

Empathy and Donation Behavior Toward Happy and Sad Chimpanzees

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Past research indicates a moderate but robust relationship between human empathy and empathy toward animals. Further, it has been shown that human empathy is associated with more positive attitudes toward animals. What has not been researched, however, is human- and animal-directed empathy in combination with actual animal-directed helping behavior. Here, we report two studies with which we begin to fill this gap by assessing human trait and affective state empathy toward sad and happy chimpanzees and subsequent donations to a chimpanzee conservation project. Both studies involved between subject designs and college students samples, with study 1 ($n = 405$) having been an online study and study 2 ($n = 121$) having been conducted in a controlled laboratory environment. In study 1, we used a probabilistic donation measure, whereas in study 2, participants could actually donate some of their participation fee. Although our results show that neither human trait nor animal-directed state empathy predicted donation behavior, we found that moral attitudes as well as past donations were predictive of probabilistic donation behavior. Interestingly, happy and sad chimpanzees elicited equally high monetary donations. We discuss our results in light of the potentially different underlying mechanisms that trigger animal-directed helping behavior.

Keywords: chimpanzees, donations, emotions, empathy, helping behavior

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Introduction

Empathy is a vital human ability that fosters and eases social interaction (Baron-Cohen & Wheelwright, 2004). Davis (1983) broadly defined empathy as capacity for “reactions of one individual to the observed experiences of another” (p.113). Scholars widely agree that empathy involves both cognitive and affective processes (Decety & Jackson, 2004; Zahn-Waxler & Radke-Yarrow, 1990). These processes allow the empathizer to acknowledge, understand, and share the perceived emotional state of another individual (Batson & Ahmad, 2009; Preston & Hofelich, 2012). Although research surrounding the empathy construct has primarily been conducted in the context of human-human interactions, displays of empathy are not necessarily bound to interactions between humans (Lipps, 1903; Paul, 2000; Westbury & Neumann, 2008). In fact, as noted by Paul (2000), some widely used measures of human-directed empathy (e.g., Bryant, 1982; Mehrabian & Epstein, 1972) also encompass items that assess animal-directed empathy, as these two forms of empathy have been shown to be related (Paul, 2000, see also Thompson & Gullone, 2003).

Although research evaluating empathy between species is limited, the relationship between human-directed and animal-directed empathy is generally supported. For example, Paul (2000) reported a significant correlation between human- and animal-directed empathy (Kendall’s $\tau = .26$). More specifically, Poresky (1990) found that children’s empathy toward other children is significantly correlated with their empathy toward pets, specifically dogs ($r = .44$). Poresky (1990) also observed that stronger bonds between children and their pets are related to increased levels of empathy toward other children, compared to children without a pet. Similarly, Vidovic, Stetic, and Bratko (1999) found that dog owners have higher levels of human empathy than non-dog owners. Westbury and Neumann (2008) showed that empathy, measured via physiological markers and subjective self-

reports, can be felt for animals (chickens, quadruped, and primates) in distress. The authors report a significant trend, indicating increasing levels of empathy for animals that are most similar to humans. However, Paul (2000) pointed out that although human-directed and animal-directed empathy appear to be somehow related, they should not be regarded as the same unitary construct. Similarly, McPhedran (2009) noted that despite reported positive correlations between human- and animal-directed empathy (e.g., Paul, 2000) it should not be assumed that they mutually entail each other.

The relationship between empathy for animals and attitudes toward animals

Generally, past research has shown that empathy is positively related to sympathetic and caring attitudes toward animals. For example, Wagstaff (1991) reported a positive correlation between empathy toward animals and sympathetic attitudes toward their welfare and rights. Similarly, Ascione (1992) reported a positive relationship between children’s empathy and their attitudes regarding the treatment of animals. More specifically, Furnham, McManus, and Scott (2003) found empathic concern, followed by personal distress, to be the best empathy related predictors of attitudes toward the use of animals in research; and Taylor and Signal (2005) found empathic concern to be the best predictor of animal attitude scale scores (Herzog, Betchart, & Pittman, 1991).

More specifically, Broida, Tingley, Kimball, and Miele (1993) found more favorable attitudes about animal experimentation to be significantly associated with lower levels of empathy for animals. Further tapping into the issue of the instrumentality of animals, Hills (1993) compared the instrumental attitudes and empathy levels of animal rights supporters, urban citizens, and farmers. Regarding the instrumentality of animals, farmers scored highest, whereas animal rights supporters scored lowest. In accordance with this result,

empathy levels have been found to be highest among animal rights supporters and lowest among farmers. Similarly, Signal and Taylor (2007) assessed empathy and attitudes toward animals in members of an animal protection community and members of the general public. While the authors reported significant relationships between empathy-related measures and animal attitude scale scores, only the empathic concern-animal attitude scale score relationship tended to be greater in the animal protection community sample compared to members of the general public.

Moreover, Erlanger and Tsytsarev (2012) compared high- and low-empathy individuals in terms of specific attitudes toward animals. They reported that participants with high empathy scores had more positive views of animals, higher levels of discomfort regarding animal cruelty, and a more pronounced aversion to the utilitarian uses of animals. Their results also indicated attitudes against animal cruelty to be positively correlated with empathic concern, perspective taking, and personal distress.

Above, we outlined the relationships between human- and animal-directed empathy as well as between empathy and attitudes toward animals. In the next section, we will describe the concept of empathic responsiveness as an indicator of situation-bound affective state empathy. Further, we focus on chimpanzees as specific animal targets of human empathy because their faces look very similar to human faces, with their capability to perform some similar emotional expressions (Waller et al., 2006).

Empathic responsiveness and why it can be triggered by chimpanzees

Empathic responsiveness is thought to occur when another's emotions are perceived, interpreted, and subsequently elicit a congruent affective response in the observer (de Wied, van Boxtel, Matthys, & Meeus, 2012; Richendoller & Weaver, 1994). Although this concept deliberately neglects the cognitive aspect of empathy, it provides a clear and unequivocal assessment of affective state empathy, which is

also applicable toward non-human animal targets. This is because empathic abilities seem to be contingent on the accurate perception of social-emotional cues, such as facial expressions of emotion (Besel & Yuille, 2010; Gery, Miljkovitch, Berthoz, & Soussignan, 2009). Since chimpanzees can express their (positive) emotions in similar ways to humans (e.g., van Hooff, 1972), their perception bears the potential to evoke empathic responses in a human observer as they can be easily perceived and coherently interpreted.

Similar to the human face, a chimpanzee's face functions as a salient channel for non-verbal communication (Parr, Waller, & Vick, 2007; Waller & Dunbar, 2005). Chimpanzees' facial muscles allow them to produce various configurations of facial expressions that are similar to human facial expressions (Waller et al., 2006). Specifically, such a homology has been suggested to exist between the chimpanzee's bared-teeth display and the human smile (van Hooff, 1972), although the bared teeth display is sometimes also perceived by humans as an emotional signal of anger or fear (Waller, Bard, Vick, & Smith Pasqualini, 2007). Still, because of this correspondence, chimpanzees' facial expressions function as social-emotional cues that can be understood and interpreted by humans, who can infer the animal's current emotional state. If these perceptions and interpretations trigger a congruent affective response in human observers, an empathic response can reasonably be assumed to have been evoked (Richendoller & Weaver, 1994).

The link between perceived emotional expressions and helping behavior

Research linking perceived emotional expressions and helping behavior has mostly focused on the perception of negative emotional states (e.g., Batson, O'Quin, Fultz, Vanderplas, & Isen, 1983; Coke, Batson, & McDavis, 1978). This focus seems justified because negative emotional states underscore a need for help, which is thought to facilitate the elicitation of helping behavior (Balsters, Kraemer, Swerts, &

Vingerhoets, 2013). However, we encounter not only negative emotions in our daily social interactions but also positive emotions such as joy and happiness. Additionally, our helping behaviors are not limited to responses to perceived negative emotions that signal clear needs; rather, helping intentions and behaviors are also displayed in response to perceived positive emotions (Hofelich & Preston, 2013; Vrugt & Vet, 2009).

Research regarding perceived positive emotion-helping relationships is limited, however, and has yielded inconsistent findings. For example, Vrugt and Vet (2009) reported that smiling at strangers increases their helpfulness compared to a neutral approach condition. However, they found this effect only for male smiles. Guéguen and de Gail (2003) reported that the reception of a smile increased subsequent helping behavior to a person in need even when the helper received the smile from a different person immediately prior to the arising helping opportunity. These findings are corroborated by Telle and Pfister (2012, study 2), who reported greater intended helping behavior toward people who display happy facial expressions compared to neutral facial expressions. However, Small and Verrochi (2009) found no significant differences regarding the decision to donate money (yes or no) or the amount of donated money for children depicted as happy or neutral.

Moreover, Schroepfer, Rosati, Chartrand, Hare, and Chapouthier (2011) investigated human donation behavior in response to chimpanzees shown in negative and positive contexts. In their study, participants donated more money to a conservation project after watching a public service advertisement describing different threats chimpanzees face (e.g., deforestation, bush meat trade) compared to participants in a neutral baseline condition who just watched a video showing chimpanzees in their natural environment. Participants who viewed chimpanzees in entertaining and funny scenes donated the least amount of money. These differences failed to reach significance, however.

The present research and hypotheses

To the best of our knowledge, the above reviewed research on empathy and happy and sad emotional expressions of chimpanzees and subsequent helping behavior has not been synthesized yet. We begin to fill this gap with the present research by employing stimuli that depict chimpanzees with different emotional expressions (sad vs. happy) for our participants to empathize with and by giving our participants the immediate opportunity to donate money to a chimpanzee conservation project. In addition to the assessment of participants' trait empathy (empathic concern and perspective taking; Davis, 1983), we used an empathic responsiveness measure as indicator for affective state empathy toward the chimpanzees. We also assessed moralistic and utilitarian attitudes toward animals using the respective scales from Kellert's (1993) basic attitudes toward animals questionnaire. Two different measures of donation behavior, probabilistic donations in study 1 and actual donations in study 2, served as indicators of prosocial behavior toward chimpanzees.

We thereby advance the current body of literature in this area by undertaking research beyond the relationship of empathy and attitudes toward animals and assess actual animal-directed helping behavior. Additionally, we shed further light on helping behavior shown in response to perceived positive emotions.

Based on the aforementioned literature, we propose the following hypotheses:

H1: Empathic concern and perspective taking as main components of trait empathy will predict donations for a chimpanzee conservation project.

In addition to the assessment of trait empathy, we assess empathic responsiveness to investigate whether people are generally able to resonate with specific emotional states depicted by chimpanzees. Due to the similarities between human and chimpanzee facial expressions we predict that:

H2: People will show distinct empathic responses toward distinct emotional expressions displayed by chimpanzees. That is,

participants will report greater empathic sadness to the perception of sad chimpanzees than to the perception of happy chimpanzees; and greater empathic happiness to the perception of happy chimpanzees than to the perception of sad chimpanzees.

Further, based on the assumed relationship between trait empathy and attitudes toward animals, we derive the following hypothesis about empathic responsiveness as a measure for affective state empathy linked to helping behavior:

H3: Empathic responsiveness toward the sad and happy emotional states of the chimpanzees will predict donations to the chimpanzee conservation project.

Regarding the impact of sad facial expressions on helping behavior, we assume that negative emotional expressions emphasize a need for help. Therefore, we predict the following:

H4a: Sad chimpanzees will yield greater donations than neutral chimpanzees.

As outlined above, although research findings on the perception of positive emotion and helping behavior are equivocal, we hypothesize that:

H4b: Happy chimpanzees will yield greater donations than neutral chimpanzees.

Hypothesis H4b is based on the studies and reported findings of Guéguen and de Gail (2003) and Vrugt and Vet (2009). Their study designs most closely resemble the design of the present research, in that the perceived positive emotional states were immediately linked to an explicitly signaled need/request for assistance. This link was not directly established in the study of Schroepfer et al. (2011), and Small and Verrochi (2009) used rather general charity advertisements without making a specific donation request. These differences might account for the absent high levels of helping behavior reported in these studies and differentiates them from our present research.

To test our hypotheses, we conducted two studies. Study 1 was an online study that included two treatment conditions (happy and sad chimpanzees) and assessed human trait empathy and empathic responsiveness toward

chimpanzees. The willingness to probabilistically donate a voluntarily chosen amount of money to support a chimpanzee conservation project, that is a donation in case the participant won a 50€ [\$66] online shopping gift card, served as the measure of intended helping behavior. Although this measure is not the same as actually making a donation, research suggests that intentions to perform specific prosocial behaviors (including giving money to charity and donating clothes or goods to charity) are significantly correlated with actually exhibiting these prosocial behaviors (Pavey, Greitemeyer, & Sparks, 2012).

To further address the issue of probabilistic/hypothetical vs. actual donation behavior, study 2 was a laboratory study that employed the same measures as study 1 but included an assessment of participants' actual donations. Study 2 also encompassed a baseline condition in which participants saw emotionally neutral chimpanzees. In both studies the target stimuli were first rated in terms of their emotional meaning and later presented again, embedded in a specific donation request to support a chimpanzee conservation project. As there is no Institutional Review Board (IRB) at Leuphana University, we acknowledged and followed the 'Guidelines for Safeguarding Good Scientific Practice' of the German Research Foundation (DFG) as well as the 'Ethical Guidelines of Leuphana University' (Ethikrichtlinien) for both studies.

Study 1

Method

Design

We used a one-factorial between-subject design in which we systematically varied the emotional expression of chimpanzees depicted in the stimulus pictures. The chimpanzees showed either sad or happy emotional expressions. The assessed variables were a) empathic concern and perspective taking as trait empathy variables, b) empathic responsiveness toward happiness and sadness as affective state empathy variables, c) moralistic and utilitarian attitudes toward animals, and d) willingness to donate money for a chimpanzee conservation project.

Participants

In total, 405 students from two different German universities participated in the online study (70.6 % female; $\mu_{age} = 23.71$ years, $SD_{age} = 5.02$ years). To recruit participants, a short note, accessible to all students, was posted on the universities' online message boards. We did not use a specific consent form, but the note stated the purpose of the study and that participation is voluntary. Further, participants were informed that all data was collected anonymously and only used for the current research study. Participants who wished to take part in the study were asked to click on one of two hyperlinks based on their date of birth (odd

or even) and were thereby randomly allocated to the sad or happy facial expression condition.

Stimuli

We used two different pictures of chimpanzees who expressed their current emotional states of either happiness or sadness via facial expressions and body postures (Fig. 1). We pre-tested these pictures to check whether the chimpanzees triggered the desired happy or sad empathic responses in the observers. Thirty-nine participants (30 females, $\mu_{age} = 20.95$, $SD_{age} = 1.81$) rated the pictures by responding to the items "In your opinion, which emotions is/are the animal(s) in the picture currently experiencing?" and "Which emotions do you feel in response to viewing this picture?" on six-point rating scales (0 = "not at all" to 5 = "very much") for each of the six basic emotions (happiness/enjoyment, sadness, disgust, anger, surprise, fear; Ekman, 1972) and compassion. The first item assessed the emotions ascribed to the chimpanzees, and the second item assessed the emotions elicited in the participants by viewing the chimpanzees.

To formally calculate empathic responsiveness to the target emotions of happiness and sadness, we adopted the scoring procedure used by de Wied et al. (2012) and Telle and Pfister (2012) for five-point rating scales of emotional intensity, in which R = Responsiveness and E = Emotion. To calculate R, an emotion had to be ascribed and elicited. If an emotion was only ascribed or only elicited no



Figure 1. Different emotional expressions of the chimpanzee stimulus pictures (For the neutral and sad picture copyrights obtained via Creative Commons; the happy picture © by Bob Elsdale, permission obtained).

empathic response for this emotion occurred and consequently R was null. Formally:

$$R = 5 - |E_{\text{ascribed}} - E_{\text{elicited}}|$$

As expected, participants were significantly more empathically responsive to the happiness of the happy chimpanzees ($\mu = 4.08$, $SD = 1.33$) compared to sadness ($\mu = 0.46$, $SD = 1.39$, $t(38) = 11.97$, $p < .001$). Regarding the sad chimpanzee, participants were significantly more empathically responsive to sadness ($\mu = 3.85$, $SD = 1.31$) than to happiness ($\mu = 1.31$, $SD = 2.13$, $t(38) = 5.68$, $p < .001$). Further, pairwise comparisons using paired-sample t -tests with Bonferroni-Holm corrections (Holm, 1979) indicated that the empathic responsiveness to the happiness of the happy chimpanzees ($\mu = 4.08$, $SD = 1.33$) was significantly greater than the empathic responsiveness to the happiness of the sad chimpanzee ($\mu = 1.31$, $SD = 2.13$, $t(38) = 6.70$, $p < .001$). Similarly, the empathic responsiveness to sadness was significantly greater for the sad chimpanzee ($\mu = 3.85$, $SD = 1.31$) than for the happy chimpanzees ($\mu = 0.46$, $SD = 1.39$, $t(38) = 11.29$, $p < .001$). These results indicated that the target stimuli were suitable for our main study.

We also tested the two neutral distractor pictures. Bonferroni-Holm corrected post-hoc tests showed that empathic responsiveness to sadness was significantly lower for the first neutral distractor picture ($\mu = 2.33$, $SD = 2.16$) compared to the sad chimpanzee condition ($\mu = 3.85$, $SD = 1.31$, $t(38) = 3.98$, $p < .01$). Further, empathic responsiveness to happiness for the first neutral distractor ($\mu = 2.54$, $SD = 2.22$) was significantly lower compared to the happy chimpanzees ($\mu = 4.08$, $SD = 1.33$, $t(38) = 3.81$, $p < .01$). A comparison of participants' empathic responsiveness to happiness and sadness for this distractor picture revealed no significant difference ($t(38) = 0.37$, $p > .05$).

Empathic responsiveness to happiness of the second neutral distractor picture ($\mu = 3.03$, $SD = 2.12$) was lower compared to the happy chimpanzee picture ($\mu = 4.08$, $SD = 1.33$), though not significantly, ($t(38) = 2.44$, $p > .05$).

In terms of empathic responsiveness to sadness, the neutral distractor picture evoked significantly less empathic sadness ($\mu = 1.90$, $SD = 2.23$) compared to the sad chimpanzee picture ($\mu = 3.85$, $SD = 1.31$, $t(38) = 5.39$, $p < .01$). Further, the second neutral distractor picture did not significantly differ in terms of empathic responsiveness to sadness and happiness from the first neutral distractor picture ($t(38) = -1.13$ and $t(38) = 1.10$, respectively, both $p > .05$). We therefore decided to include it along with the first neutral picture as second distractor in our study.

Measurements

The main dependent variable was the participants' willingness to donate money to the World Wildlife Fund (WWF) chimpanzee conservation project. Similar to the donation opportunity described by Schroeffer et al. (2011), our participants could state any amount of money between 0€ and 50€ [\$66] that they wished to donate if they won one of five 50€ [\$66] online shopping gift cards that were raffled among all participants. Participants were informed that the stated amount would be deducted from the value of the gift card they could potentially win and directly donated. No information regarding the probability of winning a gift card could be provided, as this was dependent on the final number of participants.

To assess the affective and cognitive components of human-directed trait empathy (Batson & Ahmad, 2009; Davis, 1983; Decety & Jackson, 2004), we followed Signal and Taylor (2007) and used the empathic concern and perspective taking scales from the German version of the Interpersonal Reactivity Index (SPF-IRI, Davis, 1980; Davis, 1983; Paulus, 2009). Empathic responsiveness was assessed with the same measure used in the pre-test of the chimpanzee stimuli; i.e., the congruence between the ratings of the respective emotions ascribed to the chimpanzees and those elicited by viewing the chimpanzees in the picture.

Moralistic and utilitarian attitudes toward animals were measured with translated German scales of Kellert's (1993) basic attitudes toward

animals questionnaire (Bortfeldt, 2008). The moralistic attitude scale measures the “primary concern for the right and wrong treatment of animals, with strong opposition to presumed overexploitation and/or cruelty toward animals” (Kellert, 1993, p. 54), whereas the utilitarian scale measures the “primary interest in the practical value of animals, or in the subordination of animals for the practical benefit of people” (Kellert, 1993, p. 54).

We also administered a short demographic questionnaire that contained an item asking about average annual donations to nature and wildlife conservation organizations. Moreover, we included some items from the pet and endangered status composite scales from Schroepfer et al. (2011) as filler items to obscure the purpose of the current investigation.

Procedure

This study was conducted via the internet and participants completed it privately from their personal computers. Participants were randomly allocated to the happy and sad chimpanzee condition. First, participants completed the demographic questionnaire that contained the annual donation item. Next, the participants rated the following aspects of three chimpanzee pictures: a) the perceived emotions of the chimpanzees and b) the emotions elicited in the participants while viewing the pictures. The first picture rated was the target picture (happy or sad), followed by the two neutral distractor chimpanzee pictures. Participants then answered the items that measured the moralistic and utilitarian attitudes toward animals and the filler items. Subsequently, the empathic concern and perspective taking scales were completed.

Finally, the participants read that they were eligible to enter a raffle for one of five 50€ [€66] online shopping gift cards by providing their email address. This information was supplemented by the information that they could specify any amount between 0€ and 50€ [€66] to be deducted from the gift card and donated to the WWF chimpanzee conservation project if they won. To make this setting more authentic, a promotional flyer that advertised

the WWF project was shown on the same page, depicting the same happy or sad target chimpanzees (depending on the experimental condition), which participants had already seen and rated at the beginning of the study. The flyer also contained short written statements specifically detailing how the donated money would benefit the chimpanzees. After we had finished collecting our data, we randomly selected five participants. The amounts of money these participants had stated to donate in case they won a gift card were actually donated to the WWF chimpanzee project (80€ [€105.60] in total) and the participants received their online shopping gift card valuing to the respective remaining amount.

Results

Probabilistic donations did not significantly differ between the happy ($\mu = 20.78\text{€}$ [€27.43], $SD = 13.81\text{€}$ [€18.23]) and sad ($\mu = 20.51\text{€}$ [€27.07], $SD = 13.00\text{€}$ [€17.16]) experimental conditions, ($t(226) = 0.15, p > .05$), (n.s.). Of the total amount available for donation, participants probabilistically donated 41.56% in the happy chimpanzee condition and 41.02% in the sad chimpanzee condition. Participants' gender has not been found to affect the amounts of money intended to donate ($t(207) = -0.86, p > .05$).

The probabilistic donations correlated significantly with participants' past donations to nature and animal conservation organizations as well as with empathic concern and the measured attitudes toward animals (see Table 1, all $p < .01$). These variables were then subjected to a multiple regression analysis to examine whether they significantly predict probabilistic donations to the chimpanzee conservation project. The average annual donations to animal and nature conservation ($\beta = .15, p < .01$) and moralistic attitudes toward animals ($\beta = .19, p < .001$) emerged as significant predictors that together explained 9.8% of the variance (adjusted $R^2 = .0988, F(4, 400) = 12.08, p < .01$). Empathic concern failed to significantly predict probabilistic donation behavior ($\beta = .09, p = .054$). Hence, these findings do not lend any

support to H1, because, although empathic concern was significantly correlated with probabilistic donation behavior, neither empathic concern nor perspective taking predicted probabilistic donation behavior toward the chimpanzees.

To test H2, we performed Welch two-sample *t*-tests to detect the hypothesized differences in participants' empathic responsiveness toward the happy and sad chimpanzees. Empathic responsiveness to happiness was significantly higher in the happy chimpanzee condition ($\mu = 3.78, SD = 1.38$) than in the sad chimpanzee condition ($\mu = 1.51, SD = 2.15, t(302) = 12.35, p < .001$). Vice versa, empathic responsiveness to sadness was significantly greater in the sad chimpanzee condition ($\mu = 3.66, SD = 1.55$) than in the happy chimpanzee condition ($\mu = 1.48, SD = 2.09, t(397) = 12.03, p < .001$). Thus, we found support for H2, indicating that distinct empathic responses to the chimpanzees' expressed happiness and sadness can be evoked in human observers.

Next, we subjected the empathic responsiveness variables to a second multiple regression analysis to investigate H3. The participants' empathic responsiveness to the chimpanzees' sadness or happiness did not emerge as a significant predictor of probabilistic donation behavior (both $p > .05$). Hence, we

found no support for the hypothesis that empathic responsiveness predicts probabilistic donation behavior. This finding was further corroborated because neither empathic responsiveness variable correlated with donation behavior within their respective experimental conditions (both $p > .05$).

Discussion of study 1

The significant correlations depicted in Table 1 are generally in line with past studies (Erlanger & Tsytsarev, 2012; Signal & Taylor, 2007; Taylor & Signal, 2005) that reported similar relationships between empathic concern and attitudes toward animals. Taking the existing research one step further, we went beyond the assessment of mere attitudes toward animals by measuring the amount of money people were willing to donate to a chimpanzee conservation project. Our results show that probabilistic donations were significantly correlated with past donations for animal and nature conservation, empathic concern, and utilitarian and moralistic attitudes toward animals in the expected directions. Further, donations made in the past and moralistic attitudes emerged as significant predictors of probabilistic donation behavior, whereas empathic concern and utilitarian attitudes failed to do so.

Table 1: Correlations between donations and the empathy and animal attitudes variables in the online study

	Annual donations for animals	Empathic concern	Perspective taking	Utilitarian attitudes	Moralistic attitudes	ER sadness	ER happiness
Donations	.189**	.168**	.074	-.173**	.270**	.035	.029
Annual donations for animals	-	.037	.061	-.130**	.161**	-.027	.026
Empathic concern	-	-	.182**	-.164**	.290**	.107*	.079
Perspective taking	-	-	-	-.098*	.124*	-.023	.038
Utilitarian attitudes	-	-	-	-	-.364**	.017	.011
Moralistic attitudes	-	-	-	-	-	.081	.007
ER sadness	-	-	-	-	-	-	-.232**

Note. ER = empathic responsiveness; ** $p < .01$, * $p < .05$

When comparing the influence of happy and sad chimpanzees on the willingness to donate, we found no difference between the two conditions. This finding was somewhat surprising, as we expected the sad chimpanzee to trigger greater donations because sadness underpins a greater need for help (Balsters et al., 2013).

We therefore conducted a second study to a) validate the results of study 1 and b) determine whether participants might have ignored the emotional chimpanzee pictures and simply donated for other reasons, for example, because of the greater cognitive appeal of the short written statements on the flyer, which stated exactly how their donation would benefit the chimpanzees. Hence, in our second study, we introduced a neutral control group to clarify the impact of the emotional chimpanzee pictures on donation behavior to test hypotheses 4a and 4b. Additionally, we altered the donation behavior measure and actually asked participants to physically donate money by putting a self-determined amount in an ostensibly sealed collection box.

Study 2

Method

Design

As in study 1, we employed a one-factorial between-subject design and systematically varied the emotional expression of the chimpanzees presented to participants. In addition to the happy and sad chimpanzees, we introduced a neutral baseline condition (see Fig. 1) and also changed the donation measure, now assessing the amount of money participants actually donate by putting the respective amount in a collection box.

Participants

In total, 122 students volunteered for participation (85 females; $\mu_{age} = 21.21$ years, $SD_{age} = 2.95$ years). Although we did not use a specific consent form, when we recruited participants we told them about the purpose of the study, that participation was voluntary, and

that if they wished to participate they could sign up for an appointment. Before the experiment started, participants were also informed that all data is collected anonymously and only used for the current research study. Each participant received a participation fee of 7.50€ (\$9.90) in 50-Cent coins. One participant was excluded from the sample because he stated that he was boycotting the WWF and thus refused to donate for moral reasons. Therefore, 121 students were included in the statistically analyzed sample.

Stimuli and measurements

The stimuli and measurements in study 2 were identical to those in study 1 except for an additional neutral baseline condition (see Fig. 1) and a different measure of donation behavior. Based on the stimuli pre-test conducted prior to study 1, we decided to use the first distractor picture of study 1, depicting emotionally neutral chimpanzees, as baseline stimulus.

As in study 1, we included two distractor pictures. We used the sad or happy chimpanzee picture as the first distractor picture which we counterbalanced within the neutral condition. The second distractor was identical to the one already used in study 1, depicting emotionally neutral chimpanzees. The promotional flyer participants saw at the end, which called for donations for the WWF chimpanzee project depicted the same happy, sad, or neutral chimpanzees (depending on the experimental condition) participants had previously seen and rated regarding their emotional expressions. Donation behavior was measured as the share of the 7.50€ (\$9.90) participation fee participants actually donated to the chimpanzee conservation project by putting the respective amount in an ostensibly sealed collection box at the end of the study.

Procedure

Upon arrival, participants were seated in front of a computer in an isolated cubicle with a general instruction sheet and two filler questionnaires placed on their table, which were related to a different study. Half of the participants received their participation fee of 7.50€ (\$9.90) at this time, and the other half received the fee after they had completed the

very last questionnaire. Having read the general instructions, participants completed the filler questionnaires. Next, they switched on the computer monitor and completed the same empathy and animal attitude measures as in study 1. Once participants had completed the last questionnaire, they were told to notify the experimenter.

The experimenter then told the participants that the study was completed and reminded them to keep the contents of the study confidential. Before the participants left, the experimenter gave them a short note, which read that this study sought to support the WWF chimpanzee conservation project and that details of the project can be found on the attached flyer. The note further stated that participants could voluntarily support the WWF project by putting any share of their participation fee in the ostensibly sealed collection box the experimenter had placed on the table. The experimenter told participants to read the note and stayed with them until they had started to do so and then left. Donations were made without the experimenter being present to reduce social pressure. After participants had placed their donation in the collection box, they were thanked and dismissed. All donations were given to the WWF chimpanzee conservation project after we had finished collecting our data.

Results

Replication of study 1 results

Study 2 sought to replicate the findings of study 1 with the amount of money participants actually donated to the chimpanzee conservation project as the main dependent variable. None of the correlations between donations made and empathy or animal attitudes variables were statistically significant (see Table 2, all $p > .05$). Consequently, none of the measured variables emerged as significant predictors in a multiple regression analysis (all $p > .05$). Thus, these results do not support H1 or H3. Regarding H2, we tested for differences in empathic responsiveness to happiness and sadness in the neutral, happy, and sad conditions with Welch two-sample *t*-tests. Empathic responsiveness to happiness was significantly greater in the happy chimpanzee condition ($\mu = 3.56, SD = 1.36$) than the sad chimpanzee condition ($\mu = 1.75, SD = 2.23, t(64) = -4.04, p < .001$). Empathic responsiveness to sadness was significantly greater in the sad chimpanzee condition ($\mu = 3.87, SD = 1.28$) than in the happy chimpanzee condition ($\mu = 1.51, SD = 2.05, t(67) = 6.23, p < .001$). Compared to the neutral baseline, empathic responsiveness to sadness was significantly greater in the sad chimpanzee

Table 2: Correlations between donations and the empathy and animal attitude variables in the lab study

	Annual donations for animals	Empathic concern	Perspective taking	Utilitarian attitudes	Moralistic attitudes	ER sadness	ER happiness
Donations	-.021	.046	.159	-.009	.065	-.056	.060
Annual donations for animals	-	.048	-.081	-.125	.182*	.057	.128
Empathic concern	-	-	.244**	-.109	.256**	.013	-.003
Perspective taking	-	-	-	-.104	.156	-.081	.036
Utilitarian attitudes	-	-	-	-	-.374**	-.154	-.147
Moralistic attitudes	-	-	-	-	-	.151	.006
ER sadness	-	-	-	-	-	-	-.344**

Note. ER = empathic responsiveness; ** $p < .01$, * $p < .05$

condition ($\mu = 2.93$, $SD = 2.03$ vs. $\mu = 3.87$, $SD = 1.28$, $t(65) = -2.50$, $p < .05$). By contrast, the happy chimpanzee condition did not differ from the neutral chimpanzee condition in terms of elicited empathic happiness ($\mu = 3.56$, $SD = 1.36$ vs. $\mu = 2.95$, $SD = 2.15$, $t(65) = -1.53$, $p = .13$).

These results indicate distinct human empathic responses when the happiness and sadness of chimpanzees are compared. However, empathic responsiveness to happiness was similarly evoked by neutral chimpanzees and chimpanzees specifically portrayed as being happy. This lends only partial further support for H2 as the latter finding conflicts with our pre-test in which a significant difference in empathic responsiveness to happiness between the happy and neutral condition emerged.

Emotional chimpanzees and donation behavior

To investigate the influence of the emotions expressed by the chimpanzees (neutral vs. sad and happy) on donation behavior (hypotheses 4a and 4b), we conducted a one-factorial analysis of variance (ANOVA). The ANOVA revealed an overall effect of expressed emotion ($F(2, 118) = 3.54$, $p < .05$). Subsequent planned contrasts showed that compared to the neutral chimpanzee condition ($\mu = 1.02\text{€}$ [$\$1.35$], $SD = 0.81\text{€}$ [$\$1.07$]), participants donated significantly more money in the sad chimpanzee condition ($\mu = 1.87\text{€}$ [$\$2.47$], $SD = 1.94\text{€}$ [$\$2.56$], $t(118) = 2.24$, $p < .05$), and the happy chimpanzee condition ($\mu = 1.91\text{€}$ [$\$2.52$], $SD = 2.05\text{€}$ [$\$2.71$], $t(118) = 2.37$, $p < .05$). These results support hypotheses 4a and 4b. However, as in study 1, the mean donations made for happy and sad chimpanzees did not differ ($p > .05$). Expressed in percentages of the total amount available for donation, participants donated 13.60% in the neutral condition, and thereby significantly less than in the sad and happy condition with 24.93% and 25.47%, respectively (both $p < .05$). Neither the point in time when participants received their participation fee (at the beginning or at the end of the study) nor participants' gender affected mean donations made (both $p > .05$).

Discussion of study 2

Study 2 differed from study 1 in three aspects. First, study 2 took place in a controlled laboratory setting. Second, we measured the amount of money participants actually donated to a chimpanzee conservation project. Third, we introduced a neutral control group to assess the general impact of emotions expressed by chimpanzees on donation behavior.

We examined whether the results of study 1 receive further support when participants were given the opportunity to help the chimpanzees by putting some of their money in an ostensibly sealed collection box. In contrast to the findings of study 1, this measure of donation behavior did not correlate with any of the other assessed variables (past donations, empathic concern, perspective taking, positive and negative empathic responsiveness, and moralistic and utilitarian attitudes toward animals) and consequently was not predicted by any of these variables.

We can only speculate as to why the previously observed relationships were not observed in the current data. The discrepancy may be due to the alteration of the donation behavior measure itself. The statement "if I will win money, I am going to donate some of it" is probabilistic and certainly different from actually taking a share of one's money and giving it to a charitable organization. People may be more generous in the former case because they are dealing with money they do not have yet and may never receive. In the latter case, people physically handle their money and know that they are sacrificing the specific amount for their donation, which represents an immediate and certain loss.

Second, research has shown that helping behavior in the form of charitable giving is more pronounced in the laboratory than it is in the field, although it is significantly correlated in both settings (Benz & Meier, 2008). However, in study 2, we did not find any correlation between past donations made to animal and nature conservation organizations and donations made in the experiment. This casts

doubts on the validity of the donation measure, but other factors such as a sampling bias or the restriction to 50-Cent increments might have worked in concert to add error that prevented successful replication of our results.

While investigating the impact of emotional expressions portrayed by chimpanzees on the amount of money donated, we found that, compared to the neutral condition, participants donated significantly more money in the sad and happy conditions. These results support hypotheses 4a and 4b and provide evidence that perceived emotional expressions, whether sad or happy, can trigger greater helping behavior compared to perceived neutral emotionality, which is in line with past research (Guéguen & de Gail, 2003; Small & Verrochi, 2009). Moreover, we can therefore exclude the alternative explanation that participants neglected the chimpanzee pictures and based their decision to make a donation solely on the additional explicit information provided on the donation flyer.

The average donations did not differ between the happy and sad chimpanzee conditions. This finding already emerged in study 1 and is somewhat surprising. Negative emotions such as sadness underpin a need for help (Balsters et al., 2013); thus, we expected donations to be highest in this condition. By contrast, positive emotions such as joy and happiness convey a pleasant affective state without any direct signaling of a need for help. Because we found no difference between the experimental conditions, different underlying mechanisms might have caused participants' donation behavior to be triggered by the positive and negative valence of the stimuli; Telle and Pfister (2012) have recently reported a similar finding.

General discussion

The present research investigated the relationship between human empathy, attitudes toward animals, and animal-directed helping behavior. More specifically, we investigated human empathic responsiveness to positive and negative emotional expressions displayed by

chimpanzees and their influence on the degree of elicited donation behavior in two studies. Study 1 was an online study that encompassed various animal attitude and empathy measures and a probabilistic measure that assessed participants' willingness to donate money to a chimpanzee conservation project. Study 2 was a laboratory study that used the same psychometric measures as study 1, but participants could actually donate some of their participation fee to the chimpanzee conservation project by putting it into an ostensibly sealed collection box.

The correlations we found in study 1, particularly those between empathic concern and attitudes toward animals, are in line with past studies reporting similar relationships (Erlanger & Tsytsarev, 2012; Signal & Taylor, 2007; Taylor & Signal, 2005). Moreover, because we found probabilistic donations to be significantly correlated with past donation behavior, empathic concern, and utilitarian and moralistic attitudes toward animals, we advance the current body of literature to the behavioral level. However, neither empathic concern nor perspective taking predicted donation behavior in either study. This finding warrants further attention because other research found a relationship between empathy variables and donation behavior (Verhaert & Van den Poel, 2011).

In study 1, past donation behavior and moralistic attitudes toward animals emerged as significant predictors of the intention to donate to the chimpanzee conservation project. This corroborates research from other domains showing that past behavior is a viable predictor of future behavior (Ouellette & Wood, 1998). Further, in this study, moralistic attitudes toward animals seemed to translate into probabilistic donation behavior, which is a novel finding. Moralistic attitudes and moral emotions are said to have a guiding influence on human behavior (Olsen, Sijtsema, & Hall, 2010; Tangney, Stuewig, & Mashek, 2007). This influence may be particularly pronounced for attitudes and behavior toward animals because animals largely stand helpless in the face of human capriciousness and often fall victim to

cruel and immoral human misbehavior with no chance to defend themselves.

In study 2, we assessed the actual donation behavior of participants for the chimpanzee conservation project and failed to replicate the findings of study 1. Specifically, we found an attitude-behavior gap (LaPiere, 1934; Wicker, 1969) because moral and utilitarian attitudes toward animals failed to predict actual donations to the chimpanzee conservation project. A potential explanation for this observed gap might be that we attempted to predict one specific behavior from rather general attitudes (Ajzen & Fishbein, 2005). Indeed, it might well be that assessing an aggregate of behaviors that are more compatible with the attitudes toward the target can decrease such gaps (Ajzen & Fishbein, 2005; Weigel & Newman, 1976). Thus, future research should employ additional behavioral measures to gain a more accurate picture of the relationships between attitudes toward animals and animal-directed helping behavior.

In terms of the percentage amount of money donated, when donations were probabilistic (study 1), participants donated 41.56% in the happy condition and 41.02% in the sad condition. These shares are greater compared to when participants were given the opportunity to actually donate some of their participation fee (study 2). Here they donated 13.60% in the neutral condition, 24.93% in the sad condition, and 25.47% in the happy condition of the entire amount. This indicates a difference between probabilistic donations and actual donations, with participants having been willing to donate less when the donation meant an actual and certain loss for them, compared to an uncertain and probabilistic loss.

Regarding empathic responsiveness, participants showed distinct empathic responses toward the sad and happy emotions of the chimpanzees. Due to the similarity of some facial expressions between humans and chimpanzees (Parr et al., 2007; van Hooff, 1972; Waller et al., 2006), humans appear to be able to perceive and coherently interpret such social emotional cues. In our study, the perception of the chimpanzees' happiness and sadness

triggered corresponding emotions in human observers. This congruence can thus be considered as empathic responses on the affective level (Richendoller & Weaver, 1994). Our findings most closely resemble the results reported by Westbury and Neumann (2008). Their results indicate that state empathy, measured via physiological indicators and a general subjective empathy measure, can be felt for animals in distress, including primates. Our results show more specifically, however, that affective empathy is not only felt for animals' negative affective states, but also for their perceived happiness.

Nonetheless, our results should be regarded as preliminary because the results regarding empathic happiness were equivocal. In study 2, the empathic responsiveness to the happiness of the chimpanzees did not differ from the neutral condition. Although we found a significant difference in the pre-test for the neutral picture, people might have perceived the neutral chimpanzees as cute or funny. This perception may have ultimately elicited a pleasant affective state in the participants, which they interpreted and labeled as happiness. Although we found empathic responsiveness to happiness and sadness to be contingent on the perceived emotional expressions, this form of affective state empathy was not related to donation behavior in either study.

However, our results support hypotheses 4a (sad chimpanzees yield more donations than neutral ones) and 4b (happy chimpanzees yield more donations than neutral ones). Different mechanisms may trigger the donation behavior in response to differently valenced stimuli (Telle & Pfister, 2012). Sadness expressed by the chimpanzees and sad emotions in general underpin the need for help (Balsters et al., 2013) and might evoke in the observer a tendency to show comforting interactions. This could lead to the elicitation of greater donation behavior, as the donations might be expected to contribute to the alleviation of the other individual's suffering. Additionally, learned social norms of providing help and support might be activated (Simon, 1990). This activation might be particularly pronounced toward non-human

animals' suffering from human misbehavior and exploitation because they are unable to proactively counteract that misbehavior and are thus somewhat reliant on human helping behavior.

The donation mechanism for the happy chimpanzees might be different, however. Instead of evoked pity or compassion, our results show that viewing happy chimpanzees elicits a pleasant affective state of "shared happiness" in the observer. Once a positive emotional state is experienced, people might be motivated to prolong and sustain this pleasant affective state; this idea has been proposed in the mood-maintenance hypothesis (Isen & Patrick, 1983; Isen & Simmonds, 1978). The provision of a donation opportunity might then serve as a means to achieve this end (Dunn, Aknin, & Norton, 2008). Irrespective of a potential mood-maintenance motive, past research has generally shown that the experience of positive affect facilitates generosity and helping behavior (Aknin, Dunn, & Norton, 2012; George, 1991), which might also apply to the current results.

It might also be possible that an internalized moral "principle of care" (Wilhelm & Bekkers, 2010, p. 11) might have been activated by the perceived cuteness of the happy chimpanzees (Bradshaw & Paul, 2010; Glocker et al., 2009). Thus, a caring motivation for them might have ultimately triggered the increased donations, similar to the perception of the sad chimpanzee. Notably, such motivation must have been linked to the emotional expressions, as donations were significantly lower in the neutral chimpanzee condition. Future research should clarify the nature of the underlying motivation to show helping and donation behavior toward animals, especially when they are perceived to be in a positive emotional state.

Limitations

It could be argued that our assessment of donations, linked to an experimental study, cannot be compared to donation behavior in the field as participants might regard donations in the laboratory as obligation. However, past

research has shown that donations made by students in the laboratory significantly correlate with donations in natural, non-experimental settings (Benz & Meier, 2008). Moreover, Stoop (2012) has shown that prosocial sharing is not necessarily contingent on whether it is performed in a controlled experimental context or in the field. Also, effect sizes of laboratory and field studies, conceptually investigating the same constructs, have been found to be similar (Anderson, Lindsay, & Bushman, 1999). Thus, our employed measure of donation behavior is not necessarily invalid. Nevertheless, a successful replication in a field setting would further contribute to support our findings.

Another shortcoming of the present research may be a sampling bias present in both studies. First, mostly female students participated in our studies which could have affected, for example, the analyzed empathy variables, with females having been generally found to report higher degrees of empathy than males (Eisenberg & Lennon, 1983). Second, we used student samples. Students' financial situation is probably different from people who have a regular income, and thus, older, non-students might afford to generally donate a larger amount of money. Therefore, the generalizability of our results to the greater public remains to be established in the future.

In light of the used stimuli to convey emotional states of the chimpanzees, it should be noted that we could not completely randomize the presentation of the target and distractor pictures due to technical constraints. Although the target picture was always presented and rated first, the fixed order of the two following neutral distractor pictures might have led to a potential order effect. Further, the emotions depicted in photographs are transient. Thus, future research could use short film clips showing chimpanzees in happy or sad emotional states. This might elicit stronger emotions in the observer (Trautmann, Fehr, & Herrmann, 2009) which could lead to greater donation behavior. This might be especially the case for sad chimpanzees as short film clips would more strongly emphasize their long-term suffering. Future research should, therefore,

consider dynamic stimuli and compare their effect on donations to static, pictorial stimuli. Nevertheless, the findings of the present research have practical relevance because wildlife organizations widely use pictorial stimuli, for example in the form of posters or advertisements in magazines, to call for people's donations.

Conclusion

The present findings extend the link between empathy and attitudes toward animals to actual animal-directed helping behavior. While we have shown that people are empathically responsive to the sad and happy emotional expressions of chimpanzees, our findings preliminarily preclude the conclusion that empathy directly translates into helping behavior toward animals. Nonetheless, we found that under some conditions (online setting with a probabilistic donation measure), moralistic attitudes and past donation behavior significantly predict the intention to donate money to benefit the conservation of wild chimpanzees.

Interestingly, our data indicate that the amount of money donated was not contingent on whether the chimpanzees expressed happiness or sadness; bearing in mind, however, that our samples consisted mostly of females which might have exerted a biasing influence on our results. Nevertheless, it might be that the donation behavior was triggered by different underlying mechanisms linked to the positive and negative valence of the emotion, such as a mood-maintenance or caring and nurturing motivation. Thus, from a practical point of view, if organizations want to innovate their fundraising campaigns, they could consider combining displays of positive animal emotions with written statements that explicitly signal and emphasize a need for help to trigger the desired donation behavior.

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