



Believing in other minds: Accurate mentalizing does not predict religiosity

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ABSTRACT

Theorists have argued that religious beliefs emerged as a consequence of the human propensity to attribute mental states. However, little empirical work has explored the relationship between individual variability in theory of mind (ToM) and religious beliefs. We investigated the connection between empathy, emotional intelligence, systemizing, ToM, and religiosity in two college student samples. Empathy was correlated with aspects of religiosity but did not uniquely predict religiosity. Emotional intelligence was positively related to religiosity, whereas ToM was either unrelated or negatively related to religiosity. We argue that the basic ability to reason about self and other, including self-awareness (emotional intelligence) and empathy, rather than accuracy in mentalizing (ToM), predicts religiosity. However, despite these intriguing patterns, our measures of sociocognitive abilities explained little variance in our religiosity measures. Future research should explore other samples including those absent of empathy and ToM, and should explore capacities such as agency detection.

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1. Introduction

Many Americans continue to embrace religion, making it important to understand the underlying cognitive mechanisms associated with adherence to such belief systems. Because theory of mind (ToM) constitutes the ability to reason about the thoughts, feelings, and intentions of others, attributions to supernatural beings may come about as an over-extension of ToM (Bering, 2011; Bering & Shackelford, 2004; Gervais, 2013; Shaffer, 2008). In this view, ToM may be a necessary but not sufficient pre-cursor to religious beliefs. However, ToM may be decomposed into varying levels of complexity. For example, Flavell (2004); Dennett (1987), and Selman (1977) differentiated between first order ToM – the ability to reason about others' mental states, and second order ToM – the ability to reason about someone's thoughts about another's thoughts – functionally metarepresentation. Furthermore, the ability to read outward indicators of mental states, such as emotion expressions, represents only a cursory level of ToM compared to the ability to reason about intentions and knowledge states (Apperly, 2012). More advanced ToM capabilities may be seen as representing conceptually distinct processes, or as recruiting other related cognitive process, such as executive function. Individuals may also vary in their motivations to employ ToM in their day to day interactions with others (Apperly, 2012). Motivation to employ ToM may reflect differences in empathy, which to some extent depends upon the basic ToM capacity but allows individuals to differ in their use of ToM.

Thus, we attempted to examine the connection between religiosity and ToM, taking the various levels of complexity of ToM, along with empathy, into account.

Despite significant recent theorizing about the connection between ToM and religious beliefs (Atran, 2006; Atran & Norenzayan, 2004; Barrett, 2004; Bering, 2002, 2003; Bering & Shackelford, 2004; Boyd, 2008; Boyer, 2001; Gervais, 2013; Guthrie, 2001), the study of religious beliefs and their connection to cognitive traits is still in its infancy. Several studies have explored the relationship between empathy and religiosity, but none have focused on the relationship between ToM at varying levels of complexity and religiosity. Prior studies have assessed a single construct (e.g. perspective-taking or empathy) without capturing higher order ToM capacities or using multiple assessments of the same construct (Lindeman, Svedholm-Häkkinen, & Lipsanen, 2015; Willard & Norenzayan, 2013).

Prior theorizing would lead one to hypothesize that those with higher individual ToM scores might display greater religiosity. However, it is possible that accuracy in mind-reading reflects the use of other more sophisticated cognitive processes, which allow one to distinguish between real and imagined agents, which are a byproduct of one's own beliefs. Empathy measures are sometimes conflated with measures of mentalizing (e.g. Willard & Norenzayan, 2013) but they typically assess only an individual's self-report of the tendency to engage in thinking about another's feelings and, unlike ToM measures, do not assess accuracy in reading other kinds of mental states. Emotional awareness – a related construct – is defined as the ability to monitor one's own and others' emotional states and to use them effectively to guide behavior, but is also assessed by self-report rather than tests of accuracy. Thus, empathy and emotional intelligence are better representatives of the

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motivation to use ToM rather than variance in actual ToM capability. Previous theorists have not distinguished between accounts whereby the motivation to reflect on others' feelings and beliefs, versus accurate mentalizing, predicts religiosity. We hypothesize that high levels of empathy and emotional intelligence, will be positively associated with aspects of religiosity, whereas accurate theorizing about others' emotions, goals, and intentions, reflected in higher individual ToM scores, will be associated with lower levels of religiosity. This is consistent with the notion that ToM is a necessary but not sufficient feature of religiosity whereby it is necessary to reason about other minds in order to postulate supernatural beings. However, higher order ToM requires a level of metarepresentation that may allow one to distinguish between real and imagined attributions.

Baron-Cohen's measure of empathizing has been contrasted with a measure of systemizing to capture two dimensions of cognitive style that could contribute importantly to the likelihood that an individual will embrace religious beliefs and practices. Individuals high in empathizing might be seen as nurturing, caring, and people-focused, whereas those high in systemizing might be seen as driven to analyze and construct systems in order to create order in the physical world (Baron-Cohen, Richler, Bisarya, Gurunathan, & Wheelwright, 2003). Studies of empathizing and systemizing have consistently revealed sex differences, with males scoring higher than females on systemizing and lower than females on empathizing (Goldenfeld, Baron-Cohen, & Wheelwright, 2005). Women are more likely to be religious (Miller & Hoffman, 1995), and it has been suggested that these sex differences in religiosity may be attributed to sex differences in empathy. Including empathizing and systemizing into a model examining gender differences in science acceptance and religious beliefs eradicated gender differences, suggesting that empathizing explained the positive relationship between gender and religious orientation. Systemizing was negatively related to religious orientation, but positively related to science acceptance (Rosenkranz & Charlton, 2013). Furthermore, individuals higher in empathy have been found to be more likely to report a religious or supernatural experience (Barnes & Gibson, 2013). Taken together with findings that those high in systemizing were less intuitive and more deliberative (Brosnan, Hollinworth, Antoniadou, & Lewton, 2014), we predicted that those higher in empathizing and lower in systemizing would report greater religiosity.

Individuals with autism, who exhibit deficits in ToM, typically score high on systemizing but low on empathizing (Wakabayashi et al., 2007). A reduced belief in God in individuals with autism has been suggested to be mediated by deficits in ToM (Norenzayan, Gervais, & Trzesniewski, 2012). This research supports the notion that ToM ability is related to religious beliefs. However Norenzayan et al. assessed only a relatively low level of ToM - the ability to read emotions from images of the eye region - and they did not assess variability in other measures of ToM, for instance second order ToM.

The relationship between ToM, empathy, and religiosity appears to be complex and warrants further study. It is possible that apparently conflicting findings in the literature have been complicated by the use of different operational definitions of somewhat nebulous constructs, as well as differing tools of assessment. Luyten, Corveleyn, and Fontaine (1998) found a positive relationship between religiosity and empathy in Catholic undergraduate students, and Muse (1992) found a positive relationship between empathy and religious integration. In the latter study, religious integration was composed of low extrinsic religious orientation scores and high quest orientation scores. Quest refers to the tendency to seek explanation through religion while extrinsic religiosity refers to the tendency to use religion for external purposes such as forming social relationships. Intrinsic religiosity, which refers to the tendency to order one's life around religious beliefs and practices, has also been positively associated with empathy whereas extrinsic religiosity has been negatively related to empathy in both American (Watson, Hood, & Morris, 1985; Watson, Hood, Morris, & Hall, 1984) and Muslim cultures (Khan, Watson, & Habib, 2005).

We predicted that empathy might also be positively correlated with religious seeking, as captured by the Quest scale (Batson & Schoenrade, 1991) and an intrinsic religious orientation (Allport & Ross, 1967). Highly empathic individuals may also feel the need to derive comfort from imagined supernatural beings, which can be assessed using the Emotionally-based Religiosity scale (Granqvist & Hagekull, 1999). Individuals high in empathy might also be more likely to view God as loving, rather than controlling (Benson & Spilka, 1973). We also included measures of emotional intelligence in the current study, as individuals higher in this capacity may be more aware of their own needs and motivations, and may thus be more inclined to demonstrate higher levels of extrinsic and intrinsic religiosity orientations. Given their self-reflection, they may also be more likely to view God as loving in order to justify their own religious beliefs, compared to those who are less self-aware (i.e. lower in emotional intelligence).

In contrast to previous theorizing suggesting a positive relationship between perspective-taking and religiosity, we expect that ToM might be negatively correlated with at least certain aspects of religious beliefs. For instance, we predicted that those more skilled in ToM, appropriately attributing the correct underlying motivation or emotion to another's behavior, might be less likely to show high levels of religious fundamentalism (Altemeyer & Hunsberger, 2004) and dogmatism (Rokeach & Fruchter, 1956), and less likely to adopt religious beliefs as a consequence of socialization (Granqvist & Hagekull, 1999). These predictions were based on the idea that those with a greater degree of metarepresentational ability would be less rigid in their thinking and better able to consider alternative viewpoints and beliefs. Thus, they might be less likely to internalize the beliefs of their caregivers. It is important to note that our operational definitions of empathy and emotional intelligence reflect the individual's self-reported motivations to empathize with themselves and others, whereas our definition of ToM relies on measures that assess actual ability to accurately predict the thoughts and feelings of others. The current studies use more advanced measures of ToM, rather than relying solely on the measure of empathy and the eyes tests used by Norenzayan et al. (2012) and Willard and Norenzayan (2013). We first present an assessment of the same relatively low level of ToM (the Reading the Mind in the Eyes test or RMET), along with measures of empathy used by Norenzayan and colleagues to a college sample and examine the relationship with various unique measures of religiosity. Studies of individual differences in ToM in typical adults have been limited based on the idea that most adults would perform at ceiling on tasks designed to assess ToM in children (Gervais, 2013). Therefore, in a second study, we used more advanced measures of ToM that allowed for reasoning at various levels of inference, such as second order ToM. Only by using several more advanced assessments can we accurately measure individual variation in ToM in typical adults (Apperly, 2012), which will then allow us to use such measures to predict outcomes such as religiosity.

2. Study 1

2.1. Method

2.1.1. Participants

We recruited 437 undergraduate students (350 females) enrolled in introductory psychology classes through the Psychology subject pool at a midsize University in Michigan. Participants had to be 18 years or older but there were no other restrictions. Of these participants, 333 were Christian, 55 were atheist or agnostic, and 49 were affiliated with non-Christian religions. Participants completed some additional measures, the results of which are not reported here (but see Vonk & Pitzén, 2016). Given that analysis of additional data is ongoing, data can be provided only upon request to the first author.

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