

Brief communication

# In search of “master mindreaders”: Are psychics superior in reading the language of the eyes?

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Accepted 16 December 2004

Available online 28 January 2005

## Abstract

Much of the effort to understand the brain substrate of theory of mind and empathy has involved the study of individuals with deficits in that domain, such as those on the autism spectrum. Studying individuals with presumed superior abilities in picking up social signals may yield important additional information. We predicted that psychic readers may have superior abilities and tested this by contrasting a group of 22 professional psychic readers with matched controls on a measure of theory of mind (“Reading the Mind in the Eyes” test) and a multidimensional measure of empathy [Interpersonal Reactivity Index (IRI)]. Although psychic readers were not superior in reading the language of the eyes, they were shown to have more cognitive empathy, as measured with the “Fantasy” subscale of the IRI. We discuss the merits of research involving “experts” in social cognition and propose other possible groups of “master mindreaders.”

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**Keywords:** Theory of mind; Empathy; Social cognition; Mental states; Mindreading; Psychic; Expertise; Brain-behavior

## 1. Introduction

“Theory of mind” refers to the ability to correctly infer other people’s mental states such as thoughts, desires, and intentions. During social interactions, mental state inferences are made continuously and mostly unconsciously, a process that is commonly described as having “intuitions” about people. The term is used interchangeably with “mindreading” or “social cognition” and has been described as a cognitive component of empathy (Baron-Cohen & Wheelwright, 2004).

Theory of mind has been studied mostly among individuals with known deficits in this domain, such as indi-

viduals with autism or schizophrenia (Happé, 1994; Kleinman, Marciano, & Ault, 2001; Sarfati & Hardy-Baylé, 1999).

Little is known about individuals with extraordinary capabilities in social cognition. Identification of such subgroups may represent a fruitful complementary research strategy towards elucidation of the social brain. In contrast to impaired populations, healthy “expert” mindreaders are less likely to present with other cognitive deficits that have complicated the interpretation of results. Moreover, the study of individuals with superior abilities may lead to the better understanding of social cognitive strategies that could be useful in designing corrective tools for affected individuals.

We hypothesize that superior social cognition may arise from a combination of inborn talent and ongoing

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practice. A concurrence of both can likely be expected in areas of professional specialization. Psychic readers are concerned with ascertaining mental states and their practice involves high degrees of face-to-face exposure. Moreover, psychics are expected to provide advice without the client having disclosed their personal situation. Perhaps due to this increased need to appreciate mental states based on non-verbal social cues, psychics sometimes refer to themselves as “intuitive healers.” In summary, although it is possible that psychic readers use extra-sensory skills to conduct their work, the more likely scenario is that they use heightened theory of mind and empathy as their tools.

When assessing theory of mind functioning in a healthy population, task sensitivity is of great importance. In recent years more sensitive tests have been developed that involve processing stimuli extracted from real life contexts (e.g., Kleinman et al., 2001; Loveland, Tunali-Kotoski, Chen, Brelsford, & Ortegón, 1995; Rutherford, Baron-Cohen, & Wheelwright, 2002). One such test, the “Reading the Mind in the Eyes” test, involves inferring a person’s mental state from a photograph of their eye region (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). We selected the test because it does not have ceiling effects, with hit rates among healthy individuals generally being around 65–70% (Baron-Cohen et al., 2001; Richell et al., 2003), thus ensuring sufficient room to sensitively measure theory of mind in individuals with presumed superior abilities.

We predicted that psychic readers would be superior in theory of mind and, given the relatedness of the constructs, cognitive aspects of empathy. To this end, we administered the “Reading the Mind in the Eyes” test and the Interpersonal Reactivity Index (IRI) (Davis, 1983).

## 2. Methods

### 2.1. Participants

Psychic readers were recruited through several sources, including internet and print news listings, psychic fairs and storefront businesses, of which an estimated 200 are located in New York City (Jacobson, 2003). Twenty-three psychics were included in the study. One female psychic was excluded because of a seemingly random answer pattern in both the theory of mind- and the empathy measures. The final group was comprised of 19 women and three men, who on average had practiced their psychic profession for 17.8 years ( $SD = 11.6$ ) and were seeing 13.3 clients per week ( $SD = 13.9$ ).

The control group was chosen to match the psychic group as closely as possible with respect to age, gender, intellectual functioning, and years of education. Individuals in the control group were either healthy volunteers participating in ongoing studies of normal aging at the

Table 1  
Mean scores ( $M$ ), standard deviations ( $SD$ ), and ranges of the demographic characteristics of both groups

	Gender F–M	Age	Education	Shipley abstract thinking
Psychics ( $n = 22$ )				
$M$	19–3	49.6	15.1	26.3
$SD$		13.4	1.8	8.1
Range		26–71	12–18	6–40
Controls ( $n = 22$ )				
$M$	19–3	48.0	15.3	28.5
$SD$		13.3	2.1	7.0
Range		23–70	12–18	12–38
$p$ value ( $t$ test)		.69	.82	.34

NYU Center for Brain Health or were professionals working within the hospital environment.

Participants of both groups underwent neurological and psychiatric screening and were excluded if they reported significant neurological or psychiatric disease.

All participants gave informed written consent and the research protocol was approved by the IRB of the New York University School of Medicine.

The demographic characteristics of the participant groups are given in Table 1.

### 2.2. Measures

#### 2.2.1. Intellectual functioning

To assess intellectual functioning, the abstract thinking subtest of the Shipley Institute of Living Scale (Prado & Taub, 1966) was used.

#### 2.2.2. “Reading the Mind in the Eyes” test

The “Reading the Mind in the Eyes” test (Baron-Cohen et al., 2001) involves inferring the mental state of a person from just the information conveyed in photographs of that person’s eyes. We used a shortened version of the “Reading the Mind in the Eyes” test, comprising 24 of the original 36 items. For each set of eyes, participants were asked to pick one out of four mental state descriptors (e.g., interested, hostile). These descriptors varied with each item. Subjects were also instructed to indicate the gender of the person in the picture to control for deficits in general face or social perception.

#### 2.2.3. Interpersonal Reactivity Index

The Interpersonal Reactivity Index (Davis, 1983) is a self-report measure that assesses cognitive and emotional components of empathy. The 28-item measure contains four 7-item subscales. The Perspective Taking (PT) subscale assesses the tendency to spontaneously shift perspective and adopt the psychological point of view of others. The Fantasy (FT) subscale measures the individual’s tendency to imaginatively transpose oneself into fictional situations and identify with fictional characters,

as depicted in books, movies, or plays. The PT and FT subscales are designed to measure cognitive-oriented aspects of empathy. The Empathic Concern (EC) subscale taps the respondents' feelings of warmth, compassion, and concern for others. The Personal Distress (PD) subscale assesses the respondent's own feelings of fear and discomfort upon witnessing the negative experiences of others. Subjects respond to each item using a 5-point Likert-type scale ranging from (0) "does not describe me well" to (4) "does describe me very well."

### 2.3. Procedure

Individuals selected for participation in this study were evaluated at the Center for Brain Health, NYU School of Medicine, or at their place of work.

The data were analyzed using the Statistical Program for Social Sciences version 11.0 (SPSS, Chicago, Ill). Independent sample's *t* tests were used to test for between-group differences. To account for type 1 errors in multiple comparisons, Bonferroni's correction was applied.

### 3. Results

There were no significant differences between the psychic and control groups in the number of correct mental state inferences (Psychics:  $M=17.5$ ,  $SD=3.2$ ; Controls:  $M=18.4$ ,  $SD=2.2$ ;  $t=1.1$ ,  $p=.28$ ) or gender assignments (Psychics:  $M=22.6$ ,  $SD=1.2$ ; Controls:  $M=22.5$ ,  $SD=0.9$ ;  $t=-.14$ ,  $p=.89$ ) made in the "Reading the Mind in the Eyes" test. However, we did find highly significant differences in the Fantasy subscale of the IRI

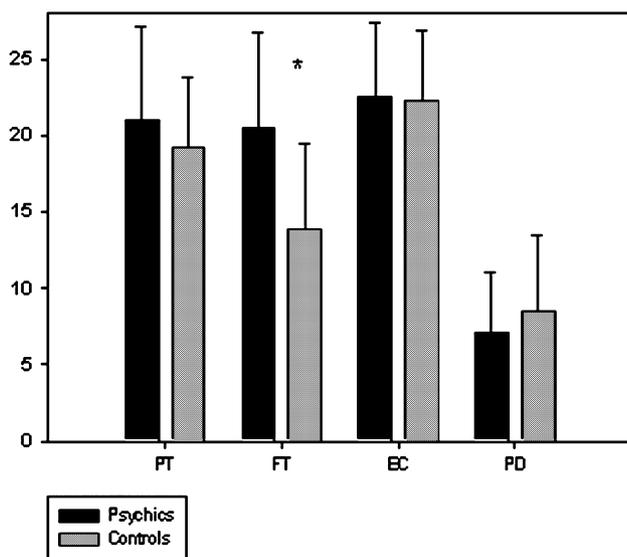


Fig. 1. Earned scores on the IRI (PT, Perspective-Taking; FT, Fantasy; EC, Empathic Concern; and PD, Personal Distress). The asterisk indicates highly significant differences between the two groups ( $p = .001$ ).

( $t = -3.7$ ,  $p = .001$ ), with psychic readers scoring higher than the control group on this empathy measure (see Fig. 1). No significant differences were found for the other three subscales: Empathic Concern ( $t = -.19$ ,  $p = .85$ ), Personal Distress ( $t = 1.1$ ,  $p = .28$ ), and Perspective Taking ( $t = -1.1$ ,  $p = .26$ ).

### 4. Discussion

The purpose of this study was to assess theory of mind and empathy in a group of psychic readers. These professionals were hypothesized to constitute "expert" mindreaders due to the high level of face-to-face exposure and the need for sensitive appreciation of clients' desires, thoughts, and feelings required in their work.

Contrary to our predictions, psychic readers were not superior in theory of mind functioning as measured with the "Reading the Mind in the Eyes" test. Interestingly, approximately 80% of psychics that participated in this study, in a post study interview, reported not having to physically see their clients to do a reading. Therefore, one possible explanation for our finding is that in contrast to our assumptions, performing a psychic reading does not involve a predominant analysis of facial expressions. Since we did not set out to assess the processes at work during the actual psychic reading, we cannot answer questions concerning the exact extent to which psychics rely on face decoding or what alternative mental activities they use.

Psychic readers were administered the IRI as a measure of empathy, since cognitive empathy has been equated with theory of mind in past research. As expected, we did observe higher scores among the psychics for cognitive aspects of empathy, as measured with the FT and PT subscales of the IRI. Only in the case of the FT scale though were the results statistically significant. The Fantasy subscale indicates a tendency to adopt the perspective of fictional characters and has items that involve statements like "I really get involved with the feelings of the characters in a novel." One of the subscale's most evident differences compared to the PT subscale is its "fictional" or "imaginary" rather than "real" situational context. This pattern is consistent with the notion that psychics operate in a realm of more abstract mental images (Targ & Ktra, 1998).

In the two emotionally oriented subscales, the EC and PD subscales, the psychic readers were indistinguishable from the control subjects. This likely indicates that on an emotional level, psychic readers react to the observed experiences of others much like the rest of the population.

Although we only found partial support for our hypotheses in this first group studied, we still believe that research designs involving healthy "experts" in social cognition may play a fruitful part in revealing the brain network key in theory of mind and empathy. Currently,

the main research approaches involve the assessments of psychiatric groups, healthy individuals in functional imaging studies, and individuals with circumscribed brain lesions. Candidate brain regions for the social brain that have been identified by such research are the medial prefrontal cortex, cingulate gyrus, orbitofrontal cortex, insular, posterior superior temporal sulcus (STS), temporal poles, and the amygdala (e.g., Adolphs, 2003 for review; Gallagher et al., 2000; Leibenluft, Gobbini, Harrison, & Haxby, 2004). However, these approaches have certain limitations. For example, the study of conditions such as autism or schizophrenia is likely confounded by deficits in cognitive functions and brain regions not involved in social functioning (e.g., Ho, Mola, & Andreasen, 2004; Rojas, Bawn, Benkers, Reite, & Rogers, 2002). On the other hand, imaging studies involving uniform groups of healthy volunteers do not allow a differentiation between “contributing” and “crucial” involvement of certain brain regions for a given task (Cacioppo et al., 2003). For verification of a “crucial” involvement only lesion studies can provide important evidence. However, considering that theory of mind and empathy likely involve a network of brain structures rather than a single area, no study could possibly identify the whole network involved. With these issues in mind, we have proposed that research designs involving healthy “experts” in theory of mind could play an important role in further revealing this network. For example, one such research design could entail enrollment of a group of healthy “expert” mindreaders and a well-matched control group in a brain imaging study. Assuming that the only difference between groups would in fact be a superior mindreading ability and/or empathy, then it should be possible to find brain correlates for that superiority. Evidence for the feasibility of such a research approach comes from a few imaging studies involving individuals with special cognitive talents (Maguire et al., 2000; Pesenti et al., 2001; Schlaug, Jancke, Huang, & Steinmetz, 1995).

If psychics are not the desired “master mindreaders,” who could be alternative candidates? Professionals doing psychotherapy such as psychiatrists, psychologists, or social workers are likely to excel in theory of mind. In contrast to psychic readers, these more classically educated therapists might rely on more directly observable social cues as a source for their judgments. Further candidate professionals that rely on the ability to infer mental states based on facial cues are salespersons, auctioneers, officers concerned with lie detection, and acting teachers. While salespeople and auctioneers may tap these skills more instinctively, those specializing in lie detection and coaching acting utilize explicit methods for decoding faces. Acting teachers in particular not only observe, but also actively correct and influence displayed mental states.

To conclude, a first effort to identify individuals with superior theory of mind and empathic abilities did not

provide consistent results. Notwithstanding, we feel that future research involving “expert” mindreaders may help ascertain the social brain and extrapolate successful social cognitive strategies.

## Acknowledgments

This research was funded by a grant from the National Alliance for Autism Research (NAAR) to Dr. Convit. Isabel Dziobek was in part supported by the Cusanuswerk, and Stefan Gold by the DFG (GO-1357/1-1).

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