Feelings of control during social exclusion are partly accounted for by empathizing personality

Austen L. Krill, Steven M. Platek *, Kyrre Wathne

Evolutionary Cognitive Neuroscience Laboratory, School of Biological Sciences, University of Liverpool, Biosciences Building, Crown Street, Liverpool L69 7ZB, United Kingdom

ABSTRACT

It has been demonstrated that social exclusion, or ostracism, results in a decrease in four fundamental human needs: *belonging, control, self-esteem*, and *meaningful existence*. We replicated these results, and examined how empathizing and systemizing cognitive styles accounts for variation in the experience of social exclusion (self-reported distress and the four fundamental needs) during an internet ball toss game. Participants' standardized combined score (*D Score*) from the Empathizing Quotient (EQ-S) and Systemizing Quotient (SQ-S) (Wakabayashi et al., 2006) was a significant predictor of the decrease in the fundamental need, *control*. In other words, empathizers reported feeling less in control compared to systemizers during the ball toss game regardless of exclusion or inclusion. These findings suggest that individuals who score high on empathizing struggle more with the lack of control when involved in an situation where they do not have influence over the social interaction in which they are taking part.

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1. Introduction

1.1. Social exclusion

Social exclusion is the act of being excluded, rejected, or ostracized by others without explicit explanation or negative attention. Within the context of this paper, it can also be described as the reflexive experience of distress as result of an actual or perceived psychological or physical distance from others (Eisenberger, Lieberman, & Williams, 2003; Williams, 2007; see also Gruter & Masters, 1986 for a review). Social exclusion is known to generate strong feelings of rejection, social pain, and distress (Williams 1997, 2001). Additionally, social exclusion has the unique ability to threaten four fundamental human needs: belonging (Baumeister & Leary, 1995), self-esteem (Baumeister, 1994), control (Seligman, 1975), and meaningful existence (for a review see Williams, 2001, 2007). The importance of the aforementioned needs for motivation, self-efficacy, and even survival has been supported in the literature (Williams, Cheung, & Choi, 2000; see Williams, 2001 for a review). Evidence has also shown that individuals seek to increase their sense of belonging, control, self-esteem, and meaningful existence. When these needs are lacking individuals experience pathological effects that are more significant than an impulsive distress response (Baumeister & Leary, 1995).

In one study (Eisenberger et al., 2003) participants observed a scenario that emulated exclusion as well as experiencing a real exclusion condition while they were in an fMRI scanner. While activation was the strongest during the exclusion round, results indicated that the same parts of the brain were activated during the observed round as were activated during the exclusion round. This suggests that, participants do not actually have to be purposefully excluded to be negatively affected by exclusion (Eisenberger & Lieberman, 2004; Eisenberger et al., 2003; Williams, 1997).

Zadro and Colleagues (2004); see also (Williams et al., 2000) randomly assigned participants to play a ball toss game, Cyberball, (Williams et al., 2000, 2002) with a computer or with another human via an internet connection. They discovered that individuals reported a decrease in the four fundamental needs (i.e. belonging, control, self-esteem, and meaningful existence) after exclusion from the ball toss game independent of whether or not the individual believed that they were excluded by the computer or another human being.

Social exclusion is likely to have been of great evolutionary significance both to the group and to excluded individuals. It may have been evolutionarily adaptive for a group to exclude certain individuals as a way to maintain group cohesiveness. Kurzban and Leary (2001) suggest that ostracism goes hand and hand with punishment, and has evolved as a mechanism to protect group members from individuals who violate social norms (e.g. incest) or group rules (Barner-Barry, 1986; Gruter & Masters, 1986). For the individual, exclusion can have dire consequences (Gruter & Masters, 1986; Kurzban & Leary, 2001). Excluded individuals can become cut off from resources and from protection by the group. The potential danger of social exclusion may have led to the development of a response system designed to prevent and counteract social exclusion. Those individuals who are more perceptive to ostracism may have an advantage in that they can act quickly to

avoid exile from the group (Williams, 2007). Decreases in the four fundamental needs (Williams, 2001) as well as the onset of feelings of distress, humiliation, sadness, and anger are examples of the types of motivational and emotional mechanisms that might drive behavioral changes aimed at avoiding social exclusion or regaining inclusion in the group (Robertson, Delton, & Klein, 2006; Williams, 2007). When individuals are excluded or threatened with exclusion they experience distress, which has been called social pain (Eisenberger & Lieberman, 2004; Eisenberger et al., 2003). However, despite the potentially hardwired nature of this response, there is no evidence as to whether this distress response varies as a function of individual differences in social cognition. Here, we investigate whether proclivity to empathize or systemize has any bearing on the perception and experience of social rejection.

1.2. Empathizing–systemizing hypothesis

The empathizing–systemizing theory (Baron-Cohen, 2002, 2003; Baron-Cohen & Hammer, 1997) claims that the female brain is principally predisposed towards empathizing and the male brain is principally predisposed towards systemizing (Baron-Cohen, 2003; Goldenfeld, Baron-Cohen, & Wheelwright, 2005). Empathizing can be defined as "the drive to identify another person's emotions and thoughts and to respond to these with an appropriate emotion" (Baron-Cohen, 2003, p. 3). A key component to empathizing is theory of mind (ToM), which is critical for the detection of information pertaining to the mental state, emotions, and intentions of others; and to recognize how another's feelings may impact oneself (Bachevalier & Loveland, 2006). Without ToM there would be considerable difficulty in changing one's behaviour in response to cues and changes in another individual's behaviour or emotional state. This does not imply that individuals who rank low on empathy are ToM impaired, but there appears to be an important link between empathy and ToM. Empathy has been hypothesized as an essential key to the development and maintenance of human relationships (Baron-Cohen, 2003).

Females tend to be better at empathizing than males (Baron-Cohen, 2003; Goldenfeld et al., 2005). Baron-Cohen (2003) suggests that this sex difference is related to the evolutionary hypothesis for division of labor in hunter–gatherer societies. Baron-Cohen (2003) writes, "Some theories suggest that our male and female ancestors occupied quite different niches and had very different roles. If true, the selective pressures are likely to have been very different for each, and could have led to the evolution of different types of cognitive specialization (p. 117)." It is easy to see how empathizing would be beneficial to mothering and to living peacefully in a small community. In fact, many of the advantages gleaned by superior empathizers are directly related to social inclusion, or alternatively avoidance of social exclusion.

Systemizing, the other endpoint of Baron-Cohen's (2003) continuum, is the drive to understand a *physical* system. Additionally, the drive to build a system is also an important part of systemizing. There are many types of systems such as mathematics, machines, music, climate, and economics. These systems have one thing in common: a set of rules. Once the rules governing the system are known, they can be used to make accurate predictions about the system (Baron-Cohen, 2003; Baron-Cohen, Wheelwright, Burtenshaw, & Hobson, 2007).

Systemizing parallels empathizing in two ways: one can occupy differing degrees of systemizing and it is believed to have been selected for during evolution in a similar way as empathizing (i.e. through frequency-dependent selection based on sex-specific division of labor). The hypothesized advantages associated with increased systemizing ability include using and making tools, hunting, war strategies, social dominance and power, as well as tolerating solitude (Baron-Cohen, 2003). It is of particular interest

that tolerating solitude is associated with increased systemizing ability. Individuals who are better at tolerating solitude would most likely be less driven to socialize and therefore they can devote more of their time to other activities. Baron-Cohen (2003) suggests that in pre-industrial societies, toleration of solitude might have been especially advantageous to hunters who had to go on long journeys in search of food. One might speculate that males who hunted for longer may conceivably have been more successful, which would have resulted in more food, and increased chance of survival. Furthermore, tendency to systemize may engender behaviour that isolates an individual from the rest of the group (e.g., obsessive interest in computers to the exclusion of social activities).

We hypothesized that individuals categorized as empathizers would report greater levels of distress as a result of being socially excluded during a ball toss game. Empathizers were predicted to show lower self-reported satisfaction levels of belonging, control, self-esteem, and meaningful existence. On the contrary, systemizers were predicted to report that they experienced less distress (self-reported satisfaction levels would not be impacted by exclusion) as a result of exclusion from the ball toss game. Specifically, we predicted that individuals at the extreme empathizing end of the spectrum will be most distressed by social exclusion, showing the lowest self-reported satisfaction levels of belonging, control, self-esteems, and meaningful existence; and individuals at the extreme systemizing spectrum will be least "distressed" by the social exclusion condition. Individuals who fall into the balanced brain category, meaning they are no more empathic than they are systematic, were predicted to report lower satisfaction levels on the four needs, but not to report levels as low as extreme empathizers or empathizers. Furthermore, we hypothesized, that balanced brain individuals will report more distress (lower satisfaction on the four needs) than extreme systemizers and systemizers.

2. Methods

2.1. Participants

One hundred and nineteen participants (72 females; 47 males; Mean age = 32.49, SD = 11.63), were recruited from the internet (details from the author) and university announcements system. Data were collected using online data collection software (details from the author). The study was approved by the University of Liverpool, School of Biological Sciences Committee on Research Ethics. Participants were asked to indicate what discipline they studied or worked in, as this has been shown to correlate with systemizing and empathizing (Baron-Cohen et al., 2007; Focquaert, Steven, Wolford, Colden, & Gazzaniga, 2007). The Humanities group consisted of 39 individuals. The Sciences group consisted of 48 individuals. There were 32 participants who selected "neither". The majority of the individuals who selected "neither" entered their profession separately. Some of which included: administration, law, public safety, event planning, and finance.

2.2. Procedure

2.2.1. Empathizing–systemizing quotients

Participants completed the short forms of the Empathy Quotient (EQ-Short) (Wakabayashi et al., 2006) and the Systemizing Quotient (SQ-Short) (Wakabayashi et al., 2006). Participants then played Cyberball, a computer ball toss game (details from the author). Cyberball (Williams et al.,2000, 2002) is a computer game where the participant "tosses" the ball, ostensibly with two other human players. In reality there are no other players; the Cyberball program is preset to toss the ball with the participant. Previous re-