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Review

# Empathy and social problem solving in alcohol dependence, mood disorders and selected personality disorders

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ABSTRACT

Altered empathic responding in social interactions in concert with a reduced capacity to come up with effective solutions for interpersonal problems have been discussed as relevant factors contributing to the development and maintenance of psychiatric disorders. The aim of the current work was to review and evaluate 30 years of empirical evidence of impaired empathy and social problem solving skills in alcohol dependence, mood disorders and selected personality disorders (borderline, narcissistic, antisocial personality disorders/psychopathy), which have until now received considerably less attention than schizophrenia or autism in this realm. Overall, there is tentative evidence for dissociations of cognitive (e.g. borderline personality disorder) vs. emotional (e.g. depression, narcissism, psychopathy) empathy dysfunction in some of these disorders. However, inconsistencies in the definition of relevant concepts and their measurement, scarce neuroimaging data and rare consideration of comorbidities limit the interpretation of findings. Similarly, although impaired social problem solving appears to accompany all of these disorders, the concept has not been well integrated with empathy or other cognitive dysfunctions as yet.



**Contents**



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## 1. Introduction

As social beings, humans crucially rely on their ability to infer the mental states of other individuals – a capacity broadly referred to as "social cognition" – to facilitate their understanding and prediction of other people's behaviour (see Adolphs, 2001; Baron-Cohen and Wheelwright, 2004; Decety, 2011). Impaired social cognition has been related to the interpersonal difficulties patients with various psychiatric disorders face in their everyday lives, with current research interest in this area mainly focusing on autism (Derntl and Habel, 2011), schizophrenia (Derntl and Habel, 2011; Lee et al., 2004) and frontotemporal dementia (Rankin et al., 2006). In contrast to this, our work reviews the literature on alcohol dependence, mood disorders and selected personality disorders (borderline/narcissistic and antisocial personality disorders, the latter one being treated in association with the concept of psychopathy), which frequently affect psychiatric patient groups in both inpatient and outpatient treatment settings. Specifically, although a range of different abilities are summarized under the umbrella term "social cognition", the present review will mainly focus on two highly relevant and interrelated concepts: empathy and social problem solving. The rationale for covering these two domains together is based on the fact that impaired empathic responding can considerably affect interpersonal problem solving and consequently lead to extensive difficulties in coping with everyday life situations. Additionally, both low empathy and poor social problem solving abilities may constitute risk factors for the development, maintenance and exacerbation of psychiatric disorders (Brüne, 2005; Couture et al., 2006; Foisy et al., 2007; Inoue et al., 2006; Kornreich et al., 2002; Marlatt, 1996).

### 1.1. Definitions of relevant terms: empathy

Decety and Lamm (2006) review a number of various definitions of empathy discussed in the literature, all basically sharing the assumption that empathy denotes an individual's emotional reactions to the observed or imagined experiences of *another* person. This implies the involvement of a mechanism which allows for the maintenance of the distinction between one's own and the other person's affective states. Overall, empathy is a broad concept involving different dimensions which may at times render it difficult to compare the outcomes of studies, as they might not always distinguish between these dimensions in a clear-cut fashion. Distinct forms of empathy have been postulated, such as trait empathy in terms of a transsituational disposition to respond empathetically to other people, e.g. by showing empathic concern for those in need, vs. state or situational empathy manifesting itself under specific circumstances (Batson et al., 1987). Furthermore, motor/mirror empathy has been distinguished from reconstructive empathy (e.g. De Vignemont and Singer, 2006; Goldman and de Vignemont, 2009). According to the prominent motor theory of empathy (Carr et al., 2003; Gallese, 2003; Leslie et al., 2004; Meltzoff and Decety, 2003 as cited by De Vignemont and Singer, 2006), we recognize other people's affective states by internally mimicking their emotional facial expressions and affective gestures which activates motor neural representations of these emotions in our brain. This has been closely associated with the activity of the human mirror neuron system (MNS). In a broader sense, it has been suggested that empathy does not exclusively rely on MNS activity but that further regions are activated as well (see below). While motor or mirror empathy is thought to be based on an automatic reactivation of a specific affective state in the observer, reconstructive empathy involves more controlled processes and the extraction of information from memory to facilitate an empathic representation of another person's emotional state (Goldman and de Vignemont, 2009). Most of the paradigms currently used in neuroscience do not allow for a clear-cut distinction between these different forms of empathy. In the current review, we thus follow the simplified conceptualization of empathy into at least two separate, but interrelated factors (see Shamay-Tsoory, 2011 for a review): an emotional and a cognitive component, and both trait and state measures will be considered. Basic processes such as emotional contagion and emotion recognition contribute to emotional empathy, but the present review will mainly focus on a higher-order definition of emotional empathy. In this vein, emotional empathy is thought of as the ability to experience a vicarious response to another person's emotional state, often taking the form of other-oriented empathic concern or self-oriented personal distress, which may be differentially related to prosocial behaviour (Batson, 1991). Cognitive empathy, on the other hand, involves the understanding of another person's perspective and may at times be difficult to delineate from related concepts known as mind reading, mentalizing or theory of mind (ToM). These refer to the capacity to infer and understand the beliefs, intentions and wishes (cognitive ToM) as well as emotional states (affective ToM) of other people. In line with current theoretical models, the terms affective ToM and cognitive empathy will be used interchangeably in the current review. Neuroscientific research (see Abu-Akel and Shamay-Tsoory, 2011 and Shamay-Tsoory, 2011 for recent reviews) has identified functionally interrelated core regions