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Department of Psychology



“I can feel your pain”:

A behavioral study on individualistic and collectivistic empathy

Bachelor thesis

by

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## Abstract

In the present study, we investigated the influence of the number of empathy-eliciting individuals on the empathic response of the observer and how it relates to members of the ingroup compared to the outgroup. Furthermore, we tested whether the altruistic behavior in a social decision-making situation is shaped by these two influential factors. We proposed that there is a difference between *individualistic empathy*, i.e. empathy with a distinct individual, and *collectivistic empathy*, i.e. empathy with more than one individual.

In each trial of the experiment, four photographs were presented. The participants, Caucasian individuals, were confronted with no individual suffering from pain (neutral condition), with one individual suffering from pain (*individualistic empathy*) and with four individuals suffering from pain (*collectivistic empathy*). The ingroup was represented by photos of Caucasian individuals and the outgroup by photos of Asian individuals. To measure participants' empathic response, they were asked in each trial how they felt when they were looking at the faces. The second block of the experiment was a modified hypothetical Dictator Game.

In summary, the results showed that the empathic response increased with increasing individuals suffering. Dispositional personal distress – measured by the Interpersonal Reactivity Index developed by Davis (1980) – moderated the relationship between the number of suffering individuals and the empathic response toward members of the ingroup only when empathizing with more than one individual (*collectivistic empathy*). With an increase in the empathic response, the altruistic behavior increased. To the best of our knowledge, the results provide the first piece of evidence for the conceptualization of *individualistic empathy* and *collectivistic empathy*.

## Zusammenfassung

In dieser Studie untersuchten wir sowohl den Einfluss der Anzahl empathischer Targets – unter Schmerzen leidende Individuen – auf die empathische Reaktion des Beobachters als auch die Frage, ob die Beziehung dieser beiden Variablen von der Zugehörigkeit der empathischen Targets zur Eigen- oder Fremdgruppe des Beobachters beeinflusst wird. Außerdem untersuchten wir, inwiefern altruistisches Verhalten durch diese beiden Variablen verändert wird. Zur Untersuchung dieser Fragestellung unterschieden wir die beiden folgenden Konzepte: *individualistische Empathie*, Empathie mit einem einzelnen Individuum, und *kollektivistische Empathie*, Empathie mit mehr als einem Individuum.

In jedem Versuchsdurchgang des Experiments wurden vier Fotos gezeigt. In der neutralen Bedingung wurden den Probanden, Kaukasen und Kaukasinnen, nur Fotos von Individuen ohne schmerzverzerrten Gesichtsausdruck gezeigt. In der Bedingung „*individualistische Empathie*“ zeigte eines der vier Individuen Schmerz, in der Bedingung „*kollektivistische Empathie*“ zeigten dagegen alle vier Individuen einen schmerzverzerrten Gesichtsausdruck. Die Eigengruppe wurde durch Fotos von Kaukasinnen und Kaukasen repräsentiert, die Fremdgruppe durch Fotos von Chinesinnen und Chinesen. Um die empathische Reaktion der Probanden zu messen, wurden diese gefragt, wie sie sich fühlten, wenn sie die Fotos anschauten. Der zweite Block des Experiments bestand aus einem modifizierten hypothetischen Diktatorspiel.

Die Ergebnisse zeigten, dass die empathische Reaktion mit der Anzahl der leidenden Individuen anstieg. Dispositioneller persönlicher Stress, gemessen mit dem Interpersonal Reactivity Index von Davis (1980), moderierte die Beziehung zwischen der Anzahl leidender Individuen und der empathischen Reaktion gegenüber mehr als einem Individuum (*kollektivistische Empathie*), wenn diese Individuen der Eigengruppe angehörten. Mit ansteigender empathischer Reaktion erhöhte sich das altruistische Verhalten. Nach bestem Wissen stellen diese Ergebnisse die bisher erste Evidenz für eine Konzeptualisierung von *individualistischer Empathie* und *kollektivistischer Empathie* dar.

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## 1. Introduction

### 1.1. Relevance of Research Question

*“To be with another [...] means that for the time being, you lay aside your own views and values in order to enter another's world [...]. In some sense it means that you lay aside your self; this can only be done by persons who are secure enough in themselves that they know they will not get lost in what may turn out to be the strange or bizarre world of the other, and that they can comfortably return to their own world when they wish. Perhaps this description makes clear that being empathic is a complex, demanding, and strong—yet also a subtle and gentle—way of being.”*

— Carl R. Rogers, *The Way of Being*

Carl R. Rogers (1902-1987) who developed client-centered therapy described his understanding of empathy in his book *“The way of being”* (1980). He spoke of empathy as a process that allows one to enter the private world of another human without merging the self with the other's world. Thus, the experience still keeps the “as-if” quality (Rogers, 1980). Empathy is, even if we experience it every single day from birth until the end of our lives, a daily miracle. It is a complex psychological construct that plays a fundamental role in human social interaction and is thought to motivate humans' behavior, inhibit aggression, and enable the development of morality.

In psychotherapy and interactions between physicians and patients, empathy is a crucial element in the whole process of treatment. It's hardly surprising that many researchers have been interested in empathy. Empathy is extensively investigated in many subareas within psychology, but also in other disciplines such as philosophy and social neuroscience. Studies cover a wide range of research questions regarding the relationship of empathy and personality traits, group memberships, psychiatric diseases, altruism as well as its underlying neurological and physiological processes.

Empathy in clinical care is very demanding because physicians and therapists are confronted with highly emotionally distressing situations including acute and chronic diseases, curable and incurable illness, dying and the suffering of their patient's loved ones. As patients are often accompanied by family members or other persons to medical appointments, empathizing with one distinct individual of a group is quite common in daily clinical practice. In emergency aid, health care professionals or other relief forces are almost exclusively confronted with more than one individual suffering. These different empathic situations are of high complexity and poorly understood by research so far.

Empathizing in clinical settings is also challenging because psychotherapists and physicians are expected to help every patient without any favoritism for specific patients. Treatment based on guidelines is a fundamental principle of health care to provide help with high reliability that should not be threatened by the provider's personal ability to empathize. This noble motive might contradict humans' natural tendency to empathize with some persons more than with others and

has potential for conflict. Additionally, there are two challenges physicians or therapists are confronted with when empathizing with a patient: on the one hand the sharing and understanding of the patient's feelings, on the other hand the development of an appropriate response, not only as a human being who cares, but as a professional who chooses the right treatment. Moreover, health care professionals are vulnerable to "compassion fatigue", the reduced capacity of being empathic or bearing a patient's suffering. Individuals who show higher levels of empathy toward a patient's suffering have a higher risk to experience "compassion fatigue" (Adams et al., 2006). For all these reasons, it is important to shed more light on the factors that influence empathy, especially in the context of clinical care, and its underlying processes.

## 1.2. Theoretical and Empirical Background

### 1.2.1. Empathy and Related Constructs

The definitions of empathy cover a broad range of meanings (Hein, 2014). Several overlapping but distinct definitions of empathy have been developed. But most researchers agree that empathy has a core element that is the adoption of the empathic target's affective state by the empathizer (De Vignemont & Singer, 2006; De Waal, 2007; Decety & Jackson, 2004) and can be understood as the ability to feel *as* someone feels (Hein & Singer, 2008). Hein (2014) wrote that "sharing the other's emotional state is one efficient way to understand the other's current feelings" (p. 153).

The definition of empathy as an affective state highlights the difference between empathy and other cognitive constructs like "Theory of Mind" or "mentalizing" (Baron-Cohen, 2000; Frith & Frith, 2003; Singer, 2006). "Theory of Mind" is understood to be the ability to infer and predict the intentions, thoughts, behavioural reactions, and beliefs of other people and includes the awareness that other people have a mind with mental states that can be different from one's own. It has to be emphasized that the capacity to understand other people's emotions by sharing their affective states is different from the capacity to mentalize because "mentalizing" does not involve a bodily sensation (Singer, 2006). The ability to represent someone's mental states, including affective states, does not necessarily imply an emotional involvement.

The sharing of emotions without self-awareness corresponds to the phenomenon of "emotional contagion" that has to be separated from empathy (De Vignemont & Singer, 2006). "Emotional contagion" is a state in which emotions are elicited in the empathizer by the empathic target, but the empathizer is not aware that the other person's emotions were the cause. In contrast, empathy requires a differentiation between one's own emotions and the other's emotions (Cuff et al., 2016). The empathizer has to be aware that the felt emotions are elicited by observing the other person. De Vignemont and Singer (2006) also distinguished between empathy and compassion. To feel compassion for someone does not mean that the empathizer's affective state is isomorphic to the

other person's affective state, but is understood to be a feeling of concern or pity *for* the other person.

With further processing, empathy can turn into sympathy, personal distress, or a combination of both. Empathic concern, a term introduced by Batson, is similar to Eisenberg's definition of sympathy. It is understood to be an other-focused emotional state of concern that results from the comprehension of the target's emotional state, but differs from it. In contrast, personal distress is a self-focused aversive response (e.g., discomfort, anxiety) that results from the apprehension of another's distress and is similar to the target's state (Singer & Lamm, 2009). The experience of such empathic concern and personal distress differs in their motivational impact on behaviour. It has been proposed that empathic concern leads to an altruistic motivation and helping behaviour in order to reduce the other's suffering, whereas personal distress leads to an egoistic motivation to reduce the own unpleasant feelings (Batson, 1991; Batson et al., 1987; Eisenberg & Fabes, 1990).

If an individual tends to experience intense emotions, but has low levels of regulation, he or she is prone to experience overarousal and, therefore, personal distress that promotes a self-focus. Well-regulated individuals are hypothesized to experience more likely empathic concern than personal distress independent from their emotional reactivity because they are able to modulate their vicarious affective response, and thus keep their emotional arousal at an optimal level. Well-regulated individuals experience their emotional arousal as an emotional force and enhanced attention (Eisenberg et al., 2006). Also Decety and Jackson (2004) highlighted self-regulation and mental flexibility beside affective sharing and self-other awareness as a key component of empathy. They argue that self-regulation and mental flexibility support the process of perspective taking as well as the maintenance of a clear distinction between the self and the other person. Neuroimaging studies have supported this view that empathy does not involve a complete self-other merging (Jackson et al., 2006). In sum, empathic responding relies on regulatory processes; regulation is an essential element to prevent an individual from experiencing high levels of vicarious emotional arousal from turning into personal distress (Eisenberg et al., 2006).

### 1.2.2. Neuroscientific Research on Empathy

In the last years, research became especially focused on the neural instantiation of empathy (Singer & Lamm, 2009). The focus of most studies that investigated the underlying neural processes of empathy was on empathy for someone's pain (for reviews, see Hein & Singer, 2008; Lamm et al., 2011; Zaki et al., 2016). Participants were presented body parts receiving painful stimulation (e.g., Avenanti et al., 2010; Cheng et al., 2007; Lamm, Nusbaum, et al., 2007; Xu et al., 2009) or pictures of individuals showing painful facial expressions (e.g., Han et al., 2009; Lamm, Batson, et al., 2007; Saarela et al., 2007; Sheng & Han, 2012). The finding of these studies showed that a neural circuit

consisting of the anterior cingulate cortex (ACC), an area associated with the affective dimension of pain, the bilateral anterior insula, and the sensorimotor cortex, is activated when perceiving painful stimulation applied to others or perceiving others' painful facial expressions. Moreover, ACC activity to perceived pain was correlated with subjective feelings of others' pain intensity (e.g., Jackson et al., 2005) as well as individual differences in self-reported empathy (Singer et al., 2004). The results of these studies indicate that the brain activity can differentiate between painful and non-painful internal mental states of others and that the brain activity when perceiving someone's pain is overlapped with the brain activity underlying first-person pain experience. Moreover, the brain activity when being confronted with another person in pain is associated with the empathizer's own distress. Several factors influence the amplitude of empathic brain responses, e.g., the intensity of the displayed emotion (Saarela et al., 2007), the appraisal of the situation (Lamm, Batson, et al., 2007), and group membership (Hein et al., 2010). How the number of empathy-eliciting individuals modulates self-reported empathy and empathic brain responses is not investigated so far.

### 1.2.3. Ethnic Bias in Empathy

Humans are a social species, they build social connections, share resources with others, and collaborate to protect each other from threat. The understanding of others and the coordination with group members were essential for survival and lead to "obligatory interdependence" (Brewer & Caporael, 2006). During evolution a strong tendency to categorize people into us, the ingroup, and them, the outgroup, evolved based on even trivial preferences (Tajfel, 1982). Members of other groups were sometimes a dangerous threat, sometimes help and opportunity. Thus, it is not surprising that humans developed an automatic disposition to ingroup favoritism, but are not necessarily biased against outgroups due to "obligatory independence" (Brewer, 1999).

As aforementioned, previous research showed that empathy is influenced by group membership (Hein et al., 2010). Several studies have reported an implicit ethnic bias in empathy (Avenanti et al., 2010; Hein et al., 2016; Sheng & Han, 2012; Sheng et al., 2014; Xu et al., 2009) whereas an explicit ethnic bias is supported by only a few studies (e.g., Mathur et al., 2010). An ethnic bias in empathy refers to the phenomenon that people tend to show more empathy for a member of the ethnic ingroup compared to a member of the ethnic outgroup. For example, Xu et al. (2009) scanned Chinese and Caucasian participants during the presentation of video clips showing faces of Chinese or Caucasian models who received a painful (needle penetration) or a non-painful (Q-tip touch) stimulation. The results showed that ACC activity to the perceived pain decreased to ethnic outgroup in comparison to ethnic ingroup members in both Chinese and Caucasian participants.

Sheng et al. (2014) recorded event-related brain potentials from Chinese adults during ethnic judgments on Asian and Caucasian faces with painful or neutral expressions. The results showed an



ethnic bias in empathy. Interestingly, the ethnic bias in empathy could be eliminated by paying attention to the empathic target's feelings of pain and including individuals from the ethnic outgroup in the ingroup. These findings indicate that an ethnic bias in empathy can be overcome by cognitive strategies and intergroup relationships.

#### 1.2.4. Individualistic and Collectivistic Empathy

It is important to emphasize that previous research did not distinguish between the number of individuals for whom empathy could be felt. Thus, the concept of *collectivistic empathy*, i.e., empathy with more than one person, as compared to *individualistic empathy*, i.e., empathy with a distinct individual, is not well understood. The proposed conceptualization of *individualistic empathy* and *collectivistic empathy* is based on the cultural dimension individualism – collectivism that is a commonly applied framework for explaining and predicting cultural differences (Hofstede, 2001; Triandis, 2001). Individualism and collectivism describe the way in which people perceive themselves, their relationships with others, and their behavioral motives (Triandis, 2001).

Members of collectivistic cultures view themselves as interconnected with the people around them, whereas individualistic cultures emphasize the independence between people and the differentiation of the self from others and the social context (Markus & Kitayama, 1991; Triandis, 2001). Collectivistic cultures may demand individuals to develop an “outsider” or third-person perspective in social situations so that they can better attend to internal processes of others. Members of individualistic cultures may be more likely to maintain an “insider” or first-person perspective in social situations to better attend to their own internal processes (Cohen & Gunz, 2002; Wu & Keysar, 2007). Moreover, Americans, members of an individualistic culture, experience emotions as an internal personal response and an information about the self (Markus & Kitayama, 1991). In contrast, there is evidence suggesting that Asians may experience emotions as intertwined with the feelings and responses of the larger group (Mesquita, 2003; Mesquita & Markus, 2004).

In this context, the results of the study by Masuda et al. (2008) are worth mentioning, especially in respect of the current study: when American participants were asked how a specific target surrounded by others was feeling, they inferred the emotion from the target's facial expression, regardless of whether the other people showed happy, sad, angry, or neutral facial expressions. When Japanese participants were asked the same question, they attended to the whole group to infer the emotions of the target: if the expression of the other people matched with the target's expression, then the Japanese participants inferred that the target felt that emotion more strongly. If the expression of the other people did not match with the target's expression, Japanese participants perceived traces of that emotion in the target. Based on these results, it can be concluded that Americans might infer a person's feelings solely from the facial expression without considering

contextual cues. In contrast, Japanese individuals do not perceive feelings expressed by an individual as separated from the social group, and therefore include it in the evaluation of a person's expression. This study impressively showed that cognitive and perceptual processes are not universal, but partially constructed and modulated by culture.

The dimension individualism – collectivism represents an important and extensively used construct to distinguish between Western and Eastern cultures. The investigation of individualism and collectivism was and still is a fruitful element in research, but the classification of Western and Eastern cultures is associated with a number of issues (Oyserman et al., 2002). First, it is questionable if the traditional division of the world in East and West still holds true, especially in the light of increasing globalization and internationalization of countries. Second, researchers have argued that the dimension individualism – collectivism should rather be seen as two independent dimensions. This is supported by previous research showing that the scores of Western and Eastern samples on the individualism and collectivism scales differed only slightly. Therefore, it is plausible to assume that individualistic and collectivistic values can be found in both Western and Eastern cultures.

### 1.3. Purpose of the Present Study and Hypotheses

The main purpose of this study was to apply individualism and collectivism to the research of empathy, not only to investigate the impact of culture on empathy, but also to broaden the common perspective of research on empathy. The dimensions provide a fruitful ground for a new framework within basic psychological theory. The dimensions are expected to be mirrored in a more fundamental principle of perception, evaluation and emotional processing. The study's approach highlights the importance of investigating culture not only as a separate construct in cultural or social psychology, but also as an omnipresent element of human's perception and behavior and a grounding element of theories within social psychology and social neuroscience.

The present study overcomes the consideration of empathy and culture as independent variables, but unifies them in one independent variable with different levels, *individualistic empathy* and *collectivistic empathy*. This approach emphasizes the pervasiveness of culture in human experience and brings it more centrally into the construct empathy. This could pave the way for more diverse methodological approaches, offers a new vision for research on empathy and might contribute to the research on "people perception" like the studies conducted by Phillips et al. (2018). Interestingly, the whole new theoretical approach might have rather a touch of collectivistic than individualistic thinking because it emphasizes the interconnectedness of two constructs, empathy and culture.

Based on the theoretical and empirical background, this study aimed to extend previous research by testing whether there is an influence of the number of empathy-eliciting individuals on the empathic response and how it relates to members of the ingroup (Caucasian) compared to the

outgroup (Asian). The current study also aimed to investigate whether the altruistic behavior in a social decision-making situation is shaped by these two influential factors. Therefore, we conducted an online experiment to test the following six hypotheses.

Hypothesis 1a: We expect increasing empathy with increasing individuals suffering, i.e., *collectivistic empathy* > *individualistic empathy* > control.

Hypothesis 1b: We expect decreasing empathy with increasing individuals suffering, i.e., *collectivistic empathy* < *individualistic empathy* < control.

Hypothesis 2: We expect higher empathy with the ingroup (Caucasian) than with the outgroup (Asian) across all experimental conditions.

Hypothesis 3a: We expect an interaction between the number of suffering individuals and “group membership” such that the empathic response with the ingroup increases more strongly with increasing individuals suffering as compared to the increase in the empathic response with increasing individuals suffering of the outgroup.

Hypothesis 3b: We expect an interaction between the number of suffering individuals and “group” such that the empathic response with the ingroup decreases more strongly with increasing individuals suffering as compared to the decrease in the empathic response with increasing individuals suffering of the outgroup.

Hypothesis 4: The higher the empathy with a group of individuals, the higher the prosocial behavior towards this group.

## 2. Methods

Prior to any data collection, this study was pre-registered at the Open Science Framework: <https://osf.io/ywdsa/>.

### 2.1. Sample

Data was collected from German participants online using the online platform [www.clickworker.com](http://www.clickworker.com). The study targeted the general population without specific requirements aside from the criterion age. Only adults between 18 and 35 years were allowed to participate. Participants received a financial compensation of 3€ per 10 minutes for their participation.

The sample size calculation was based on the effect size  $f = .35$  of previously reported interactions between ethnic groups and painful versus neutral stimuli (Xu et al., 2009). The required sample size was estimated with the software G\*Power version 3.1.9.7 (Faul et al., 2009) for calculating a multiple regression with two predictors. The result indicated a required sample size of  $N = 39$  for  $\alpha = .05$ .

and a power of  $1 - \beta = .90$ . We collected data from 39 healthy German adults. Eighteen participants were female ( $\text{mean}_{\text{age}} = 28.51$ ,  $SD = 4.16$ , range: 21-35; see Table 1 for sample characteristics).

**Table 1**

*Characteristics of study sample*

Variable	n	%
Gender		
Male	20	51.3
Female	18	46.2
Diverse	1	2.6
Highest educational level		
Hauptschule	1	2.6
Realschule	5	12.8
Fachhochschulreife	5	12.8
Abitur	28	71.8
Employment		
Unemployed	1	2.6
Student	11	28.2
Employed	26	66.7
Self-employed	1	2.6

*Note.* n = 39.

## 2.2. Design and Procedure

The study was announced as an online study on the evaluation of faces. First of all, the participants were informed about the study as follows: “The study consists of two parts: In the first part of the study, you will be asked questions about your behavior and your attitudes. In the second part of the study, you will be asked about your feelings towards different individuals. The study aims to investigate if there is an influence of specific personality traits on decisions in social contexts. You are requested to answer the survey conscientiously and truthful to ensure the quality of the result. It will take about 12 minutes to answer the whole survey.” Informed consent was obtained prior to the experiment.

Before the main task of the study began, participants were asked for demographical data (gender, age, educational level, and profession) and the questionnaires in randomized order via the platform SoSciSurvey (soscisurvey.de). After completing the questionnaires, participants were forwarded to the experiment. It was built in Psychopy (psychopy.org) and was run on Pavlovia (pavlovia.org).

Participants were informed about the main task using the following coverstory: “In the following experiment, you will be shown photos of patients who have experienced a chronic disease.

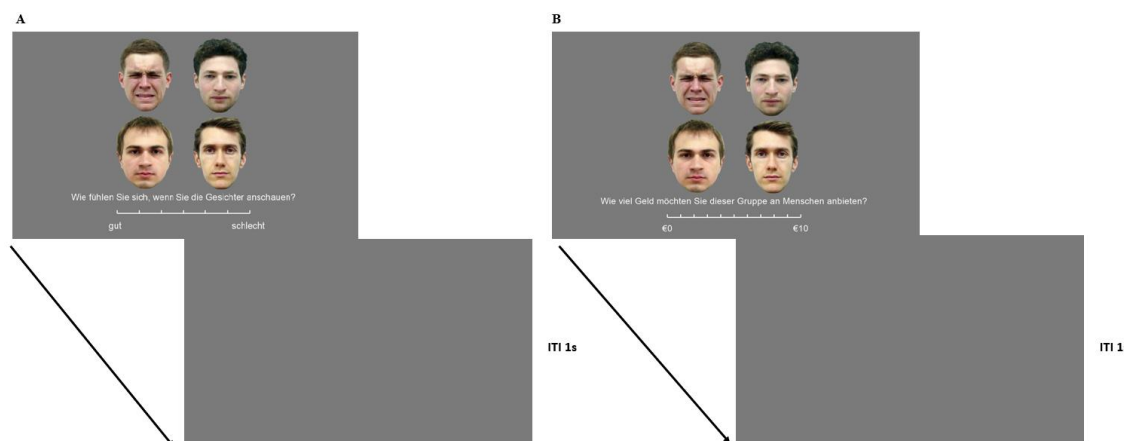
Individuals who are not showing pain have recovered and individuals expressing pain are still suffering from the disease.” The coverstory was adopted from previous research by Wu and Han (2021).

In each trial, four photographs (Sheng & Han, 2012) were displayed side by side in a 2x2 grid in the center of a gray background. To evaluate the emotional sharing of others' pain, participants performed an empathy rating. Below the faces, the participants read the following question: “How do you feel when you are looking at the faces?” On a 7-point scale (1 = “good” and 7 = “bad”), they chose an answer. To facilitate interpretation, higher values represent more empathic feelings: the worse the participant was feeling, the more empathic feelings the participant had for the individuals. The empathy rating is considered to reflect the empathic state after being confronted with a set of stimuli. After choosing an answer on the slider below the question, the interstimulus interval (ITI) of one second began. Then, the next four photographs were presented (see Fig. 1A).

The conditions were the factors *empathy* and *group*. *Empathy* referred to whether participants were confronted with no individual suffering from pain (neutral condition), with one individual suffering from pain (*individualistic empathy*) or with four individuals suffering from pain (*collectivistic empathy*). The *group* was operationalized via ethnic group membership. In this study, the ingroup was represented by photos of Caucasian individuals and the outgroup by photos of Asian individuals. Each of the four photographs presented simultaneously had the same ethnicity and the same gender. The experiment included 2 blocks of 24 trials each (12 trials: group (ingroup vs. outgroup) x gender (male vs. female) x empathy (neutral condition, *collectivistic empathy* and *individualistic empathy*), repeated once in each block). The order of stimuli was counterbalanced across blocks.

To adjust for possible effects of the participant's viewing angle, 25 percent of the participants viewed the painful face of the *individualistic empathy* trials top left, 25 percent top right, 25 percent downleft and 25 percent downright.

After a short break, the second block of the experiment, a modified hypothetical Dictator Game (DG), began. To better understand the link between altruism, empathic feelings for others and the number of suffering individuals, we decided to use a DG to measure altruistic behavior. In the DG, a participant (the “dictator”) can freely choose how much of a given amount of money he or she wants to give to the individuals. In a hypothetical DG, no money is actually exchanged. Therefore, participants were shown the same array of faces as in the first block of the experiment in randomized order. Below the faces, the participants read the following question: “How much money do you want to give this group of persons?” On a slider (1 = “0€” and 11 = “10€”), they chose the amount of money they wanted to give to this group of persons. After the ITI, the next four photographs were presented (see Fig. 1B).



**Figure 1.** Exemplary trials in the experiment. A) Exemplary trial of the rating task. The given trial is a trial in the *individualistic empathy* condition with the painful face topleft. First, the participants read the following question: “How do you feel when you are looking at the faces?”. On a 7-point scale (1 = “good” and 7 = “bad”), they chose an answer. After choosing an answer on the slider, the interstimulus interval (ITI) of one second began. The ITI is a uniformly gray screen. Then, the next four photographs were presented. B) Exemplary trial of the Dictator Game. The given trial is a trial in the *individualistic empathy* condition with the painful face topleft. First, the participants will read the following question: “How much money do you want to give this group of persons?”. On a slider (1 = “0€” and 11 = “10€”), they chose the amount of money they want to give to this group of persons. After choosing an answer on the slider, the interstimulus interval (ITI) of one second began. The ITI is a uniformly gray screen. After the ITI, the next four photographs were presented.

### 2.3. Rating Instruments

We collected four variables for exploratory purposes, namely “Empathy ability”, “Positioning toward individualism and collectivism”, “Group identification” and “Social Value Orientation”.

To assess the influence of participants’ empathy ability on the empathy ratings and the altruistic behavior, we included a German translation of the Interpersonal Reactivity Index (IRI) in our study. The IRI was developed by Davis (1980) and is a widely used multidimensional questionnaire measure designed to assess trait empathy. It contains four seven-item subscales. The Perspective Taking (PT) subscale assesses the tendency to spontaneously adopt the psychological point of view of others in everyday life, the Fantasy (FS) subscale estimates the tendency to imaginatively transpose oneself into fictional situations, the Empathic Concern (EC) subscale assesses the tendency to experience feelings of sympathy and compassion for unfortunate others, and the Personal Distress (PD) subscale assesses the tendency to experience distress and discomfort in response to extreme distress in others (Davis, 1996). Perspective taking (PT) and fantasy (FS) are considered as cognitive empathy

subscales, and empathic concern (EC) and personal distress (PD) as affective empathy subscales. Participants rated each item on a 5-point scale (1 = *“does not describe me well”* and 5 = *“describes me very well”*). Cronbach's alpha coefficients range from .70 to .78 (Davis, 1980). Baldner and McGinley (2014) confirmed these figures for the English version: PT = .75, FS = .79, EC = .80, PD = .76.

In addition to the four subscales of the IRI, participants completed a German translation of the Empathy Index developed by Jordan et al. (2016). It consists of two novel subscales, the Empathy (Emp) subscale and the Behavioral Contagion (BC) subscale. The Empathy (Emp) subscale contains items that assess the extent to which participants tend to feel what people around them are feeling. The Behavioral Contagion (BC) subscale asks about the extent to which participants tend to do what people around them are doing. Each subscale consists of 7 items. Participants rated each item on a 5-point scale (1 = *“does not describe me well”* and 5 = *“describes me very well”*). Jordan et al. (2016) reported Cronbach's alpha coefficients greater than .71.

As the ingroup was represented by Caucasian faces and the outgroup by Asian faces, we were specifically interested in the influence of the cultural dimensions *“individualism”* and *“collectivism”* on the empathizer's feelings and his or her altruistic behavior. Therefore, participants completed a German translation of the Individualism and Collectivism Scale developed by Triandis and Gelfand (1998). It distinguishes among different kinds of Individualism and Collectivism that are based on the relative emphases on horizontal and vertical social relationships. Horizontal patterns assume that oneself is more or less like every other self. Vertical patterns consist of hierarchies, and oneself is different from other selves. In combination with the two constructs individualism and collectivism, these relative emphases create four distinct cultural patterns: Horizontal Individualism (HI), Vertical Individualism (VI), Horizontal Collectivism (HC), and Vertical Collectivism (VC). In HI, people don't emphasize a high status, but want to be unique and distinct from groups. In VI, people aim to reach high status, want to become distinguished and engage in individual competitions with others. In HC, people see themselves as being similar to others and appreciate common goals with others as well as values like interdependence and sociability. In VC, people value the integrity of their ingroup and are willing to give up their personal goals for the sake of their ingroup. The Individualism and Collectivism Scale consists of 27 items. Participants rated each item on a 7-point scale (1 = *“strongly disagree”* and 7 = *“strongly agree”*). Singelis et al. (1995) reported the following Cronbach's alpha coefficients: HI = .67, VI = .74, HC = .74, and VC = .68.

Furthermore, a German Version of the Group Identification Scale by Leach et al. (2008) was completed by the participants. This questionnaire was used to examine the impact of five different components of ingroup identification on empathic feelings and altruistic behavior: individual self-stereotyping (ISS), ingroup homogeneity (IGH), satisfaction (SAT), solidarity (SOL), and centrality

(CEN). Individual self-stereotyping is understood to be the degree to which individuals perceive themselves as similar to an ingroup prototype. Ingroup homogeneity indicates the degree to which individuals perceive the entire group as having characteristics that make the group relatively homogeneous. Satisfaction with ingroup membership is shown in individuals' positive feelings about the group and one's membership in it. Solidarity emphasizes the psychological and behavioral commitment to the ingroup because of identification with the ingroup. The chronic salience and the subjective importance characterize the centrality of a group membership. Participants rated each item on a 7-point scale (1 = "*strongly disagree*" and 7 = "*strongly agree*"). Leach et al. (2008) reported the following Cronbach's alpha coefficients: ISS = .91, IGH = .88, SAT = .88, SOL = .89, and CEN = .86.

Finally, participants completed a German translation of the Social Value Orientation (SVO) Slider Measure (SLM) developed by Murphy et al. (2011) to assess their magnitude of concern they have for others. The SLM consistently relates to prosocial behavior (Balliet et al., 2009; Van Lange et al., 2007). It allows measurement of SVO on a continuous scale. Participants choose a resource allocation from a continuum of joint payoff (see Fig. 2). Murphy et al. (2011) reported a test-retest-reliability of  $r = 0.915$ .

The SLM was instructed as follows: "Imagine you divide different amounts of money between yourself and another person. You don't know this person and you are anonymous to the other person. For each allocation of money, there are nine possibilities. Which of these nine possibilities do you prefer in each case? The upper number in blue indicates how much money you would receive, the lower number in green indicates how much money the other person would receive. The amount of money is given in euro. The options differ from item to item. Please look precisely at the different allocations before you decide for one option."

The SLM has two sets of items, primary and secondary items. The analysis of the six primary items results in an unidimensional index of an individual's general social preferences and allows to classify participants into four categories, namely "Altruism", "Prosociality", "Individualism", and "Competitiveness". The nine secondary items are designed to distinguish between the prosocial motivations of joint maximization and inequality aversion (Bakker & Dijkstra, 2021). Joint maximization is understood as maximizing the sum of payoffs to self and other, inequality aversion as minimizing payoff differences between self and other.

#### 2.4. Stimuli

The stimuli were already used in a study by Sheng and Han (2012) and consisted of digital photographs of faces with neutral or pain expressions that were taken from 16 Chinese models (8 males, aged between 19 and 24 years) and 16 Caucasian models (8 males, aged between 19 and 25



years). For each model, one photograph of a pain expression and one of a neutral expression were selected for each model. For this purpose, explicit criteria of painful expressions (i.e. brow lowering, tightening and closing of the eye lids and nose wrinkling/upper lip raising) were used (Prkachin, 1992).

## 2.5. Statistical Analyses

Data analyses were performed using R-Studio (RCoreTeam, 2021). To calculate multiple regressions, the R-package “stats” (RCoreTeam, 2020) was used. The model object was produced by the function “lm”. Main effects of *empathy* and *group* were evaluated using a Type III ANOVA model within the “car” package (Fox & Weisberg, 2019); differences among levels in significant main effects were calculated with Bonferroni-corrected pairwise comparisons in the “emmeans” package (Lenth, 2021). Partial eta-squared was calculated using the function “etaSquared” from the “lsr” package (Navarro, 2015). A significance level of .05 was used for all statistical tests. Results were visualized with the “ggplot2” package (Wickham, 2016).

### 2.5.1. Confirmatory Analyses

To test for differences in empathy ratings (H1 – H3), we calculated a multiple linear regression with the predictors empathy (levels: neutral, *individualistic empathy* and *collectivistic empathy*) and group (levels: Ingroup vs. Outgroup) and their interaction and the empathy rating as metric outcome variable.

To test for differences in altruistic behavior (H4), we calculated a multiple linear regression with the predictors empathy rating (i.e., the outcome of the first regression), empathy and group (levels: Ingroup vs. Outgroup) as well as their interactions and the offer in the Dictator Game as metric outcome variable.

### 2.5.2. Exploratory Analyses

The following descriptive analyses were used: we computed means, standard deviations, and ranges for the empathy ratings, the offers in the Dictator Game, the subscales of the Interpersonal Reactivity Index (IRI), the Empathy Index, the Individualism and Collectivism Scale and the Group Identification Scale. There were no missing values as the online survey as well as the experiment did not allow incomplete responses.

The SVO index of the SLM was calculated as follows: First of all, the mean allocation for self as well as the mean allocation for the other was computed. Then, 50 was subtracted from each of these means. Finally, the inverse tangent of the ratio between these means was computed. A higher value

indicates higher prosociality. Finally, this calculation resulted in a single index of a participant's SVO (Murphy et al., 2011).

We next recalculated the multiple regression for the empathy ratings with the Personal Distress Subscale ("IRI PD") as an additional predictor (multiple regression model 3) to test dispositional personal distress as a moderator variable. Finally, we recalculated the multiple regression for the empathy ratings with the Empathic Concern Subscale ("IRI EC") as an additional predictor to test dispositional empathic concern as a moderator variable.

### 3. Results

First of all, we calculated a Welch Two Sample t-test to test for age differences between males and females. Because of no age differences between gender ( $t(36) = -.659$ ,  $p > .100$ ,  $d = .212$ ) and a gender-balanced sample (46.2% females), we did not include gender and age as covariates in the regression models.

#### 3.1. Empathy Rating Task

To assess how the number of suffering individuals and their group membership influence the empathizer's feelings, participants have been asked to give empathy ratings in the first block of the experiment. First of all, the descriptive statistics for the empathy ratings were computed (see Table 2).

**Table 2**

*Descriptive Statistics for Empathy Ratings*

Condition	Group	Mean	SD	Minimum	Maximum
Empathy4	Outgroup	5.59	1.30	1.00	7.00
	Ingroup	5.77	1.04	3.00	7.00
Empathy1	Outgroup	4.56	0.95	2.00	7.00
	Ingroup	4.45	1.02	2.00	7.00
Neutral	Outgroup	3.74	1.16	1.00	7.00
	Ingroup	3.63	1.08	1.00	6.00

*Note.* Empathy1 = *Individualistic empathy*, Empathy4 = *Collectivistic empathy*.

The regression analysis regarding the empathy rating revealed a significant main effect of empathy ( $F(2,930) = 110.62$ ,  $p < .001$ ,  $\eta^2 = .358$ ; see Table 3). Both *individualistic empathy* ( $p < .001$ ) and *collectivistic empathy* ( $p < .001$ ) had a significant effect on empathy ratings (see Table 3). Post-hoc analyses (see Table 4) showed that the empathy ratings in the *individualistic empathy* condition were higher than in the neutral condition ( $p < .001$ ), higher in the *collectivistic empathy* condition than in the neutral condition ( $p < .001$ ) and also higher in the *collectivistic empathy*

condition than in the *individualistic empathy* condition ( $p < .001$ ). The main effect of group ( $F(1,930) = .86$ ,  $p < .354$ ,  $\eta^2 < .001$ ) was not significant suggesting comparable empathy ratings of individuals of the ingroup and the outgroup. As shown in Table 1, the mean of the empathy ratings in the neutral and the *individualistic empathy* condition are slightly higher for the outgroup than for the ingroup. In the *collectivistic empathy* condition, the mean of the empathy ratings are slightly higher for the ingroup than for the outgroup, even if these differences were not significant. The interaction between empathy and group ( $F(2,930) = 1.83$ ,  $p < .161$ ,  $\eta^2 = .004$ ) did not reach significance suggesting that the empathy rating in the empathy conditions did not differ between ingroup and outgroup.

**Table 3**

*Model 1: Multiple Regression Results for Empathy Ratings*

Variable	Estimate	SE	t	p
Empathy1	.814	.12	6.54	<.001***
Empathy4	1.846	.12	14.84	<.001***
Ingroup	-0.115	.12	-0.93	.354
Empathy1 x Ingroup	.006	.18	.04	.971
Empathy4 x Ingroup	.295	.18	1.68	.094.
$\Delta R^2$	.12			

*Note.* Empathy1 = *Individualistic empathy*, Empathy4 = *Collectivistic empathy*.  
 $.p \leq .1$  \* $p < .05$  \*\*  $p < .01$  \*\*\* $p < .001$ .

**Table 4**

*Post hoc comparisons for Empathy Ratings*

Comparison	Estimate	SE	t	p
Neutral – empathy1	-.817	.09	-9.29	<.001***
Neutral – empathy4	-1.994	.09	-22.66	<.001***
Empathy1 – empathy4	-1.176	.09	-13.37	<.001***

*Note.* Empathy1 = *Individualistic empathy*, Empathy4 = *Collectivistic empathy*.  
 $.p \leq .1$  \* $p < .05$  \*\*  $p < .01$  \*\*\* $p < .001$ .

### 3.2. Dictator Game

To assess how the number of suffering individuals and their group membership influence altruistic behavior, participants were asked to play a modified hypothetical Dictator Game in the second block

of the experiment. The descriptive statistics for the offer in the Dictator Game were computed (see Table 5). The offers in the Dictator Game covered the whole range of possible options in the neutral, the *individualistic empathy* as well as the *collectivistic empathy* condition.

**Table 5**

*Descriptive Statistics for Offer in Dictator Game*

	condition	Mean	SD	Minimum	Maximum
DG Offer	neutral	4.57	3.29	0.00	10.0
	Empathy1	5.09	2.94	0.00	10.0
	Empathy4	6.14	3.31	0.00	10.0

*Note.* Empathy1 = *Individualistic empathy*, Empathy4 = *Collectivistic empathy*.

The regression analysis regarding the offer in the DG revealed a significant main effect of empathy ( $F(2,924) = 14.25$ ,  $p < .001$ ,  $\eta^2 = .050$ ; see Table 6). But only *collectivistic* ( $p < .001$ ), not *individualistic empathy* had a significant effect on the offer in the DG. Also the main effect of the empathy rating ( $F(1,924) = 35.16$ ,  $p < .001$ ,  $\eta^2 = .010$ ) was significant. The main effect of group ( $F(1,924) = .982$ ,  $p = .322$ ,  $\eta^2 < .001$ ) was not significant suggesting comparable offers in the DG for individuals of the ingroup and outgroup. The interaction between empathy and group ( $F(2,924) = .30$ ,  $p = .742$ ,  $\eta^2 < .001$ ), group and the empathy rating ( $F(1,924) = .99$ ,  $p = .319$ ,  $\eta^2 < .001$ ) as well as empathy, group and the empathy rating ( $F(2,924) = .32$ ,  $p = .725$ ,  $\eta^2 < .001$ ) did not reach significance. The interaction between empathy and the empathy rating ( $F(2,924) = 24.87$ ,  $p < .001$ ,  $\eta^2 = .079$ ) was significant, but only the interaction between *collectivistic empathy* and the empathy rating was significant ( $p < .001$ ).

**Table 6**

*Model 2: Multiple Regression Results for Offer in Dictator Game*

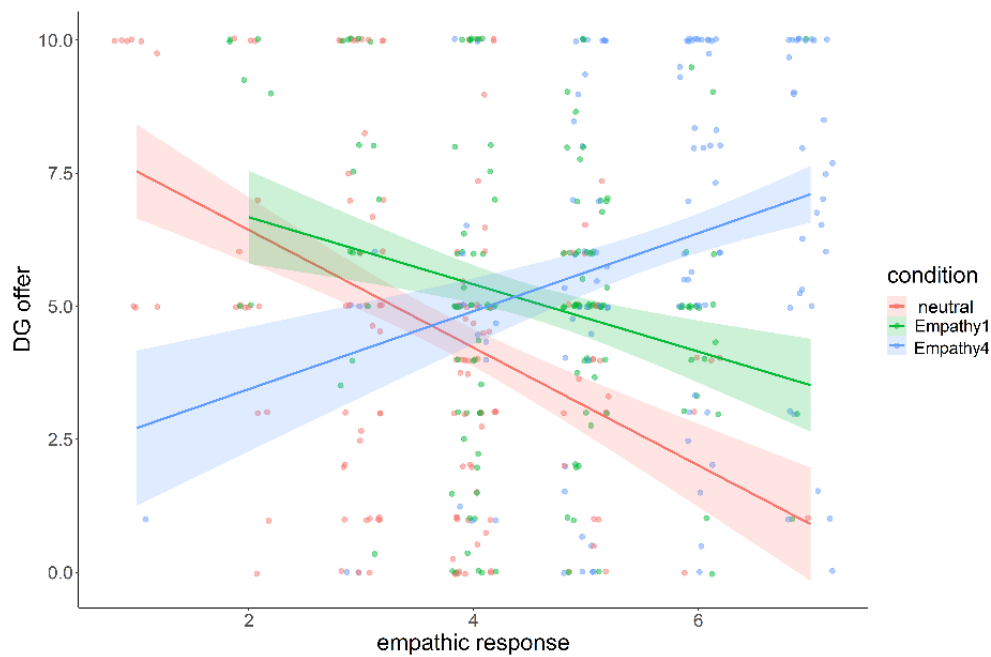
Variable	Estimate	SE	t	p
Empathy1	-1.427	1.46	-.98	.327
Empathy4	-7.146	1.36	-5.26	<.001***
Ingroup	-1.181	1.19	-.99	.322
Empathy rating	-1.245	.21	-5.93	<.001***
Empathy1 x Ingroup	1.471	2.02	.73	.466
Empathy4 x Ingroup	1.022	2.12	.48	.630

Variable	Estimate	SE	t	p
Empathy1 x Empathy rating	.649	.33	1.95	.051.
Empathy4 x Empathy rating	1.946	.28	6.89	<.001***
Ingroup x Empathy rating	.309	.31	.99	.319
Empathy1 x Ingroup x Empathy rating	-.364	.47	-.77	.438
Empathy4 x Ingroup x Empathy rating	-.237	.43	-.54	.583
$\Delta R^2$	.12			

Note. Empathy1 = *Individualistic empathy*, Empathy4 = *Collectivistic empathy*.

.p  $\leq$  .1 \*p<0.05 \*\* p<.01 \*\*\*p<.001.

The effect of the empathy rating on the offer in the DG differed between the empathy conditions: the higher the empathy rating in the *collectivistic empathy* condition, the higher the offer in the DG. In contrast, the higher the empathy rating in the neutral and the *individualistic empathy* condition, the lower the offer in the DG (see Fig. 2).



**Figure 2**

*Two-Way Interaction of the Empathic Response and Empathy Condition*

### 3.3. Exploratory Analyses

Descriptive statistics for the rating instruments were computed. First of all, descriptive statistics for the Subscales of the Interpersonal Reactivity Index (IRI) and the Empathy Index (EI) were calculated (see Table 7).

**Table 7**

*Descriptive Statistics for Subscales of the Interpersonal Reactivity Index (IRI) and the Empathy Index (EI)*

Variable	Mean	SD	Minimum	Maximum
IRI Fantasy (1-35)	16.3	5.27	5.00	27.0
IRI Empathic Concern (1-35)	16.6	4.27	9.00	24.0
IRI Perspective Taking (1-35)	16.4	2.92	11.00	23.0
IRI Personal Distress (1-35)	13.6	5.03	4.00	26.0
EI Empathy (1-35)	11.4	4.85	3.00	23.0
EI Behavioral Contagion (1-35)	12.7	5.07	3.00	22.0

We next calculated the descriptive statistics for the subscales of the Individualism and Collectivism Scale. The mean of the Individualism Subscale (13-91) was 57.7 (SD = 8.36), the mean of the Collectivism Subscale (14-98) was 61.5 (SD = 9.12).

In addition, we calculated the descriptive statistics for the subscales of the Group Identification Scale. The mean of the Solidarity Subscale (3-21) was 13.31 (SD = 3.58), the mean of the Satisfaction Subscale (4-28) was 18.64 (SD = 4.15) and the mean of the Centrality Subscale was 9.79 (SD = 4.59). For the Self-Stereotyping Subscale (2-14) and the Ingroup Homogeneity Subscale (2-14), the means were 7.87 (SD = 2.69) and 8.62 (SD = 2.54).

Then, we calculated the SVO index for all participants. Based on the SVO angle calculation of the primary items, all participants were classified into the category “Individualism”. Therefore, it was not necessary to evaluate the secondary items of the SVO Slider Measure.

To examine whether the dimensions of dispositional empathy were associated with the empathy rating, we calculated correlations between each subscale of the IRI and the Empathy Index and the empathy rating. Correlation analyses showed that the empathy rating was positively correlated with the Fantasy Subscale ( $r = .059$ ), the Empathic Concern Subscale ( $r = .131$ ) and the Perspective Taking Subscale ( $r = .113$ ), and that there was a positive relationship between the Personal Distress Subscale ( $r = .086$ ), the Empathy Subscale ( $r = .053$ ) and the Behavioral Contagion Subscale ( $r = .039$ ). In sum, the correlations between the different dimensions of trait empathy and the affective state measured by the empathy ratings are only small.

Furthermore, we examined a possible moderating role of dispositional personal distress (“IRI PD”) in the relation between the number of suffering individuals, group membership and the empathizer’s feelings. Regression analysis regarding the empathy rating with “IRI PD” as additional predictor (see Table 8) revealed a significant main effect of empathy ( $F(2,924) = 63.71$ ,  $p < .001$ ,  $\eta^2 = .373$ ) and

“IRI PD” ( $F(1,924) = 25.00$ ,  $p < .001$ ,  $\eta^2 = .012$ ). The interaction between empathy and “IRI PD” ( $F(2,924) = 20.95$ ,  $p < .001$ ,  $\eta^2 = .039$ ) as well as the interaction of empathy, group and “IRI PD” ( $F(2,924) = 5.02$ ,  $p = .007$ ,  $\eta^2 = .011$ ) were significant. In contrary to model 1, the interaction of *collectivistic empathy* and ingroup reached significance ( $p = .034$ ).

**Table 8**

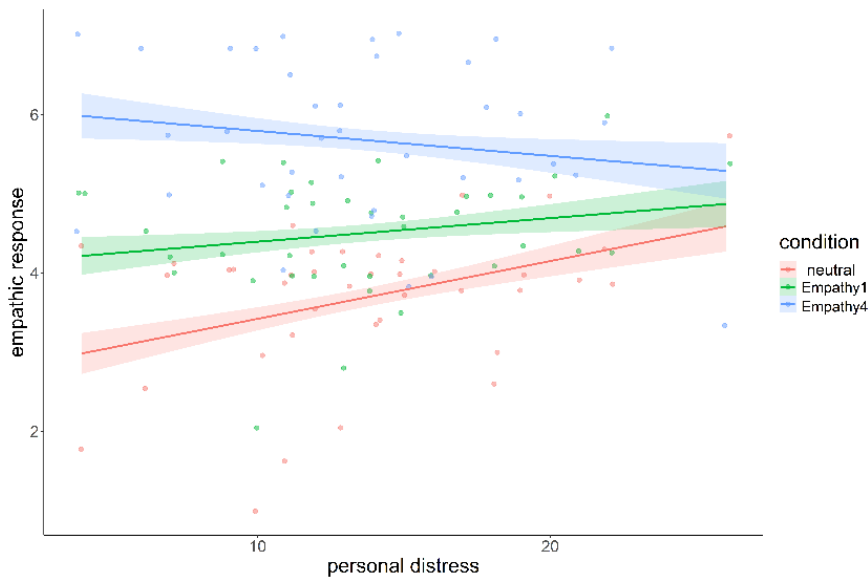
*Model 3: Multiple Regression Results for Empathy Ratings with Personal Distress Subscale as additional predictor*

Variable	Estimate	SE	t	p
Empathy1	1.474	.35	4.17	<.001***
Empathy4	3.948	.35	11.17	<.001***
Ingroup	.244	.35	.69	.490
IRI PD	.086	.02	5.00	<.001***
Empathy1 x Ingroup	-.137	.50	.27	.785
Empathy4 x Ingroup	-1.060	.50	-2.12	.034*
Empathy1 x IRI PD	-.048	.02	-1.99	.047*
Empathy4 x IRI PD	-.154	.02	-6.33	<.001***
Ingroup x IRI PD	-.026	.02	-1.08	.280
Empathy1 x Ingroup x IRI PD	.010	.03	.30	.761
Empathy4 x Ingroup x IRI PD	.099	.03	2.88	.004**
$\Delta R^2$	.39			

*Note.* Empathy1 = *Individualistic empathy*, Empathy4 = *Collectivistic empathy*, IRI PD = IRI Personal Distress Subscale.

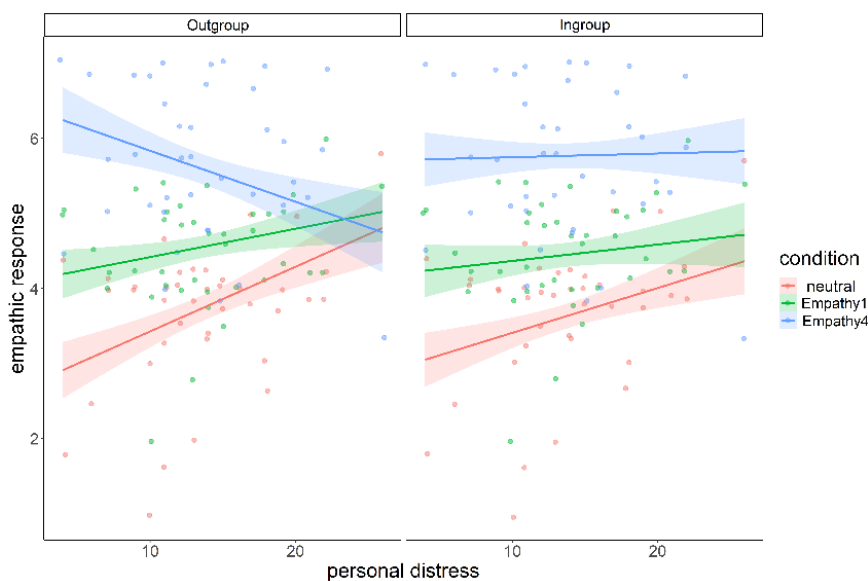
. $p \leq .1$  \* $p < .05$  \*\*  $p < .01$  \*\*\* $p < .001$ .

The interaction between empathy and “IRI PD” ( $F(2,924) = 20.95$ ,  $p < .001$ ,  $\eta^2 = .039$ ) was significant. Both the interaction between *individualistic empathy* and “IRI PD” ( $p = .047$ ) as well as the interaction between *collectivistic empathy* and “IRI PD” ( $p < .001$ ) reached significance. Post-hoc analyses were calculated to examine the trend involving the two predictors “empathy” and “IRI PD”. Based on the results, the difference between the neutral and the *individualistic empathy* condition ( $p = .037$ ), the neutral and *collectivistic empathy* condition ( $p < .001$ ) as well as the *individualistic* and the *collectivistic empathy* condition ( $p = .001$ ) became smaller with increasing dispositional personal distress (see Fig. 3). With increasing dispositional personal distress, the difference of the empathy rating between the neutral and the *collectivistic empathy* condition was higher for the ingroup than for the outgroup (see Fig. 4).



**Figure 3**

*Two-Way Interaction of Personal Distress and Empathy Condition*



**Figure 4**

*Three-Way Interaction of Personal Distress, Group and Empathy Condition*

In sum, the model fit of the multiple regression model 3 with „IRI PD” as an additional predictor ( $\Delta R^2 = .39$ ) was higher than the model fit of the multiple regression model 1 ( $\Delta R^2 = .12$ ).

Finally, we recalculated the multiple regression for the empathy ratings with the Empathic Concern Subscale (‐IRI EC”) as an additional predictor instead of the Personal Distress Subscale (‐IRI PD”). There was no significant main effect of ‐IRI EC” on the empathy ratings ( $p = .105$ ) as well as no significant interaction between empathy and ‐IRI EC” ( $p = .721$ ), group and ‐IRI EC” ( $p = .293$ ) as well as empathy, group and ‐IRI EC” ( $p = .274$ ).



#### 4. Discussion

In the present study, we investigated whether there was an influence of the number of empathy-eliciting individuals on the empathic response and how it related to members of the ethnic ingroup compared to the ethnic outgroup. In addition, we tested whether the altruistic behavior in a social decision-making situation was shaped by these two influential factors. To do so, we collected rating data and hypothetical dictator game offers in an online study.

##### 4.1. Empathy Rating Task

As a first main result, we could show a strong effect of the number of empathy-eliciting individuals on the empathic response. As hypothesized in hypothesis 1a, the empathic response increased with increasing individuals suffering. The empathic response was the lowest toward neutral-looking individuals, followed by the empathic response when confronted with one individual suffering (*individualistic empathy*). The highest empathic response was toward four individuals suffering (*collectivistic empathy*). Thus, hypothesis 1b that proposed a decrease in the empathic response with increasing individuals suffering, i.e., *collectivistic empathy* < *individualistic empathy* < neutral, was disconfirmed. The results indicate that *individualistic empathy* can be distinguished from *collectivistic empathy*. The findings also show that individuals are able to empathize with more than one individual in pain without being overwhelmed by high levels of personal distress that would lead to emotional withdrawal to reduce one's own distress and thus, would reduce the empathic response in comparison to empathizing with one suffering individual of a group. Moreover, this finding substantially extends previous research that only focused on investigating empathy felt for one individual (e.g., Cheng et al., 2007; Fabi et al., 2019; Gu & Han, 2007; Hein et al., 2010; Lamm, Nusbaum, et al., 2007; Saarela et al., 2007).

The results of the current study showed no significant effect of the ethnic group membership on the empathic response meaning that the empathic response for the ethnic ingroup and the ethnic outgroup did not differ across the experimental conditions. Thus, hypothesis 2 was disconfirmed. This finding is consistent with previous research where no ethnic ingroup bias in empathy was revealed behaviorally (Sheng & Han, 2012; Xu et al., 2009), but inconsistent with an explicit ethnic ingroup bias reported by Mathur et al. (2010). Nevertheless, the results showed a tendency of an ethnic ingroup bias in the *collectivistic empathy* condition, even if the empathic response for the ethnic ingroup did not differ significantly from that for the ethnic outgroup in the *collectivistic empathy* condition.

A possible explanation of the tendency of an ethnic ingroup bias could be based on the participant's feelings accompanying the empathic response and one aspect of the broaden-and-build

theory, the *broaden hypothesis*. It predicts that positive emotions widen the scope of attention (Johnson & Fredrickson, 2005) and lead to more inclusive social categorizations (Dovidio et al., 1998). In contrast, negative emotions constrain individuals' mindsets. Positive emotions might build resources by producing a state of "social broadening" while the distinctions between social groups become less salient. Negative emotions assumed to be the strongest in the *collectivistic empathy* condition might have produced a state of "social narrowing" that increases the salience of ethnic categories and therefore ethnic ingroup bias. Another possible explanation of the tendency for an ethnic ingroup bias is based on previous research suggesting that outgroup members are perceived as more homogeneous compared to ingroup members (Hughes et al., 2019; Tajfel, 1969). In the *collectivistic empathy* condition, the fact that all outgroup members showed painful expressions of the same intensity could have enhanced the perception of outgroup members as homogenous.

Possible explanations of the missing ethnic ingroup bias could be an underestimation of power, i.e., we should have collected more data, but also social desirability as well as limited self-insight (Nisbett & Wilson, 1977). Participants' residential mobility could have been a further influential factor. With increasing internationalization, the population's mobility has strongly increased. For frequent movers, individual attributes (i.e., traits) are more central to their self-definition than collective attributes like group membership (Oishi et al., 2007). This might lead to a reduced salience of group membership that results in a decreased ingroup bias (Brewer, 1979). This argumentation is also supported by an intermediate mean of the Centrality Subscale of the Group Identification Scale in our sample meaning that the chronic salience and the subjective importance of participants' ethnic group membership were only of intermediate degree.

In hypothesis 3a, we expected an interaction between the number of suffering individuals and "group" such that the empathic response with the ingroup increases more strongly with increasing individuals suffering as compared to the increase in the empathic response with increasing individuals suffering of the outgroup. In hypothesis 3b, we expected an interaction between the number of suffering individuals and "group" such that the empathic response with the ingroup decreases more strongly with increasing individuals suffering as compared to the decrease in the empathic response with increasing individuals suffering of the outgroup. The results of the multiple regression without dispositional personal distress as an additional predictor showed no significant interaction between empathy and group. Therefore, hypothesis 3a und hypothesis 3b would be disconfirmed. But when dispositional personal distress was added to the multiple regression as an additional predictor, the interaction between *collectivistic empathy* and ingroup reached significance, the interaction between *individualistic empathy* and ingroup did not. This finding indicates that dispositional personal distress might influence the empathic response toward members of the ingroup when empathizing with more than one individual. This is in line with previous research

showing that dispositional personal distress is positively correlated with self-focused ruminative coping and a dysfunctional self-focus (Kim & Han, 2018) that might have exaggerated the situational personal distress, a self-focused affective reaction, especially when confronted with more than one suffering member of the ingroup. Moreover, individuals high in personal distress tend to be low in regulation (Eisenberg et al., 1994) that is needed for the maintenance of a clear self-other-differentiation, an essential element of the empathic response (Decety & Lamm, 2006), and potentially especially permeable when confronted with more than one suffering member of the ingroup. Based on the results, the difference between the neutral and *individualistic empathy* condition, the neutral and *collectivistic empathy* condition as well as the *individualistic* and *collectivistic empathy* condition became smaller with increasing dispositional personal distress. This finding indicates that dispositional personal distress might play a role in distinguishing between complex empathic affordances and might reduce the ability to attune the empathic response with sufficient and adequate fineness and granularity. This is in line with the aforementioned model by Eisenberg et al. (1994) claiming a negative link between personal distress and regulation abilities, and thus a lower effectiveness of top-down cognitive processes.

In addition, the interaction of empathy, group and dispositional personal distress was significant. With increasing personal distress, the difference of the empathic response between the neutral and the *collectivistic empathy* condition was higher for the ingroup than for the outgroup. This finding indicates that increasing dispositional personal distress might evoke an ethnic ingroup bias when empathizing with a group of suffering individuals in comparison to a group of neutral-looking individuals.

Moreover, we found that dispositional personal distress moderated the relationship between the number of suffering individuals and their ethnicity and the empathic response meaning that the tendency to experience a self-focused, aversive reaction to the apprehension of other individuals in need moderated the relationship. This finding is inconsistent with the results reported by Fabi et al. (2019).

The few behavioural studies that have investigated the relationship between dispositional personal distress and situational empathic responses reported only modest correlations. Eisenberg et al. (1994) revealed a correlation between dispositional personal distress and situational empathic responses of  $r = .24$ . In our sample, the correlation between dispositional personal distress and the empathic response was  $r = .11$ . Given that the situational empathic response was assessed on few occasions (24 trials), it is also possible that the observed correlations are influenced by a potentially low reliability of the situational empathic responses. The moderate correlations reported above

suggest that other factors than just individual differences in dispositional empathy influence situational empathic responses.

Interestingly, the results showed that dispositional empathic concern had no moderating influence on the relationship between the number of suffering individuals and their ethnicity and the empathic response meaning that the tendency to experience feelings of sympathy and compassion for individuals in pain did not moderate the relationship. Fabi et al. (2019) found that situational empathic concern was not influenced by dispositional empathic concern. Thus, it is still possible that situational empathic concern had an independent moderating influence.

#### 4.2. Dictator Game

Hypothesis 4 proposed that the higher the empathic response with a group of individuals, the higher the offer in the Dictator Game. Based on the main effect of the empathic response, the outcome of the first regression on the offer in the Dictator Game, hypothesis 4 was confirmed. This finding was expected based on previous research showing that empathy promotes altruistic behavior (Batson et al., 2015; De Waal, 2007) and is consistent with the results reported by Klimecki et al. (2016). The prosocial decisions in the DG were not modulated by group membership which is inconsistent with previous research (Hein et al., 2010). Dispositional personal distress and not dispositional empathic concern moderated the relationship between the number of suffering individuals and their ethnicity and the empathic response and the empathic response was a predictor in the regression model on the altruistic behavior. Thus, we can assume that the desire to alleviate one's own, but not the other's suffering might have motivated the altruistic behavior (Batson, 1991; Eisenberg & Fabes, 1990).

Surprisingly, the main effect of the number of suffering individuals on the empathic response was much higher than the main effect of the number of suffering individuals on altruistic behavior. First, this could be due to the fact that all participants were classified as individualist by the SLM. With a more heterogeneous distribution of social value orientations within the sample, the altruistic behavior in the Dictator Game might have been different or higher, especially in the *collectivistic empathy* condition. Second, the altruistic behavior might have been different if dispositional empathic concern would have influenced the empathic response.

Interestingly, the effect of the empathic response on the offer in the DG differed between the empathy conditions: the higher the empathy rating in the *collectivistic empathy* condition, the higher the offer in the DG. In contrast, the higher the empathy rating in the neutral and the *individualistic empathy* condition, the lower the offer in the DG. This could be due to the fact that we used a within-subjects design. Participants might have compared the *individualistic* and *collectivistic empathy* condition and calculated the perceived deservingness or neediness of one individual suffering

compared to four individuals suffering. As a consequence, a future study design might use the factor empathy as a between-subjects factor to control for effects of comparisons between empathy conditions within a participant. As aforementioned, the results showed that the higher the empathic response in the neutral condition, the lower the offer in the DG. But it is noteworthy that there were two strong outliers in the neutral condition. After an outlier analysis, the offers in the DG would remain the same in the neutral condition despite an increasing empathic response.

#### 4.3. Limitations and Future Perspectives

To deepen the understanding how the number of suffering individuals influences the empathic response, eyetracking might be a helpful method. Because we did not use eyetracking we have no data about participants' gaze patterns. For example, we do not know if participants paid attention to all four individuals and if the empathic response is influenced by an attentional bias. It is also important to think about the definition of *individualistic empathy* proposed in our study. We also do not know if the empathic response did arise because of empathizing with the individual expressing pain or if it was influenced by the other (three) neutral-looking individuals. Previous research on neutral-looking faces showed that individuals are predisposed to extract expressive meaning from a face, even from a so-called "neutral" face. Individuals show emotion face overgeneralization meaning that they respond similarly to individuals whose neutral expression resembles an emotion (Said et al., 2009). Neutral faces that show more resemblance to angry expressions are perceived as less likeable and trustworthy and more powerful, hostile, and threatening. Neutral faces that show more resemblance to happy expressions are perceived contrary to those resembling angry expressions. Thus, the neutral-looking individuals might have influenced the perception of the one individual suffering in the *individualistic empathy* condition and the empathic response in general. Finally, the three neutral-looking individuals in the *individualistic empathy* condition might have been perceived as individuals who could also help the suffering target. This might have produced a bystander effect, a reduction in altruistic behavior in the presence of those other people.

It is noteworthy that the *individualistic empathy* condition in our study includes two assumptions: first of all, the neutral-looking individuals are perceived as neutral and do not influence the perception of the empathic target and second, the one individual suffering is the only or main target of empathy. Our definition of *individualistic empathy* presupposes the latter assumption. But it is also plausible to assume that the empathic response is rather a weighted emotional reaction to all four individuals. The paradigm rises the question if the empathic response in the *individualistic empathy* condition is an emotion on group-level or the individual level. Due to a within-subjects design, it is also possible that participants compared the different empathy conditions and adjusted their empathic response.

In our coverstory, the stimuli were described as patients who have experienced a chronic disease. Participants were told that individuals who were not showing pain have recovered and individuals expressing pain were still suffering from the disease. First of all, it is possible that the empathic response toward the group of neutral-looking individuals was increased only by the information that they have been suffering from a disease even if they have recovered. Second, the coverstory could have induced situational personal distress because of the associations participants might have had when thinking of patients. Since we did not include a situational personal distress rating, we have no data about the influence of situational personal distress on the empathic response. Furthermore, the description as chronic pain could have influenced the empathic response as well as the altruistic behavior. Chronic pain might be expected to manifest in less strong facial expressions than those of the individuals presented in the current study and might have a weaker stimulative nature regarding helping behavior because of its long lasting character. Finally, the coverstory might have highlighted the interconnectedness of the individuals and facilitated their perception as a group. Markus and Kitayama (1991) stated that East Asians, individuals in a dependent culture, emphasize the fundamental relatedness of individuals to each other whereas individuals in an independent culture, Westerners, tend to maintain their independence from other individuals. Therefore, the coverstory could have been especially helpful to our sample consisting of Caucasian participants who are Westerners and might perceive the four individuals less likely as a group than Asian participants.

To indicate their situational empathic response elicited by a set of stimuli, participants answered the following question: "How do you feel when you are looking at the faces?". Because we measured the situational empathic response with a pure one-dimensional (valence: positive vs. negative) "affect rating", we have no data about other situational empathic responses like participants' situational personal distress or situational empathic concern. The results indicated a moderating influence of dispositional personal distress. It would be interesting to know if there is also an influence of situational personal distress on the empathic response. The question of the empathic response might have promoted rather a self-focused than an other-focused state, and promoting a self-focus could facilitate the experience of self-oriented affective responses like situational personal distress. Finally, it should also be recognized that the empathic response is the result of a dynamic process that evolves over time. The dynamic process cannot be depicted by the empathy rating alone.

#### 4.4. Outlook

First, subjective ratings in this behavioral study might be influenced by social desirability and limited self-insight (Nisbett & Wilson, 1977). Therefore, this study design should be complemented by physiological measures such as EEG recordings or fMRI to investigate the neural processing.

Second, we did not collect any data about participants' gaze behavior. Future research could use eyetracking to investigate gaze patterns while looking at the group of individuals. It could help to understand how participants integrate and summarize the perception of one or more individuals suffering. Third, future research could manipulate the severity of painful expressions, could use positive facial expressions or pictures of individuals showing psychological instead of physical pain. Finally, it should be noted that the current study only tested Caucasian individuals. Therefore, the results presented here should be retested in an Asian sample and other ethnic groups.

#### 4.5. Conclusion

A primary aim of the study was to advance our understanding of *individualistic empathy* and *collectivistic empathy*. In summary, we were able to show that the empathic response increased with increasing individuals suffering. To the best of our knowledge, our findings provide the first piece of evidence for the theoretical conceptualization of *individualistic empathy* and *collectivistic empathy*. According to the results of our study, the number of suffering individuals is an important determinant of empathic responding and altruistic behavior. The effect of the number of suffering individuals on the empathic response was strong, the effect on the altruistic behavior rather small. An ethnic ingroup bias in empathic responding only appeared when adding dispositional personal distress as an additional predictor: a predisposition to the experience of aversive arousal moderated the relationship between the number of suffering individuals and the empathic response toward members of the ingroup only when empathizing with more than one individual.

Our findings contribute to the ultimate aim to build a dynamic model of all processes that are part of the development of empathic responses and altruistic behavior. They may be relevant for clinical practice, especially group psychotherapy, and effective medical management by health care professionals. Thus, research on *individualistic empathy* and *collectivistic empathy* is needed to shed more light on the crucial determinants of empathic responding toward one or more individuals in need and the underlying processes by which those occur. It may help individuals in need and support individuals of caring professions to improve medical management, protect themselves from the potential debilitating consequences of the impact of emotional work and help them to use the adaptive benefit of empathy for pain as well as possible. To conclude, future research will contribute to understand and cultivate the gift of empathy. Finally, "the ideal therapist is, first of all, empathic" (Rogers, 1980, pp. 146). Or, to rephrase it, the ideal human being is, first of all, empathic.

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#### Declaration of originality

I confirm that this bachelor's thesis is my own work and I have documented all sources and material used.

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