



# Being unempathic will make your loved ones feel lonelier: Loneliness in an evolutionary perspective



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## ABSTRACT

Loneliness has been conceptualized as an alarm against social isolation under an evolutionary theoretical framework. Loneliness, as an adaptive feature, would have to be linked to environmental conditions and not only to the subjective evaluation of our social network. This research investigates lack of received empathy as an environmental trigger of the loneliness alarm. Lack of received empathy could explain previously observed correlations between loneliness and low satisfaction with social relationships, attachment insecurity, and certain age groups like teenagers and the elderly. A well-defined evolutionary model opens up new possibilities for the development of more efficient strategies to reduce loneliness.

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## 1. Introduction

Loneliness has started to become a public health issue due to the number of people suffering from it and because of the life threatening health consequences chronic loneliness entails (Hawkey & Cacioppo, 2010; Heinrich & Gullone, 2006; Holwerda et al., 2016). Recent studies have shown that loneliness is a complex phenomenon that has both environmental and genetic influences (Boomsma, Willemsen, Dolan, Hawkey, & Cacioppo, 2005; McGuire & Clifford, 2000). To account for the process by which loneliness arises and could be resolved, several theories have been proposed. Research conducted under an evolutionary framework considers loneliness to be a biological alarm that signals social isolation and motivates humans to re-establish or improve their social bonds (Cacioppo, Cacioppo, & Boomsma, 2014; Cacioppo et al., 2006). Loneliness as an evolutionary trait needs both to be passed on as genetic information from one generation to the next and to provide improved fit to the environment. On the genetics of loneliness, studies have found links between loneliness feelings and the rs53576 variant of the oxytocin receptor gene (van Roekel et al., 2013) and also the serotonin transporter gene 5-HTTLPR (Goossens, 2012). These findings point to the mechanisms by which genes could affect an individual's susceptibility to the environment resulting in loneliness feelings. On the improved fitness to the environment, researchers have argued that variability in sensitivity to loneliness could have benefited both the formation of tight communities (those individuals more sensitive to loneliness) and more independent or resilient explorers or hunters

(those individuals less sensitive to loneliness) (Cacioppo & Cacioppo, 2012). However, the cues of the environment that trigger loneliness feelings still need to be pin pointed in detail.

Objective social isolation has been found to be closely linked while remaining a clearly distinct phenomenon from perceived social isolation or loneliness (Holt-Lunstad, Smith, Harris, & Stephenson, 2015). Personality traits have also been associated with loneliness feelings. Some studies have found correlations between the latter and trait empathy (Beadle, Brown, Keady, Tranel, & Paradiso, 2010), extraversion, self-confidence, neuroticism, and psychoticism (Cheng & Furnham, 2002). What remains unresolved is the specific environmental cue that puts all of these elements into play. Genes make us susceptible, but susceptible to what specifically? This research analyses the role of received empathy in loneliness. The empathy a person receives from their social relations could be an environmental cue for potential social help and/or support available when necessary, and hence increased survival possibilities. Given the increasing social complexity of human groups, the mere presence of conspecifics does not guarantee survival: conspecifics must be willing to aid the individual, which is by no means a given. Received empathy<sup>1</sup> could be a good proxy for potential help before it is needed. And some individual characteristics such as attachment style and mentalising competence could affect the perception of empathy in other people's actions.

<sup>1</sup> The term "received empathy" in this paper makes reference to the empathy a person perceives others to have towards him/her. It could also be described as "empathy perception" or "perceived empathy", but in some cases that phrasing might be interpreted as referring to the empathy someone thinks they have for somebody else. We chose the term "received" instead to emphasize the fact that we speak of empathy from others to a self.

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There are some findings in the literature that support this theory in different ways. Empathy perception, for instance, has been found to reduce physical pain perception (Sambo, Howard, Kopelman, Williams, & Fotopoulou, 2010), which is interesting considering that loneliness, a form of social pain, is thought to be processed via the same neurological mechanisms that process physical pain (Eisenberger & Lieberman, 2004). Hombrados-Mendieta and colleagues found a negative correlation between emotional support, which is essentially the manifestation of emotional empathy demonstrated through behaviour, and loneliness in a Spanish sample (Hombrados-Mendieta, García-Martín, & Gómez-Jacinto, 2013). Moreover, Cramer and Jowett found a correlation between perceived empathy and satisfaction with relationships (Cramer & Jowett, 2010). Also, to some extent, satisfaction with the most important or significant relationships (such as family) is related to lower loneliness scores (Perlman & Peplau, 1984). Moreover, in an experimental design, Sambo and colleagues found that perceived empathy reduces physical pain reporting with attachment style as the only mediating factor (Sambo et al., 2010).

### 1.1. Empathy

In comprehensive terms, empathy is the ability to (a) be affected by and share the emotional state of another person, (b) assess the reasons of such emotional state on the other person, and (c) relate to him or her taking their perspective (de Waal, 2008). However, empathy has rarely been studied from the receiver's point of view. The study of the behavioural expression and perception of empathy has been generally developed around a different concept: social support. Studies have approached social support from the perspective of the provider (Dunn, Aknin, & Norton, 2008) and from the perspective of the receiver (Zimet, Dahlem, Zimet, & Farley, 1988; Procidano & Heller, 1983). But, ultimately, social support and empathy are related concepts – not equivalent ones. One of the most salient differences is that an empathic action involves concern for the other and social support does not need to. Besides, the provider of social support need not know nor understand the emotional state of the receiver. And finally, one can empathize with someone else without necessarily having a behavioural manifestation of that empathy; however, you cannot “feel” social support with no behavioural manifestation.

The same is true for other related constructs. For instance, Gruen and Mendelsohn (1986) found that sympathy – characterized as compassion or concern – and empathy – characterized as emotional tuning –, are discriminable both conceptually and empirically. However, the former does not require understanding or tuning in with the emotional state of another person (see also Eisenberg, 1988).

In a recent paper, Powell and Roberts (2017) distinguished three dimensions of empathy: cognitive, affective and “compassionate” empathy; the latter is characterized as “feelings of sympathy, concern, and compassion for another” (Powell and Roberts 2017, p. 138). The behavioural manifestation of compassionate empathy is what would give rise to someone receiving empathy. Empathy's behavioural manifestation is associated to some extent with prosocial behaviour, although this relationship is just beginning to be documented and understood (Eisenberg & Miller, 1987; Sánchez-Queija, Oliva, & Parra, 2006; Mestre Escrivá, Samper García, & Frías Navarro, 2002). Jolliffe & Farrington (2006) have argued that high levels of empathy increase the likelihood of prosocial behaviour because sharing other people's distress should motivate individuals to assist that person to reduce their own distress. For example, low levels of empathy (affective or emotional empathy in particular) have been linked with bullying (Jolliffe & Farrington, 2011) and cyberbullying (Brewer & Kerslake, 2015). If empathy motivates prosocial behaviour, prosocial behaviour increases survival for humans, and loneliness is an alarm against life-threatening risks of social disconnection, then it would follow that lack of received empathy triggers loneliness because it anticipates lack of prosocial behaviour.

Given that the main interest in this study is actions involving concern (or compassion) and shared affect, we decided to use the term “empathy” to emphasize the distinction with other related concepts. For the purposes of this investigation, received empathy is then defined as the demonstration that someone else understands and/or shares the affective state of an individual; and the demonstration that, as a result, they are willing to react in accordance with any of the individual's needs with the intention of improving his or her emotional state.

## 2. Research questions and hypothesis

The aim of this research was to study the effect of received empathy on loneliness feelings. We posed two research questions:

- I. Is perceived empathy a trigger for loneliness as an evolutionary alarm?

Lack of received empathy will signal low probabilities of receiving prosocial behaviour and would therefore trigger loneliness feelings. For Study 1 this meant that participants who did not receive empathy will report more loneliness than participants who are exposed to an empathic interaction. A physiological correlate (heart rate) was expected to mirror this behaviour. For Study 2 it meant that participants who score higher in the Multidimensional Empathy Scale will have lower loneliness scores.

- II. Is the relationship between perceived empathy and loneliness affected by attachment style and mentalising competence?

Individual differences in attachment security and mentalising competence are hypothesized to result in differences in the effects of empathy on loneliness. People with higher levels of attachment insecurity and with lower levels of mentalising competence will require more perceived empathy than their peers with higher levels of attachment security and mentalising skills.

- a. Higher levels of mentalising competence are hypothesized to result in higher levels of received empathy and lower levels of loneliness. Greater mentalising competence allows people to make more complete analyses of other's actions and intentions, which might allow them to perceive more empathy in their social interaction. Another possibility is that greater mentalising competence allows for a more efficient social interaction. This means that a competent individual might find it easier to adjust his/her behaviour in order to provide him/herself with the empathy they need, compared with someone less competent. Mentalising competence is thought to enable empathy (particularly cognitive empathy), as studies on autism reflect (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001; Roeyers, Buysse, Ponnet, & Pichal, 2001; Rueda, Fernández-Berrocá, & Baron-Cohen, 2015; Smith, 2009). Mentalising competence (theory of mind) is what allows us to read and speculate about other people's intentions beyond the direct effects or implications of their actions. It also allows us to work with false beliefs, both our own and others' (Baron-Cohen, Lombardo, & Tager-Flusberg, 2013; Gergely & Csibra, 2005; Tomasello, 2004). There is also evidence suggesting that mentalising competence is a predictor of the size of the social network (Stiller & Dunbar, 2007), that is the number of active relationships which a person can count on. Moreover, it has also been correlated with the empathy we feel for others, which has a cognitive component (Ibanez, et al., 2013; Perry & Shamay-Tsoory, 2013). In this research, mentalising competence is considered to play an important role in the interpretation of social interaction and empathy perception, and consequently would affect the experience of loneliness.
- b. Attachment style has been found to mediate the relationship between perceived empathy and physical pain (Sambo et al., 2010) and has been correlated to loneliness as well (DiTommaso,

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