the quality evaluation scale employed in previous systematic reviews.
*Results:* A total of 25 studies were included in the systematic review with the quality assessment scores ranging from 3 to 6 (out of 6). The vast majority of the studies reviewed showed a significant association between early childhood social experience, including both insecure attachment and adversity relating to neglect or abuse, and poorer social cognitive performance.
*Conclusion:* We discuss these findings in the context of an attachment model, suggesting that childhood social adversity may result in poor internal working models, selective attention toward emotional stimuli and greater difficulties with emotional self-regulation. We outline some of the steps required to translate this understanding of social cognitive dysfunction in major psychiatric disorders into a target for interventions that mitigate the adverse effects of childhood maltreatment and poor parental attachment on social cognition.



## 1. Introduction

Childhood adversity is highly prevalent worldwide, affecting about one third of the general population [1,2], and contributing to a number of negative outcomes in later life, including higher rates of criminal behaviour [3], alcohol and drug use [4], and lower academic achievement [5]. Adverse childhood experiences have been identified as major risk factors for the development of many psychiatric disorders, such as schizophrenia, bipolar disorder, borderline personality disorder, major depressive disorder and posttraumatic stress disorder [6–9]. Specifically, childhood trauma – often defined in terms of physical and emotional neglect, and physical, emotional, and sexual abuse - has been a particular focus of research because of their deleterious and long-lasting effects [10]. The types and frequencies of these traumatic experiences can have a negative impact on mental health in adulthood [11]. In fact, traumatic experiences in childhood are frequently reported to show increased prevalence in patients with psychiatric disorders, with rates as high as 85% in schizophrenia spectrum disorders [12], 82% in personality disorders [13], 77% in affective disorders including major depressive disorder and bipolar disorder [12], and 70% in patients with posttraumatic stress disorder [14]. Emotional abuse and neglect appear to represent the most common forms of childhood maltreatment [15,16].

In addition to childhood maltreatment, a number of other types of adverse early life experiences, such as early loss of caregivers and insecure attachment styles (i.e. dismissive-avoidant, fearful-avoidant and anxious-pre-occupied [17]) have also been related to psychopathology in adulthood [18–20]. The link between childhood trauma and insecure attachment has been supported by a number of studies showing that a history of childhood trauma is significantly positively associated with attachment insecurities in later life [21–24], indicating significant overlap between these experiences. This suggests that adverse childhood experiences may provoke the development of insecure types of attachment. According to Fonagy [25], childhood trauma is the most destructive factor in the development of the attachment system.

The importance of attachment was emphasised by Bowlby [26], who argued that the relationships and bonds between parents and their offspring are critical for children's cognitive, emotional and

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social development. Specifically, he claimed that insensitive, maltreating and neglectful parenting negatively influences individuals' interpretations and expectations, and results in construction of an unworthy and inadequate internal working model of relationships [27]. This attachment structure not only integrates past experiences, but also provides the basis on which to form expectations for later relationships. Exposure to inconsistent and unreliable attachment figures, as well as the experience of childhood trauma, can negatively affect a child's sense of safety and security, essential to the development of secure attachment and positive mental representations of self and others [28]. Specifically, the first 3 years of life are a very sensitive period for the development of the attachment relationships and exposure to traumatic events during this time has irreversible effects on subsequent cognitive, social and emotional development [26,27,29]. Once an attachment pattern is formed in childhood, it tends to persist beyond youth [30].

Of relevance to social cognitive development, Bowlby's [31] 'defensive exclusion' hypothesis posits that insecurely attached individuals will filter out all information related to his/her attachment figure, as this is associated with emotional pain. Even positive attachment-related information will be prohibited from entering conscious awareness as it protects individuals from experiencing psychological pain associated with the notion that they have no or very little positive experiences with their attachment figure [32]. As a result of this selective or 'biased' information processing an individual also lacks integrated memories of negative states, which in turn may impact their Theory of Mind (ToM) development [33]. Without the proper use and reflection of positive and negative mental states within one's own mind, making correct inferences about another person's beliefs or intentions can also be impaired.

Also relevant to social cognitive development, children with the experience of abuse may also be more likely to develop an enhanced sensitivity to social cues that are reminiscent of the adults who abused them [34]. Consequently, maltreated individuals may become more vigilant and distracted by threatening stimuli ('threat-related attention bias') [35], thus failing to adequately process peripheral cognitive and social information. There is also substantial evidence that maltreating parents provide less affective interactions as compared to non-abusive parents and tend to isolate themselves and their children from social interactions, providing no stable models for forming close relationships in later life [36–39]. Specifically, those children who develop an avoidant attachment pattern would be expected to show fearfulness and avoidance in social situations, so that they are less likely to develop adequate representations of the social environment and expressions needed to accurately recognise others' emotions.

Supporting these hypotheses, a number of studies in children have shown that exposure to adverse environments interferes with the development of social cognition [40–42], which refers to the set of mental operations underlying social interactions, and in psychiatric studies generally comprises the following domains: (1) emotion recognition and regulation, (2) ToM, (3) attributional style, and (4) social perception. Deficits in social cognitive function are a hallmark feature of major psychiatric disorders resulting in impaired social and occupational functioning [43,44].

Despite the relevance of early life experience to understanding development of social cognition in those who go on to experience psychiatric disorders, the association between early life experiences and social cognition in psychiatric disorders remains poorly understood. To synthesise what is currently known, we undertook a systematic review of the existing literature on the relationships between childhood experiences of adversity, attachment (both secure and insecure) and social cognition in adults with major psychiatric disorders, including schizophrenia (SZ), bipolar disorder (BD), borderline personality disorder (BPD), major depressive disorder (MDD) and posttraumatic stress disorder (PTSD).

## 2. Methods

### 2.1. Search strategy

An electronic search was conducted using PubMed and PsycINFO to identify original articles addressing the relationship between adverse early life experiences, attachment and social cognitive measures in adults with major psychiatric disorders, published up to May 2018. The following terms were used as search terms ((emotion recognition OR self-regulation OR theory of mind OR attribution OR facial expression OR face perception OR social cognition OR social perception OR face discrimination OR emotion regulation OR emotion perception OR social inference) AND (parent death OR institutional care OR foster care OR physical abuse OR verbal abuse OR sexual abuse OR emotional abuse OR domestic violence OR parent divorce OR parental mental illness OR neglect OR parental alcoholism OR parental maltreatment OR adversities OR childhood trauma OR attachment OR early life stress OR parental bonding OR adverse childhood experience OR childhood adversity) AND (schizophrenia OR schizoaffective disorder OR psychosis OR bipolar disorder OR borderline personality disorder OR major depressive disorder OR posttraumatic stress disorder)). We included only studies that assessed the direct relationship between adverse early life experiences (e.g. childhood trauma) and/or attachment and social cognition (e.g. theory of mind, emotion recognition) in adult patients with schizophrenia spectrum disorders, bipolar disorder, borderline personality disorder, major depressive disorder and/or posttraumatic stress disorder. Searches were limited to original articles written in English and published in peer-reviewed journals up to May 2018. Neuroimaging studies were excluded.

### 2.2. Quality assessment

The quality assessment was based on the revised version of the quality evaluation scale employed in previous systematic reviews [45,46], and comprised the following items: (1) The clinical sample was representative of the target population (eligible cases were recruited in hospitals and/or mental health services settings with a diagnosis based on well-established clinical diagnostic manuals), (2) The clinical sample was appropriately matched to the control group (patients and controls matched for at least two confounding variables: age and/or sex and/or education level and/or body mass index), (3) The authors performed sample size calculations and/or power analysis, (4) The study used well-established measures of early life stress and attachment styles, (5) The study used well-established measures of social cognition, (6) The authors reported effect sizes and/or confidence intervals of their main findings. Each item scored one point if the criterion was met (i.e. present) and the overall quality score was calculated by adding up all the items.

### 2.3. Study characteristics

The literature search identified 2619 relevant publications of which 20 were found to meet criteria for inclusion after examining the titles and abstracts. Based on a review of the reference list of these papers a further five published studies met the inclusion criteria. In total 25 publications were included. These included nine studies conducted in patients with schizophrenia spectrum disorders, two studies included patients with bipolar disorder, six studies of patients with borderline personality disorder, three studies of patients with posttraumatic stress disorder, one study