Relationship between emotional intelligence and empathy towards humans and animals

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Previous research has highlighted that Emotional Intelligence (EI) is related to an array of positive interpersonal behaviours such as greater human empathy. Nonetheless, although animals are an integral part of our lives, there is still a lack of clarity regarding the way in which EI relates to empathy towards animals. Thus, the aim of this study was to investigate the relationship between EI and empathy towards humans and animals. We used the Trait-Meta Mood Scale to assess EI, the Interpersonal Reactivity Index to assess empathy for humans, and the Animal Empathy Scale to assess empathy for animals. Our findings revealed a positive relationship between empathy for humans and animals. In addition, the results also supported the idea that EI is positively related to empathy for humans, although no relationship was found between EI and empathy for animals. These findings provide a better understanding of the mechanisms underlying empathic behaviour and suggest that empathy for humans and animals can be influenced by various factors. Limitations and future lines of research are discussed.

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Abstract

Previous research has highlighted that Emotional Intelligence (EI) is related to an array of positive interpersonal behaviours such as greater human empathy. Nonetheless, although animals are an integral part of our lives, there is still a lack of clarity regarding the way in which EI relates to empathy towards animals. Thus, the aim of this study was to investigate the relationship between EI and empathy towards humans and animals. We used the Trait-Meta Mood Scale to assess EI, the Interpersonal Reactivity Index to assess empathy for humans, and the Animal Empathy Scale to assess empathy for animals. Our findings revealed a positive relationship between empathy for humans and animals. In addition, the results also supported the idea that EI is positively related to empathy for humans, although no relationship was found between EI and empathy for animals. These findings provide a better understanding of the mechanisms underlying empathic behaviour and suggest that empathy for humans and animals can be influenced by various factors. Limitations and future lines of research are discussed.

Keywords

Emotional intelligence; Empathy; Empathy for humans; Empathy for animals.

Nowadays it is generally accepted that the intelligent use of emotions has a positive impact on the psychological adaptation of the individual to their environment (Mayer & Salovey, 1997; Salovey et al., 1999; Salovey et al., 1995), providing them with a better chance of success (Mayer et al., 2008). Based on this perspective, research conducted within the field of emotional intelligence (EI) has made a significant contribution to knowledge and evidence regarding the positive effects of emotions. In particular, research in recent decades indicates that an array of positive outcomes can be attributed to higher levels of EI, including improved well-being and mental health (Martins et al., 2010: İnce et al., 2019), academic or professional performance (Costa & Faria, 2015; O'Boyle et al., 2011), prosocial behaviour and satisfaction with social networks (Ciarrochi et al., 2000; Mayer et al., 1999), lower levels of clinical symptomatology (Bastian et al., 2005; Megías et al., 2018a) and aggressive or disruptive behaviour (Brackett et al., 2004; Davis & Humphrey, 2012; Lopes et al., 2011; Megías et al., 2018b). In this regard, research has also been devoted towards exploring the relationship between EI and empathetic behaviours, namely the positive effects of EI on empathy for other humans. Nonetheless, to date no research has addressed the specific relationship between EI and empathy for animals, in spite of the fact that animals play a very important role in our society, and are an integral part of culture, leisure, well-being, work, and politics. In fact, public opinion would suggest that people who show sensitivity to nonhuman species have greater emotional abilities. However, the analysis of well-known cases, such as activists who violate human rights to save animals or even Hitler and his Nazi companions who were animal lovers (Paton, 1993), demonstrate that these relationships have yet to be analysed in depth. Therefore, this study presents a preliminary attempt to extend knowledge on the relationship between EI and empathy towards humans and animals.

EI and human empathy

EI can be conceptualized as the capacity to process emotional information and comprises the "ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional

knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (Mayer & Salovey, 1997, p. 10). Thus, both intrapersonal and interpersonal emotional abilities are considered to fall under this category of mental abilities (Mayer & Salovey, 1997).

Particular interest has been paid to the link between EI and empathy, since the latter constitutes a relevant factor in social interaction and prosocial behaviour (Gilet eet al., 2013). Empathy, as a multidimensional construct that comprises emotional and cognitive components (Baron-Cohen, & Wheelwright, 2004), is based on the ability to recognize, understand, and share the feelings of others (Davis, 1980; de Waal, 2008; Preston & de Waal, 2002). More specifically, cognitive empathy reflects the way in which we understand others, their experiences and emotions, whilst emotional empathy involves the emotional response to the experience of others and actually sharing that particular emotional state with the other (Smith, 2006).

Considering that perceiving and understanding emotion in others and emotional awareness are the abilities involved in EI, it might be reasonable to suppose that there is a positive relationship between EI and empathy (Schutte et al., 2001). In fact, some authors argue that empathy is a result of EI, since the ability to reason about emotions in ourselves and others will have an impact on the accurate interpretation and management of social interactions and experiences (Mayer et al., 2008).

Various authors have delved further into this relationship and confirmed that individuals with higher EI are also more empathetic towards other people (Fitness & Curtis, 2005; Mayer et al., 1999; Schutte et al., 2001, 2005). This positive relationship has been established when evaluating EI using different types of measures, including self-report (Fitness & Curtis, 2005; Salovey et al., 2002; Schutte et al., 2001) and performance tests (Ciarrochi et al., 2000; Mayer et al., 1999). In particular, some studies found that attention to emotions correlated positively with the empathy dimensions of empathic involvement and personal distress (Aguilar-Luzón & Augusto, 2009; Extremera & Fernández-Berrocal, 2004). A higher level of emotional clarity and repair has also been positively associated with perspective taking and negatively associated with personal distress, both of which are aspects of empathic behaviour (Aguilar-Luzón & Augusto, 2009; Extremera & Fernández-Berrocal, 2004; Ramos et al., 2007).

Although the relationship between EI and human empathy has been explored in the literature, rather less attention has been paid to the issue of how EI relates to empathy directed towards other objects, including empathy for animals.

Relationship between empathy directed to humans and to animals

Studies in the literature have explored the relationship that individuals establish with other animals and confirmed that humans are able to feel empathy for animals (e.g., Emauz et al., 2016; Paul, 2000). Some authors consider that empathy for animals has a strong heritable component and can evolve differently depending on the particular species of animals (Bradshaw & Paul, 2010). Research suggests that the development of empathic behaviour is due to its adaptative components, which would enable pro-social behaviour and inhibit aggression. Another possibility explored by some investigators is that the process of nurturing (e.g., providing food and shelter, care-giving) infants and babies would have had an impact on the development of the empathic behaviours of humans, considering that the ability to empathetically respond to the distress shown by children is a crucial component of the emotional nurturance process (de Waal, 2008).

The literature also indicates that there is a positive relationship between the empathy directed to humans and animals, although this is not of a high magnitude (Ellingsen et al., 2010; Emauz et al., 2016; Paul, 2000). Other studies have also found that concerns about animal suffering are associated with higher levels of empathy for humans (Ascione, 1992; Komorosky & O`Neal, 2015). However, when exploring whether individuals particularly characterized by high levels of affection towards animals have high levels of affection towards humans, the results are contradictory (Paul, 2005). For instance, a very high level of affection for animals can be related to a displacement of affection from people to pets. Therefore, it is not always evident that in order to be empathetic towards animals the individual should also be empathetic towards humans or vice versa. These findings suggest that empathy for humans and for animals — whilst many times related — are probably not the same unitary construct, representing different psychological concepts that are separately influenced by specific factors (Paul, 2000; Paul, 2005).

EI and empathy towards animals

To date, there are no reports regarding the relationship between EI and empathy directed to animals of any kind, except humans. One could argue that EI is related to several positive outcomes such as empathy for humans (Fitness & Curtis, 2005; Mayer et al., 1999; Schutte et al.,

2001, 2005) and that a similar association is likely to be found for empathy towards animals. However, as previously described, the literature on empathy for animals has presented mixed results, that is, supporting the association between attitudinal and prosocial behaviours towards animals and towards people (Ellingsen et al., 2010; Emauz et al., 2016; Komorosky & O`Neal, 2015) or indicating that those behaviours can be independent (Paul, 2005). Moreover, the dynamics of the relationships between individuals are far more complex than those established with animals. In this regard, EI can be associated with empathy for humans and other positive human-oriented outcomes but might not necessarily be correlated with animal-oriented constructs, for instance, advocating for animal rights, being compassionate towards animals in distress, or taking a stance against the use of animals for scientific purposes.

Gender differences in EI and empathy

Previous studies in the literature have revealed gender differences in EI, and in empathy for humans and animals. Whilst in general, women score higher than men on the main factors that constitute EI, this difference appears to depend on the type of instrument used. Specifically, when a performance-based instrument is used, women score higher than men on all dimensions; however, when using a self-report instrument, particularly the TMMS (Salovey et al., 1995), women tend to score higher than men on the dimension of attention to emotions, and lower on the dimensions of emotional clarity and repair (Cabello & Fernández-Berrocal, 2015; Fernández-Berrocal & Extremera, 2008; Joseph & Newman, 2010; Navarro-Bravo et al., 2019). Further, previous studies indicate that women, compared with men, tend to exhibit higher levels of empathy for both humans and animals (Angantyr et al., 2011; Paul, 2000; Serpell, 2004; Klein & Hodges, 2001).

Aim

The main objective of this study was to investigate the relationship between EI and empathy for humans and animals. We conducted a detailed study of these relationships through the analysis of several EI and empathy sub-dimensions. In addition, and based on the findings of the previous literature, we also explored possible gender differences in EI and in empathy towards humans and animals. We hypothesized that (1) there is a positive relationship between empathy for humans and empathy for animals; (2) there is a positive relationship between empathy for

humans and EI. Finally, with respect to the relationship between EI and empathy for animals, we conducted an exploratory analysis since it is not possible to formulate a clear hypothesis given the mixed findings reported in the previous literature.

Methods

Participants

The sample consisted of one hundred and fifty-five adult volunteers (31.61% male). They were recruited through advertisements at the University of Malaga, social networks, and online platforms. The age of the participants ranged from 18 to 56 years with a mean of 24.67 years (SD = 7.40). All participants were informed that confidentiality and anonymity of the collected data would be assured, and they were treated in accordance with the Helsinki declaration (World Medical Association, 2008). The Research Ethics Committee of the University of Málaga approved the study protocol as part of the project PSI2017-84170-R (IRB approval number CEUMA 14-2019-H).

Procedure and instruments

Participants completed the questionnaires online through LimeSurvey platform (http://limesurvey.org). Access to the questionnaires was provided via email invitation from the authors. Informed consent was found on the first page of the online questionnaire, and the confidentiality of their responses was guaranteed. The questionnaires were set up so that blank responses were not allowed, avoiding possible missing data. The whole study took approximately 20 minutes to complete. The sample size was based on availability, but statistical power should not be a problem given that a power analysis using G*Power 3.1.9 (Faul et al., 2007) determined that 153 was the minimum number of participants required to obtain a power of 0.8 according to an alpha of 0.05 and medium effect size.

A description of each scale is detailed below:

Trait-Meta Mood Scale (TMMS; Salovey et al., 1995). The TMMS is a 24-item self-report scale widely used to assess EI. The questionnaire includes three sub-dimension scores: attention to emotions (awareness of our emotions, the ability to recognize our feelings and know what they mean), emotional clarity (ability to know, understand, distinguish and understand how emotions evolve, ability to integrate emotions in our thinking), and emotional repair (ability to regulate and

control positive and negative emotions). Responses are given on a 5-point Likert type scale ranging from 1 ("Disagree strongly") to 5 ("Agree strongly"). We used the Spanish version of the scale (Fernández-Berrocal et al., 2004). In our study, the scale showed good internal consistency (Cronbach's alpha values of the sub-dimensions ranged between .84 and .91).

Interpersonal Reactivity Index (IRI; Davis, 1983) is a 28-item self-report scale used to measure empathy. This scale is composed of four subscales: perspective taking (ability of subjects to adopt other people's point of view), empathic concern (tendency of subjects to experience feelings of compassion and concern towards others), personal distress (tendency of subjects to experience feelings of anxiety and discomfort when witnessing the negative experiences of others) and fantasy (tendency of subjects to identify with fictional characters from books and movies). Each item uses a 5-point Likert scale ranging from 1 ("Does not describe me at all") to 5 ("Describes me very well"). We used the Spanish version of the scale (Escrivá et al., 2004). In our study, the scale showed adequate internal consistency (Cronbach's alpha value of the total score was .80 and for the sub-dimensions this ranged between .65 and .77).

Animal Empathy Scale (*AES*; Paul, 2000) is a 22-item self-report scale used to measure animal empathy. Each item uses a 9-point Likert scale ranging from 1 ("Disagree strongly") to 9 ("Agree strongly"). We used the Spanish version of the scale in our study (La Torre Gómez, 2017). In our study, the scale showed adequate internal consistency (Cronbach's alpha value of the total score was .85).

Data analysis

First, descriptive statistics were computed to examine the characteristics of the scores of the measures employed, both for the total sample and divided by gender. Second, gender differences were contrasted using t-tests. Third, Pearson's correlations were conducted to explore the association between variables. Finally, using Fisher's Z-test, we tested if there were differences between the correlation between human empathy and EI and the correlation between animal empathy and EI. Descriptive statistics, t-test, Pearson's correlations, and Fisher's Z-test analyses were carried out using SPSS® version 24.0 (IBM Corporation, Armonk NY, USA) and FZT computator (http://psych.unl.edu/psycrs/statpage/regression.html).

Results

Table 1 displays the descriptive statistics and gender differences for the variables included in the study. We observed that men, in comparison with women, showed higher levels of emotional clarity ($p < .01$, effect size by Cohen´s standards [Cohen, 1988] was medium) and lower levels of empathic concern on the sub-dimension of human empathy and in empathy for animals ($p < .01$, medium effect size).

- Insert Table 1 -

Pearson´s correlation analysis revealed that higher levels of empathy for animals were related to more human empathy for the sub-dimensions of perspective-taking, fantasy and empathic concern. With respect to the relationship between EI and human empathy, the emotional attention sub-dimension was positively related to fantasy, empathic concern and personal distress. The emotional clarity sub-dimension was negatively related to personal distress. Finally, the emotional repair sub-dimension was positively related to perspective-taking and empathic concern, and negatively related to personal distress (see Table 2). However, none of the sub-dimensions of EI were related to empathy for animals.

- Insert Table 2 –

When specific comparisons between correlations were made using Fisher's z-test, it was found that the EI sub-dimension of emotional attention showed a significantly stronger positive relationship with the human empathy sub-dimensions of empathic concern ($Z = 2.25$, $p < .05$) and personal distress ($Z = 1.66$, $p < .05$) than with empathy for animals. Emotional clarity showed a significantly stronger correlation with human empathy than with empathy for animals, but only for the human empathy sub-dimension of fantasy ($Z = 1.66$, $p < .05$). Finally, emotional repair showed a significantly stronger relationship with the human empathy sub-dimensions of perspective-taking ($Z = 2.45$, $p < .05$) and personal distress ($Z = 3.27$, $p < .01$) than with empathy for animals.

Discussion

Previous studies in the literature have shown that EI is related to positive aspects, such as better mental health, greater prosocial behaviours, and greater human empathy (Ciarrochi et al., 2000; Fitness & Curtis, 2005; Martins et al., 2010). However, to date, the relationship between EI and empathy for animals has not been studied, despite the fact that animals are an increasingly important part of our society and everyday living. The present study attempted to delve more deeply into the relationship between EI and empathy for humans and for animals. More in-depth knowledge about these factors could help us to understand the differences that exist between personal emotional capacities and sensitivity to animals.

With regard to gender differences, our study first revealed that men, compared with women, showed a higher score on the EI sub-dimension of emotional clarity. This result is consistent with those reported in the previous literature showing that when using self-reports to measure EI, men perceive themselves to be more skilful than women in certain emotional competencies (Cabello & Fernández-Berrocal, 2015; Fernández-Berrocal & Extremera, 2008). Second, we found that women had higher scores on the human empathy sub-dimension of empathic concern when compared with men. Empirical studies have indicated that women have a greater capacity than men for understanding the thoughts and feelings of others (Klein & Hodges, 2001; Schieman & Van Gundy, 2000). Finally, we found that women scored significantly higher than men on empathy for animals. This finding is in accord with various studies showing that women tend to show a more positive attitudes towards animals (Furnham et al., 2003, Paul, 2000; Serpell, 2004).

With regard to the correlation analyses (Hypotheses 1 and 2), our results are consistent with most of the findings in the literature (Extremera & Fernández-Berrocal, 2004; Fitness & Curtis, 2005; Findlay et al., 2006; Juntilla et al., 2006; Ellingsen et al., 2010). First, the relationship between human empathy and EI had two components. The results of the present and previous studies confirm that, in general, an adequate level of EI is related to higher levels of empathy (Fitness & Curtis, 2005; Mayer et al., 1999; Schutte et al., 2001, 2005); however, an excess of empathic involvement (i.e. higher scores on personal distress) could hinder the ability to engage in emotionally intelligent behaviours (Extremera & Fernández-Berrocal, 2004). This latter assumption could explain the observation that levels of personal distress were negatively related to emotional clarity and repair. Second, we found a positive relationship between most of the human empathy sub-dimensions and empathy for animals. This finding is also in accord with

315 previous research (Ellingsen et al., 2010; Emauz et al., 2016; Paul, 2000) and suggests that those
316 individuals with higher scores on human empathy also have a more welfare-oriented attitude
317 towards animals. Specifically, the results of this study revealed that the human empathy sub-
318 dimensions of perspective-taking and empathic concern were strongly related to empathy for
319 animals. Whilst several theories could explain this result, in general, research indicates that
320 someone who is empathetic and is capable of adopting the point of view of animals and exhibits
321 concern about them is likely to have similar feelings towards people (Eisenberg et al., 1992;
322 Lockwood 1983; Messent, 1983; Rossbach & Wilson, 1992).

323 Finally, we did not find a significant relationship between empathy for animals and EI.
324 Moreover, we observed that the relationship between EI and several sub-dimensions of empathy
325 for humans were significantly stronger than the relationship between EI and empathy for animals.
326 Thus, the current findings do not support the notion that people who have better emotional abilities
327 are more empathetic towards animals. To the best of our knowledge, this is the first time that this
328 relationship has been investigated. Although EI has been linked to better interpersonal social
329 relationships, prosocial behaviour, and greater empathy for humans (Brackett et al., 2004; Gilet et
330 al., 2013, Komorosky & O`Neal, 2015; Lopes et al., 2011), the results of our study indicate that
331 EI may not be a determining factor in empathy for animals, or at least suggests that the mechanisms
332 underlying both types of empathy are influenced by different factors (Paul, 2000; Paul, 2005).

333 The present study provides a first step towards a better understanding of the relationships
334 between empathy for humans and animals. However, it is important consider that the methodology
335 employed was correlational and thus future lines of investigation should conduct experimental
336 studies to determine causality between variables. Advances in the study of this relationship could
337 have practical implications such as the promotion of interventions aimed at increasing human
338 empathy levels through animal-assisted therapy. This type of therapy could be helpful for
339 decreasing antisocial behaviours and aggressiveness among peers and, in addition, could promote
340 appropriate attitudes and respect for animal welfare.

341 As limitations of the research, it is important to note that our sample was not gender
342 matched, with a greater number of women than men (31.61%). Furthermore, given that previous
343 literature has shown that the ability to empathize is influenced and reinforced by similarity,
344 proximity and familiarity (de Waal, 2008) and other factors such as age, gender, cultural factors

or personality traits (Kavanagh et al., 2013), future studies should explore possible differences in the empathy and EI relationship as a function of these factors. Finally, the questionnaires used in this research were self-report instruments, and, consequently, susceptible to possible response and introspective biases. It would therefore be useful to work with behavioural and performance measures in order to address these issues.

Conclusion

The main objective of the current research was to clarify the relationship between EI and empathy for humans and animals in order to have a better understanding of the factors that underlie empathic behaviour towards animals and its relationship with empathy for humans. Our results revealed the existence of a positive relationship between both types of empathy (humans and animals). A positive relationship between EI and empathy for humans was also observed. However, we did not find a relationship between EI and empathy for animals. Overall, these results support previous findings in the literature regarding the relationship between EI and empathy for humans, but the lack of a relationship between EI and empathy for animals suggests that both types of empathy can be guided by different factors or could represent different psychological constructs. Although preliminary conclusions can be drawn from these results, further investigation is necessary in order to replicate these findings and better understand the common and distinctive process involved in empathy for humans and animals, and their association with EI abilities.

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Table 1(on next page)

Table 1. *Means, standard deviations (SD), and t-test for gender differences.*

1 **Table 1**. *Means, standard deviations (SD), and t-test for gender differences.*

	Total sample		Men		Women			
	Mean	SD	Mean	SD	Mean	SD	t-test	Cohen´s
Attention (TMMS)	3.57	.88	3.43	.99	3.63	.82	-1.32	0.22
Clarity (TMMS)	3.25	.88	3.60	.76	3.10	.89	3.20**	0.57
Repair (TMMS)	3.20	.77	3.25	.80	3.17	.76	.60	0.11
Perspective-taking (IRI)	3.61	.69	3.51	.83	3.65	.61	-1.21	0.20
Fantasy (IRI)	3.27	.67	3.16	.67	3.33	.67	-1.45	0.25
Empathic concern (IRI)	4.01	.60	3.71	.73	4.15	.47	-4.51**	0.72
Personal distress (IRI)	2.40	.80	2.30	.86	2.45	.77	-1.11	0.18
Animal empathy (AES)	148.28	26.28	136.65	26.75	153.65	24.36	-3.92**	0.66

* $p < .05$, ** $p < .01$

2

Table 2(on next page)

Table 2. *Pearson's correlations between EI and empathy for human and animals.*

Table 2. *Pearson's correlations between EI and empathy for human and animals.*

	2	**3**	**4**	**5**	**6**	**7**	**8**
1.Attention (TMMS)	.17*	.01	.14	.28**	.37**	.31**	.13
2.Clarity (TMMS)	-	.25**	.05	.11	-.03	-.23**	-.08
3.Repair (TMMS)		-	.39**	.13	.22**	-.24**	.13
4.Perspective-taking (IRI)			-	.23**	.40**	-.07	.27**
5.Fantasy (IRI)				-	.38**	.20*	.18*
6.Empathic concern (IRI)					-	.16*	.29**
7.Personal distress (IRI)						-	.00
8.Animal empathy (AES)							-