



## Mindreading abilities in sexual offenders: An analysis of theory of mind processes

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### ABSTRACT

The paper aims to assess the theory of mind (ToM) of sexual offenders. We administered to 21 sexual offenders and to 21 nonoffenders two classical first- and second-order ToM tasks, a selection of six Strange Stories, and a semi-structured interview, the Theory of Mind Assessment Scale (Th.o.m.a.s), which provides a multi-dimensional evaluation of ToM, investigating first- vs. third-person and egocentric vs. allocentric perspectives. Results show that sexual offenders performed worse than controls on second-order ToM tasks, on Strange Stories and on each of the Th.o.m.a.s dimensions, whereas they did as well as the control group on first-order ToM tasks. A detailed analysis of participants' performance on Th.o.m.a.s. showed that sex offenders performed worse on the third-person than on the first-person ToM scale, and worse on the allocentric than on the egocentric perspective; these findings did not apply to the controls. Implications for future research and treatment are discussed.

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### 1. Introduction

Human social interactions are based, among other things, on the ability to detect cognitive and emotional processes in others (Frith & Frith, 2001; Tomasello, Carpenter, Call, Behne, & Moll, 2005). The attribution of mental states, such as emotions, beliefs and intentions, to oneself and to others has been defined as 'Theory of Mind' (Premack & Woodruff, 1978) or 'Mindreading' (Baron-Cohen, 1995). Mindreading ability enables us to predict and explain the behavior of others by detecting their underlying motivations, and thereby to regulate our attitudes and behaviors toward other people (Astington, 2003; Nichols & Stich, 2003a; Paal & Bereczkei, 2007).

Research and theorizing on mindreading abilities began in the late 1970s and early 1980s, starting with the seminal paper by Premack and Woodruff (1978): "Does the chimpanzee have a theory of mind?" From this initial focus on primates, research interest spread to the field of developmental psychology, focusing on mindreading abilities in children (Baron-Cohen, Leslie, & Frith, 1985; Wellman, 1985; Wimmer & Perner, 1983). The capacity of children to recognize that other people have thoughts and desires that are not necessarily like their own, emerges during the second year of life (Onishi & Baillargeon, 2005) and continues to develop until adolescence (Dumontheil, Apperly, & Blakemore, 2010). Theory of mind deficit has been

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considered a key concept in explaining disordered behaviors such as autism (Baron-Cohen, 1995; Happé, 1993), schizophrenia (Frith, 1992) and personality disorders (Semerari et al., 2005).

Ward and his colleagues (Keenan & Ward, 2000; Ward, Keenan, & Hudson, 2000) have argued that a theory of mind perspective could be adopted as a framework to explain the interpersonal, affective and cognitive problems underlying sexual offending. Evidence suggests that sexual offenders have difficulties in establishing satisfactory adult intimate relationships (Marshall & Marshall, 2010), that they lack skills in managing interpersonal relationships (Marshall, 1993; Ward, Hudson, & Marshall, 1996), that they fail to cope with stressful events (Serran, Firestone, Marshall, & Moulden, 2007), and that they also have emotional regulation impairments (Marshall, Marshall, Serran, & Fernandez, 2006; Ward, Hudson, & Keenan, 1998). It has been suggested that these deficits, and the sexually aggressive behavior more generally, could be exacerbated by various cognitive distortions (Bumby, 1996), or by deficits in their 'implicit theories' (Mihailides, Devilly, & Ward, 2004; Polaschek & Ward, 2002; Ward & Keenan, 1999). For instance, a common implicit theory among child molesters is that children are suitable sex objects; this implicit theory contains a false assumption that children desire sex like adults do, because, like adults, they are driven by a desire for pleasure; the attribution of this wrong belief could generate a cognitive distortion that ultimately leads to a wrong interpretation of others' behavior (see Keenan and Ward, 2002, chap. 7). That is, cognitive distortions may be related to theory of mind, because they involve either an inability or a deficiency in the ability to mindread accurately. An analysis of the adequacy of sexual offenders' theory of mind functioning could provide a basis for a better understanding of the development of wrong theories and distorted cognitions, that negatively influence sexual offenders' interpersonal relationships and may lead to sexual offending.

As Keenan and Ward (2000) point out, a theory of mind perspective could indeed offer a unifying explanation for the deficits exhibited by sexual offenders as mentioned above. In particular, Ward et al. (2000) hypothesized that sexual offenders suffer from a lack of understanding other people's beliefs, emotions and perspectives. They suggested that individuals who are unable to comprehend the feelings of others, or to understand the interpretations other people have of interpersonal situations, will be less able to resolve relational and emotional conflicts effectively. In more detail, the authors (Ward et al., 2000) argued that sexual offenders may show a general impairment in their ability to process information about their own and others' mental states, or they may just have certain specific deficits regarding mental states in specific relationships (e.g. they might not be able to understand a partner's desires or beliefs in the context of a romantic relationship) or with certain kinds of people (e.g. they might fail to understand a woman's or a child's beliefs and emotions).

A body of empirical studies has focused on some of these features of sexual offenders, highlighting deficits in emotional recognition and empathy (Gery, Miljkovitch, Berthoz, & Soussignan, 2007; Hudson et al., 1993; Varker, Devilly, Ward, & Beech, 2008), problems in perspective-taking (Hanson & Scott, 1995), and identifying several implicit theories and distorted cognitions, such as sex offenders' belief that some people are legitimate victims (Hanson, 1998). Nevertheless, none of these studies has focused specifically on theory of mind. The only study (Elsegood & Duff, 2010) that we could find using such an approach, involved an examination of child molesters that employed both the *Reading the Mind in the Eyes* task (RME, Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001), a task requiring the inference of mental states from adults' eyes, and an adapted version, *The Mind in a Child's Eyes* task (MCET; Duff & Schulte-Mecklenbeck, 2010), which requires mental states to be inferred from children's eyes. They showed that the performance of child molesters was significantly worse than controls on the RME, whereas no differences were found between groups on the MCET. However, as the authors noted, a possible limitation of the study was that the measures adopted assess theory of mind from static photographs, whereas in reality mental states are usually inferred from several dynamic verbal and non-verbal stimuli.

Considering the relative lack of empirical research on this topic, we decided to assess the theory of mind abilities in a sample of incarcerated sexual offenders. The theory of mind processes involve complex and multi-component functions, incorporating related but different abilities (Saxe, Moran, Scholz, & Gabrieli, 2006; Tirassa, Bosco, & Colle, 2006a, 2006b). We decided, therefore, to employ several tasks measuring various aspects of theory of mind processes in order to assess first- and second-order issues, first- and third-person perspectives, and egocentric and allocentric aspects. Furthermore, we also evaluated advanced theory of mind aspects (using the *Strange Stories* Task from Happé, Brownell, & Winner, 1999), in addition to the understanding of first-order and second-order beliefs.

First-order tasks assess the ability to infer the thoughts or intentions of another person (usually referred as first-order beliefs). It has been found that children are able to solve these kinds of tasks starting from age three to four years (Wimmer & Perner, 1983). By contrast, second-order tasks require the ability to deal with doubly embedded representations; that is, the awareness not just that other people have beliefs about the world, but that they also have beliefs about the contents of others' minds. It has been shown that, at seven years of age, children are able to represent and reason about second-order beliefs (Perner & Wimmer, 1985). The distinction between performance on first- and that on second-order beliefs has been demonstrated in normally developed children (Wellman & Liu, 2004) as well as in schizophrenia patients (Mazza, De Risio, Surian, Roncone, & Casacchia, 2001). These studies have shown that first-order theory of mind tasks are easier to solve than second-order tasks.

Nichols and Stich (2003a, 2003b) argued that another distinction can be drawn between first- and third-person theory of mind. They noted that these are different activities mediated by different processes and that they involve knowledge of a different type. First-person theory of mind understanding describes self-knowledge (i.e. the awareness of our own beliefs or desires), whereas third-person theory of mind requires the ability to understand the beliefs, desires and emotions of others. An fMRI study conducted by Vogeley et al. (2001), who found different patterns of brain activation in different lobes when healthy subjects took the first- or the third-person perspective respectively, supports this view. This research

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