



Bad guys suffer less (social pain): Moral status influences judgements of others' social suffering

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Research on pain judgement has shown that several features of a target influence empathy for others' pain. Considering the pivotal role of morality in social judgement, we investigated whether judgements of others' social and physical suffering vary as a function of the target's moral status. Study 1 manipulated the moral characteristics of an unknown other and found that participants ascribed less social (but not physical) suffering to a target depicted as lacking moral status rather than to a target high in morality. Study 2 added a control condition in which no information about the target's moral qualities was provided, and showed that the effect of morality on social pain judgements was driven by the depiction of the target as lacking moral traits. Study 3 revealed the specific role of morality, as information on another evaluative dimension (i.e., competence) had no effects on pain judgements. Study 4 showed that social targets perceived as lacking moral qualities are thought to experience less social pain than highly moral targets because of their perceived lower level of humanity. Overall, our findings suggest that social (but not physical) pain might represent a capacity that is denied to social targets that are perceived low in morality.

Humans witness the suffering of others on many occasions. From schools to workplaces, from hospitals to prisons, among family and friends, people often observe that others are in pain. In these cases, the first step towards taking action is to recognize the degree of pain that the other suffers. Depending on the type of pain – either physical or social – various features of the observer and the sufferer are known to influence the ability of the observer to detect and identify the other's pain, such as race (Avenanti, Sirigu, & Aglioti, 2010; Batson & Ahmad, 2009; Riva & Andrichetto, 2012), gender (Riva, Sacchi, Montali, & Frigerio, 2011), and political views (Cikara, Bruneau, & Saxe, 2011). In this paper, we propose a new dimension that may affect the observer's evaluation of the suffering of others: The sufferer's moral qualities. In the light of findings on social pain (e.g., the pain of ostracism, exclusion, and rejection; see MacDonald & Leary, 2005), we propose that the moral qualities of a sufferer might influence an observer's estimate of social rather than physical pain. Perhaps not surprisingly, in a prison context, guards (as every other witness) might be aware of whether or not an inmate is experiencing the pain of a broken bone while missing the sting of a broken heart.

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Social and physical pain

Pain and the suffering that accompanies it are multidimensional phenomena that involve sensory and emotional components (Price, 2000). Physical pain – the pain caused by physical injury – has been defined as ‘an unpleasant sensory and emotional experience associated with actual or potential tissue damage’ (Merskey, 1979). Another important type of pain that is currently attracting research attention is social pain, that is the pain caused by the threatened or actual loss of social connections (Eisenberger, 2010). Instances of social pain include feelings caused by ostracism, exclusion, rejection, betrayal, humiliation, loneliness, and social loss.

Past research suggests that social and physical pain have both common and distinctive features. Accordingly, social and physical pain have been shown to overlap in terms of their evolutionary function (MacDonald & Leary, 2005) and to involve part of the same underlying neural circuits in the brain (DeWall *et al.*, 2010; Eisenberger, Lieberman, & Williams, 2003; see also Eisenberger, 2012). Along the same line, focusing on the psychological implications of the social–physical pain overlap, researchers showed that both forms of pain can evoke similar emotional reactions (e.g., fear and anxiety; Riva, Williams, & Gallucci, 2014) and cause analogous psychological consequences (Riva, Wirth, & Williams, 2011; Riva, Wesselman, Wirth, Carter-Sowell, & Williams, 2014).

However, recent neuroimaging studies showed that social and physical pain have also distinct patterns of brain activity (Bruneau, Pluta, & Saxe, 2012). Behavioural studies showed that people relive and re-experience social pain more easily and more intensely than physical pain (Chen, Williams, Fitness, & Newton, 2008).

While these studies have concentrated on people’s first-hand experiences of social and physical pain, second-hand experiences of pain such as witnessing or observing others’ suffering are currently emerging as an important research area. Scholars have argued that in many circumstances observers witness the suffering of others, and the ability to become aware of the pain of others is key to the evocation of empathy and subsequent prosocial behaviour (Masten, Morelli, & Eisenberger, 2011). Nevertheless, recent research has identified several factors that might bias the ability to recognize and understand both physical and social pain in others. For instance, observers tend to underestimate pain or detect it in a biased way when the sufferer is a woman (Riva, Sacchi, *et al.*, 2011; Riva, Wirth, *et al.*, 2011), an elderly person (Horgas & Elliott, 2004), or when he/she is socially distant (Batson & Ahmad, 2009; see also Cikara *et al.*, 2011). Parallel findings have been reported for social pain. For instance, a study showed that people perceived socially, but not physically painful events as more painful when the target was an in-group rather than an out-group member (Riva & Andrighetto, 2012; see also the work on oneness by Cialdini, Brown, Lewis, Luce, & Neuberg, 1997). Similarly, Meyer *et al.* (2013) looked at the proximity of the suffering target to observers showing that people tend to underestimate social pain (e.g., social isolation) of psychologically distant rather than close others.

Overall, these studies indicate that inferring other people’s pain highly depends on target characteristics. The current research aimed to investigate whether a fundamental dimension of social perception, that is morality, would affect the observer’s evaluation of a target’s pain. Thus, we sought to extend the work on the factors that influence the judgement of the suffering of others by integrating research on social and physical pain judgements with recent evidence showing that moral characteristics are decisive in shaping social judgement (for reviews, see Brambilla & Leach, 2014).

Morality, social perception, and pain

Morality (e.g., honesty, trustworthiness, and fairness) permeates human social life and plays an important role in a wide range of processes, choices, and evaluations (Haidt & Kesebir, 2010). Indeed, research has shown that moral characteristics dominate social judgement and shape both person and group evaluations (Brambilla & Leach, 2014; Leach, Ellemers, & Barreto, 2007). A growing body of research has shown that overall impressions and behaviours of both real and hypothetical targets are better predicted by information about the target's moral character than by information pertaining to non-moral characteristics (for a review, see Brambilla & Leach, 2014; see also Cottrell, Neuberg, & Li, 2007). In a similar vein, individuals throughout the world view morality as the most important guiding principle in their lives and as a central component of their individual identity (Rodríguez Mosquera, Manstead, & Fischer, 2002). The reason why individuals are highly concerned regarding the moral character of others is because understanding the morality of others is an important factor in defining whether someone's intentions are beneficial or harmful, that is whether they represent an opportunity or a threat (Brambilla & Leach, 2014; Willis & Todorov, 2006). At the group level, moral traits are key in developing a group-level self-concept and are crucial for maintaining a positive group image (Brambilla, Sacchi, Pagliaro, & Ellemers, 2013; Ellemers, Pagliaro, Barreto, & Leach, 2008). Indeed, immoral ingroup members are perceived as posing a threat to the integrity of the group (Brambilla *et al.*, 2013).

Despite the centrality of morality in shaping various judgements, no prior research has investigated how moral characteristics affect social and physical pain judgement of social targets.

The present studies

We anticipate that observers may be less prone to recognize and understand the social suffering of targets when the latter are perceived as lacking (compared to having) a moral status. Indeed, moral traits are conceived as prosocial traits (Ellemers & van den Bos, 2012) and highly moral individuals are perceived as individuals sensitive to others' instances and needs. By contrast, individuals lacking moral qualities are usually perceived as insensitive to others' needs. Based on these assumptions, one would reasonably expect that moral characteristics should be associated with the attribution (or the denial) of the capacity to experience the sting of social rejection.

We hypothesized that this effect would emerge stronger in the context of social pain judgements, compared to that of physical pain judgements. In other words, we expect the gap in the pain attributed to an individual lacking moral qualities and that attributed to a highly moral target to be larger for social than physical pain.

Two processes might lie at the basis of this expected difference in people's pain judgements of moral (vs. immoral) individuals. First, social pain – compared with physical pain – has been considered a hallmark of humanness (Riva & Andrighetto, 2012) and might thus be more typical of individuals equipped with moral qualities. Accordingly, a good deal of research reveals a close connection between moral behaviour and dehumanizing perceptions (Bastian *et al.*, 2013; Bastian, Jetten, & Haslam, 2014; see Haslam & Loughnan, 2014; for an integrative review). Even though non-human animals (e.g., primates) can show emotional reactions to social threats (MacDonald & Leary, 2005), previous research on pain attribution found that people consider the experience of social pain to be more uniquely human than that of physical pain (Riva & Andrighetto, 2012). In a similar vein, prior research showing that people attribute higher cognitive abilities to animals revealed that this happens

mainly when people endorse an anthropomorphic view of the animals (e.g., dogs and cats; Eddy, Gallup, & Povinelli, 1993). Thus, people seem to reserve the capacity to experience instances of social pain to humans and to anthropomorphized animals. By contrast, physical pain can be regarded as a basic response that brings together humans with the great majority of other animals.¹ Considering that observers infer a lack of humanity based on observations of immoral behaviours, we argue that social pain would be denied to those who are perceived low in morality. However, we think that morality would have a reduced impact on the inference of physical pain, considering that many non-human species (e.g., fish; Sneddon, Braithwaite, & Gentle, 2003) are hardwired to detect physical threats.

A second mechanism that might explain why immoral (vs. moral) targets are expected to be attributed less social (than physical) pain is perceived similarity. One might expect that people feel more similar to highly moral individuals rather than those who lack moral qualities. Morality is a highly valued trait and people tend to feel similar to those they like (Byrne, 1971). At the same time, an increased similarity with the suffering target makes it easier for people to project their own feelings in similar situations on the target especially for those types of suffering that are less visible and more abstract, like social pain (Eisenberger, 2012; Williams, Huang, & Bargh, 2009). Some initial evidence in this direction stems from Meyer *et al.* (2013), who showed that observing a friend's social exclusion felt as if it happened to the self, the more participants perceived self-other overlap with the friend. In addition, group membership affects both the perceived similarity and humanity of social targets. In-group members are generally seen as more similar to the self (Schubert & Otten, 2002) and more uniquely human (Vaes *et al.*, 2012), compared to out-group members. Accordingly, the results of Riva and Andrighetto (2012) might be interpreted in terms of both perceived humanity and similarity. Social but not physical pain was mostly attributed to the more human and similar in-group members compared to out-group members (see also Robbins & Krueger, 2005).

In sum, we hypothesized that observers would ascribe lower levels of social pain to targets lacking moral qualities than to those that are perceived as highly moral. In contrast, we anticipated that this gap would be reduced when considering physical pain judgements. This hypothesis was tested in four studies. The first study counted as a first test of this general hypothesis and measured the estimated social and physical pain intensity suffered by a target described as either highly moral or lacking moral character. The second study added a control condition to test whether it is the depiction of a target as immoral versus high in morality that drives the effect. In Study 3, we aimed to show that social pain judgements only differ as a function of the moral character of the suffering target testing its effects compared to another important social dimension, that is competence. Finally, in Study 4, both proposed underlying mechanisms were tested to determine why people attribute less social pain to a target that is lacking moral traits. Is it because they dehumanize such social targets and see him or her as insensitive to social suffering? Or is the lowered inference of social pain the result of perceived dissimilarity with the suffering target?

STUDY 1

Study 1 was designed as a first test of our hypothesis that individuals would ascribe a lower capacity to experience social pain, but not physical pain, when they perceive a target

¹ A similar reasoning has been used to differentiate primary from secondary emotions in intergroup research (Demoulin *et al.*, 2004; Vaes, Leyens, Paladino, & Miranda Pires, 2012).

lacking moral qualities compared to a target possessing a high moral status. To test this hypothesis, we asked participants to estimate the pain intensity suffered by a target described as either highly moral or lacking moral character.

Method

Participants

Participants were 35 undergraduate students (17 female; $M_{\text{age}} = 23.74$ years, $SD = 4.09$) at a large university in Italy. The study employed a 2 (morality level: High vs. low) \times 2 (pain type: Social vs. physical) mixed factorial design, with the first factor varying between subjects and the second factor varying within subjects.

Materials and procedure

Participants completed a questionnaire that described a series of painful events experienced by a target. Depending on the experimental condition, the target was described as high or low with respect to three moral traits (i.e., honesty, sincerity, and trustworthiness) (see Leach *et al.*, 2007; see also Brambilla, Sacchi, Rusconi, Cherubini, & Yzerbyt, 2012). More specifically, participants read a brief description of a target (i.e., 'Paolo an Italian guy who is 27 years old') followed by a table showing the three moral traits and, for each trait, its corresponding level ('high' or 'low') was marked. Then, participants were presented with a series of 20 painful events. Half of the events were related to social pain (see Appendix) (e.g., losing touch with one's fellows; learning about the death of a former classmate – $\alpha = .96$), and the remaining half of the events concerned physical pain (e.g., receiving an injection in the mouth; a strong slap in the face – $\alpha = .89$). The socially and physically painful events were presented in a random order. Participants indicated the pain that each event could cause the target. In this and in the following studies, responses were recorded on a 0 (no pain) to 10 (most intense pain) scale and averaged to create two overall indexes.

Finally, as a manipulation check, participants rated the target on perceived morality (i.e., 'How likely is it that the target is moral?') on 7-point scale ranging from 1 (not at all) to 7 (extremely) and completed demographic questions before being thanked and debriefed.

Results and discussion

First, to check the effectiveness of the moral trait manipulation, we computed an independent sample *t*-test. The analysis revealed that in the high morality condition participants perceived the target as more moral ($M = 6.06$, $SD = 1.12$) than in the low morality condition ($M = 1.79$, $SD = 1.03$), $t(33) = 11.72$, $p < .001$, $d = 3.9$ (95% confidence interval [CI] = [2.80, 5.13]).

Next, we computed a 2 (morality level: High vs. low) \times 2 (pain type: Social vs. physical) ANOVA, with the first factor varying between subjects and the second factor varying within subjects (see Table 1 for descriptive statistics). The analysis yielded a main effect of the morality level, $F(1, 33) = 15.37$, $p < .001$, $\eta_p^2 = .32$, indicating that participants in the high morality condition rated all of the events as more painful ($M = 6.67$, $SD = 1.17$) than participants in the low morality condition ($M = 4.70$, $SD = 1.69$). Moreover, we found a main effect of pain type, $F(1, 33) = 18.16$, $p < .001$,

Table 1. Mean ratings of social and physical pain for the two targets (Study 1). Standard deviations are provided in parentheses

Morality	Pain type	
	Social	Physical
Low	4.64 (2.26) _a	5.06 (1.61) _a
High	8.33 (1.19) _b	5.36 (1.63) _a

Note. Means with different subscript in a given column are significantly different from each other at $p < .001$.

$\eta_p^2 = .36$, indicating that social pain ($M = 6.32$, $SD = 2.61$) was perceived as more painful than physical pain ($M = 5.20$, $SD = 1.60$). Importantly, these main effects were qualified by a significant interaction, $F(1, 33) = 32.28$, $p < .001$, $\eta_p^2 = .50$. A series of t -tests revealed that participants ascribed lower ratings of social pain to the target who lacked moral qualities compared with the highly moral target, $t(33) = 5.87$, $p < .001$, $d = 2.04$ (95% CI = [1.16, 2.80]). No differences emerged between the two targets when physical pain was considered, $t(33) = 0.56$, $p = .577$, $d = 0.18$ (95% CI = [-0.47, 0.86]). In sum, Study 1 provided initial support to our hypothesis by showing that the moral characteristics ascribed to an unknown social target affected social but not physical pain judgement.

STUDY 2

Study 2 was designed to test whether the effect of morality on social pain judgements was driven by the depiction of a social target as highly moral, that of the same target as lacking moral status, or both. To do so, in Study 2, we added a control condition in which no information on the moral qualities of the targets was provided.

Method

Participants

Participants were 56 undergraduate students (40 female; $M_{age} = 24.04$ years, $SD = 5.47$) at a large university in Italy. The study employed a 3 (morality level: High vs. low vs. control condition) \times 2 (pain type: Social vs. physical) mixed factorial design, with the first factor varying between subjects and the second factor varying within subjects.

Materials and procedure

Participants completed an on-line survey. They were presented with a description of one of three targets. The target could be depicted as high or low on three moral traits (i.e., honesty, sincerity, and trustworthiness). In the control condition, no morality information about the target was given. Then, similar to Study 1 (see Appendix), participants indicated on a 10-point scale ranging from 0 (no pain) to 10 (most intense pain) the pain that a series of painful events could cause the target (social pain $\alpha = .95$; physical pain $\alpha = .91$).

Finally, as a manipulation check, participants rated the target on perceived morality (i.e., 'How likely is it that the target is moral?') on 7-point scale ranging from 1 (not at all) to

7 (extremely) and completed demographic questions before being thanked and debriefed.

Results and discussion

First, to check the effectiveness of the moral trait manipulation, we computed a one-way ANOVA. The analysis, $F(2, 53) = 27.64, p < .001$, revealed that in the high morality condition participants perceived the target as more moral ($M = 5.76, SD = 1.30$) than in the control, $M = 4.86, SD = 1.28; t(37) = 2.16, p = .037, d = 0.70$ (95% CI = [0.41, 1.35]), and the low morality condition, $M = 2.53, SD = 1.38; t(32) = 7.05, p < .001, d = 2.42$ (95% CI = [1.51, 3.30]).

Next, we computed a 3 (morality level: High vs. low vs. control condition) \times 2 (pain type: Social vs. physical) ANOVA, with the first factor varying between subjects and the second factor varying within subjects (see Table 2 for descriptive statistics). The analysis yielded a main effect of morality level, $F(2, 53) = 3.29, p = .045, \eta_p^2 = .11$, indicating that participants in the high morality condition rated all of the events as more painful ($M = 6.95, SD = 1.25$) than did participants in the low morality, $M = 5.80, SD = 1.47; t(32) = 2.45, p = .020, d = 0.84$ 95% CI = [0.13, 1.54]. However, the scores provided by participants in the high morality condition did not differ from those provided by participants in the control condition, $t(37) = 1.92, p = .062, d = 0.62$ 95% CI = [-0.31, 1.27]. Similarly, the low morality and the control condition did not differ between each other, $t(37) = 0.54, p = .59, d = 0.17$ 95% CI = [-0.45, 0.81]. As in Study 1, we also found a main effect of pain type, $F(2, 53) = 22.69, p < .001, \eta_p^2 = .30$ 95% CI = [0.46, 1.25], indicating that social pain ($M = 7.31, SD = 2.07$) was perceived as more painful than physical pain ($M = 5.68, SD = 1.71$). These main effects were qualified by a significant interaction, $F(2, 53) = 6.34, p = .003, \eta_p^2 = .19$. Specifically, we found that participants ascribed lower ratings of social pain to the target who lacked moral qualities compared to the highly moral target, $t(32) = 3.74, p < .001, d = 1.28$ 95% CI = [0.53, 2.01], and the control condition, $t(37) = 2.12, p = .041, d = 0.68$ 95% CI = [0.028, 1.33]. By contrast, the difference between the highly moral target and the control condition was not significant, $t(37) = 1.45, p = .15, d = 0.62$ 95% CI = [-0.03, 1.26]. Considering physical pain, the analysis showed no differences among the three moral targets, $F(2, 53) = 1.91, p = .16, \eta_p^2 = .07$.

In sum, Study 2 replicated our previous findings and showed that the effect of moral character on social pain judgements is stronger for targets that are low compared to high in morality. In other words, it is the perception that an individual lacks moral qualities that

Table 2. Mean ratings of social and physical pain for the three targets (Study 2). Standard deviations are provided in parentheses

Morality	Pain type	
	Social	Physical
Low	5.86 (2.29) _a	5.96 (1.54) _a
Control condition	7.35 (2.06) _b	5.14 (1.68) _a
High	8.14 (1.03) _b	6.11 (1.83) _a

Note. Means with different subscript in a given column are significantly different from each other at $p < .05$.

leads perceivers to ascribe them a lower capacity to experience pain following social threats such as ostracism, exclusion, social loss, and rejection. By contrast, physical pain seems to be considered equally plausible for targets that are either low or high in morality.

STUDY 3

Studies 1 and 2 supported the hypothesis that observers are influenced by the perception of a target's moral status when making judgements on the target's potential social (but not physical) suffering. Study 3 was designed to further replicate and extend these findings by considering another meaningful dimension implied in social judgement, that is competence (e.g., intelligent, capable, skilful) (Fiske, Cuddy, & Glick, 2007; Judd, James-Hawkins, Yzerbyt, & Kashima, 2005). Indeed, research has shown that social perception is driven by two critical questions: Are other individuals beneficial or harmful? Are social targets able to enact their intentions? (Cuddy, Fiske, & Glick, 2008). A good deal of work revealed that the need to detect others' intentions and abilities is captured by moral and competence information, respectively (Brambilla & Leach, 2014; see also Pagliaro, Ellemers, & Barreto, 2011). Based on these argumentations, competence has been typically employed as a control condition in research on morality (Ellemers *et al.*, 2008; Pagliaro *et al.*, 2011). Thus, Study 3 tested whether individuals relate the attribution of social pain (vs. physical pain) to a target's morality level but not to a target's competence level. Thus, our aim was to test the specificity of the link between social pain attribution and the target's moral status ruling out the hypothesis that any type of positive (vs. negative) information regarding a social target might result in the hypothesized effect. As in the previous studies, we predicted that observers would ascribe a higher level of social pain to a highly moral target compared with a low moral target, whereas such difference would be absent for the attribution of physical pain. Furthermore, we predicted that the perception of the target's competence level would not affect the perception of the target's ability to experience social or physical pain.

Method

Participants

Participants were 53 undergraduate students (24 female; $M_{\text{age}} = 22.91$ years, $SD = 2.55$) at a big Italian university. The study employed a 2 (trait: Morality vs. competence) \times 2 (trait level: High vs. low) \times 2 (pain type: Social vs. physical) mixed factorial design with the first two factors varying between subjects and the last factor within subjects.

Materials and procedure

As in Studies 1 and 2, participants were asked to complete a questionnaire in which a target was described. Participants were randomly assigned to one of the four experimental conditions. To manipulate morality (i.e., honest, sincere, trustworthy) and competence (i.e., intelligent, competent, skilful), we used six traits carefully balanced for favourability (to rule out that our findings might be due to a general effect of valence; see Brambilla *et al.*, 2012) and for their relatedness with the morality versus competence dimensions, respectively (see Brambilla, Rusconi, Sacchi, & Cherubini, 2011; see also Leach *et al.*, 2007). Thus, similar to our previous studies, participants read a table showing three traits

of the selected dimension and, for each trait, its corresponding level ('high' or 'low') was marked.

Next, following the same procedure of Studies 1 and 2 (see Appendix), participants indicated on a 10-point scale ranging from 0 (no pain) to 10 (most intense pain) how much pain they thought a series of 20 painful events would cause to the target (social pain $\alpha = .93$; physical pain $\alpha = .85$).

Finally, two items were included to check the success of the experimental manipulations. Participants rated the target on perceived morality (i.e., 'How likely is it that the target is moral?') and competence (i.e., 'How likely is it that the target is competent?') on 7-point scales ranging from 1 (not at all) to 7 (extremely).

Results and discussion

To check the manipulation, the morality and competence scores were submitted to a 2 (trait: Morality vs. competence) \times 2 (trait level: High vs. low) \times 2 (dimension of judgement: Morality vs. competence) ANOVA, with the first two factors varying between subjects and the third factor varying within subjects. The analysis did not yield a main effect of trait, $F(1, 49) = 0.42, p = .839, \eta_p^2 = .00$. Instead, we found a main effect of the trait level, $F(1, 49) = 78.72, p < .001, \eta_p^2 = .62$, indicating that high trait levels resulted in higher morality and competence scores ($M = 5.64, SD = 1.07$) than low trait levels ($M = 2.96, SD = 1.08$). This main effect was qualified by a three-way interaction, $F(1, 49) = 55.88, p < .001, \eta_p^2 = .53$. The analyses revealed that higher ratings of morality were found for the highly moral target ($M = 6.40, SD = 0.91$) compared with the targets low in morality ($M = 1.91, SD = 1.30$), $t(24) = 10.38, p < .001, d = 4.12$ 95% CI = [2.71, 5.50]. By contrast, no difference emerged on competence scores, $t(24) = 1.54, p = .136, d = 0.61$ 95% CI = [-0.19, 1.40]. Similarly, higher ratings of competence were attributed in the high competence condition ($M = 6.58, SD = 0.67$) compared to the low competence condition ($M = 2.27, SD = 1.33$), $t(25) = 10.20, p < .001, d = 3.95$ 95% CI = [2.61, 5.26]. No difference emerged on morality scores, $t(25) = 1.60, p = .122, d = 0.62$ 95% CI = [-0.16, 1.39].

We then computed a 2 (trait: Morality vs. competence) \times 2 (trait level: High vs. low) \times 2 (pain type: Social vs. physical) ANOVA, with the first two factors varying between subjects and the third factor varying within subjects (see Table 3 for descriptive statistics) on participants' pain judgements.

The analysis did not yield a main effect of trait, $F(1, 49) = 1.92, p = .17, \eta_p^2 = .04$. Instead, we found a main effect of trait level, $F(1, 49) = 5.95, p < .018, \eta_p^2 = .10$, indicating that the target depicted in a positive way was perceived to be able to suffer

Table 3. Mean ratings of social and physical pain for the four targets (Study 3). Standard deviations are provided in parentheses

	Morality		Competence	
	Social pain	Physical pain	Social pain	Physical pain
Low	4.74 (1.23) _a	4.56 (1.02) _a	6.68 (2.34) _a	4.78 (1.66) _a
High	8.21 (0.92) _b	4.01 (1.49) _a	6.87 (1.39) _a	5.20 (1.85) _a

Note. Means with different subscript in a given column are significantly different from each other at $p < .05$.

more pain overall ($M = 6.07$, $SD = 1.17$) than the target depicted in a negative way ($M = 5.28$, $SD = 1.47$). Also, a main effect of pain type was found, $F(1, 49) = 63.95$, $p < .001$, $\eta_p^2 = .57$, indicating that social pain ($M = 6.75$, $SD = 1.97$) was perceived to be more painful than physical pain ($M = 4.61$, $SD = 1.57$). As expected, a significant three-way interaction among trait, trait level, and pain type qualified these main effects, $F(1, 49) = 18.21$, $p < .001$, $\eta_p^2 = .27$. The analyses indicated that lower ratings of social pain were found for the target who lacked moral qualities compared with the highly moral target, $t(24) = 8.22$, $p < .001$, $d = 3.26$ 95% CI = [2.05, 4.45]. No differences emerged between the two moral target conditions when physical pain was considered, $t(24) = 1.04$, $p = .305$, $d = 0.41$ 95% CI = [-0.37, 1.19]. Importantly, we found no differences in the competence conditions for social, $t(25) = 0.24$, $p = .810$, $d = 0.09$ 95% CI = [-0.66, 0.85] or physical pain, $t(25) = 0.60$, $p = .553$, $d = 0.23$ 95% CI = [-0.53, 0.99].

Thus, Study 3 confirmed the findings of our previous studies and showed that participants perceived social painful events to be less severe when the target was depicted as low in morality. No such differences emerged when physically painful instances were rated. Furthermore, these findings suggested that the tendency of the observers to ascribe a lower capacity to experience social pain to a target is specific to the moral domain, given that the manipulation of another fundamental dimension of person perception (i.e., competence) did not exert any effects.

STUDY 4

Study 4 aimed to expand the findings in two main ways. First, in Study 3, participants received information about the target only on one dimension. In contrast, in Study 4, we provided each participant with information on both morality and competence. In addition to being more realistic, the fourth study's design enabled us to examine the conjoint effects of the information in predicting social and physical pain judgements (for a similar argument, see Brambilla *et al.*, 2012). As in the previous studies, we predicted that social pain judgements should depend to a higher degree on morality than on competence information. We expect no effects of both traits on physical pain judgements.

Moreover, we aimed to uncover the mediating mechanism that drives the effect of morality on social pain judgements. Two mechanisms were measured, and their relative importance in explaining the morality effect was tested. First, we considered dehumanization as a potential mediator. In fact, previous studies support the idea that individuals attribute a lesser degree of humanity to those who lack moral status (Bastian, Laham, Wilson, Haslam, & Koval, 2011; Haslam, Bastian, Laham, & Loughnan, 2011). Furthermore, prior research has found that social pain (but not physical pain) is a hallmark of humanness and more typical of those who do not engage in immoral acts (Riva & Andrighetto, 2012). Moreover, it has been shown that individuals who infringe moral norms are viewed as less human than those who comply with moral norms (Bastian *et al.*, 2013). This finding suggests a close connection between the perceptions of morality and the attribution of humanness. Based on previous research indicating that social pain is mostly attributed to fully human targets (Riva & Andrighetto, 2012), we anticipated that observers would attribute lower levels of social pain to targets lacking morality (compared to highly moral targets).

Secondly, we considered perceived similarity as another potential mediator. Based on the idea that individuals tend to view themselves as more moral (even though not

necessarily more intelligent) than others (Allison, Messick, & Goethals, 1989; van Lange & Sedikides, 1998), one could speculate that observers might perceive a target low in morality as more dissimilar to themselves and therefore attribute lower ratings of social suffering caused by socially distressing events. Indeed, lowered similarity makes it more difficult to imagine one's own feelings in a similar situation and generalize them to the suffering target. Such a process will especially make a difference in the attribution of social pain, given that its suffering is less visible and more abstract (Eisenberger, 2012; Williams et al., 2009; Zhong & Leonardelli, 2008) and thus might require more emphatic qualities to be fully recognized.

Method

Participants

Participants were 96 undergraduate students (52 female; $M_{\text{age}} = 22.58$ years, $SD = 2.59$) from a large Italian university. The study employed a 2 (morality: High vs. low) \times 2 (competence: High vs. low) \times 2 (pain type: Social vs. physical) mixed factorial design with morality and competence as the between-subject factors and pain type as the within-subject factor.

Measures and procedures

Participants were randomly assigned to conditions and provided with information regarding the levels of morality (i.e., honesty, sincerity, trustworthiness) and competence (i.e., intelligence, competence, skilfulness) of an unknown target. Subsequently, participants indicated on a 10-point scale ranging from 0 (no pain) to 10 (most intense pain) how much pain they thought a series of 20 painful events would cause to the target (social pain $\alpha = .93$; physical pain $\alpha = .83$).

To measure dehumanization, we used a series of 10 characteristics that included positive and negative traits (i.e., deeply human, high minded, barbaric, robotic, machine-like, unfeeling, monster-like, subhuman, beast-like, emotionless – $\alpha = .74$). We asked participants to use a 1 (not at all) to 7 (very much) rating scale to indicate how well each characteristic described the target.²

To measure the perceived similarity of the observers with the target, we used four items ('The target and I are two similar people'; 'The target and I are alike'; 'I think I have a lot in common with the target'; 'The target and I are very different (reverse-scored)' – $\alpha = .89$). Responses were recorded on a 1 (not at all) to 7 (very much) scale and averaged to create a composite score.

Finally, we included two items to check the success of our experimental manipulations. The participants rated the target on perceived morality (i.e., 'How likely is it that the target is moral?') and competence (i.e., 'How likely is it that the target is competent?') on 7-point scales ranging from 1 (not at all) to 7 (extremely).

² The literature on dehumanization has typically differentiated two senses of humanness. Human uniqueness traits set humans apart from other species, while human nature defines the core features of what makes us human (see Haslam & Loughnan, 2014). Even though our dehumanization measure includes terms that refer to both senses of humanness, a principal component analysis confirmed that they represented a single underlying construct. Similar single construct measures of dehumanization have been used in other research, especially those that have studied morality in an interpersonal context like the current study (e.g., Bastian et al., 2013). Therefore, a global index of dehumanization was created.

Results and discussion

Manipulation check

To check the manipulation, the morality and competence scores were submitted to a 2 (morality: High vs. low) \times 2 (competence: High vs. low) \times 2 (manipulation check type: Morality vs. competence) ANOVA, with the first two factors varying between subjects and the third factor varying within subjects. The analysis yielded a main effect of morality, $F(1, 91) = 347.51, p < .001, \eta_p^2 = .79$, indicating that the high morality condition resulted in higher manipulation check scores ($M = 5.69, SD = 1.29$) than the low morality condition ($M = 3.17, SD = 1.42$). Similarly, we found a main effect of competence, $F(1, 91) = 318.56, p < .001, \eta_p^2 = .78$, which again indicated that the high competence condition resulted in higher manipulation check scores ($M = 5.58, SD = 1.25$) than the low competence condition ($M = 3.27, SD = 1.62$). These two main effects were qualified by significant two-way interactions between morality and the manipulation check, $F(1, 91) = 428.39, p < .001, \eta_p^2 = .82$, and between competence and the manipulation check, $F(1, 91) = 477.68, p < .001, \eta_p^2 = .84$. The analysis revealed that higher ratings of morality were found for the highly moral target ($M = 6.69, SD = 0.58$) than the low moral target ($M = 1.98, SD = 0.93$), $t(94) = 29.54, p < .001, d = 6.03$ 95% CI = [5.06, 6.98], whereas no such effect emerged for competence scores, $t(93) = 0.54, p = .587, d = 0.11$ 95% CI = [-0.29, 0.51]. Similarly, the analyses indicated that higher ratings of competence were awarded in the high competence condition ($M = 6.83, SD = 0.42$) than the low competence condition ($M = 2.11, SD = 1.16$), $t(93) = 26.33, p < .001, d = 5.40$ 95% CI = [4.51, 6.27], whereas no such effect was found on morality scores, $t(94) < 0.01, p = 1.00, d = 0.11$ 95% CI = [-0.0008, 0.00009].

Pain judgements

To test the main prediction of the current investigation, we computed a 2 (morality: High vs. low) \times 2 (competence: High vs. low) \times 2 (pain type: Social vs. physical) ANOVA, with the first two factors varying between subjects and the third factor varying within subjects (see Table 4 for descriptive statistics). This analysis yielded a main effect of morality, $F(1, 92) = 12.93, p = .001, \eta_p^2 = .12$, which indicated that

Table 4. Mean ratings of social pain, physical pain, similarity, and dehumanization for the four targets (Study 4). Standard deviations are provided in parentheses

	Low morality	High morality
Low competence		
Social pain	5.54 (2.18) _a	7.47 (1.16) _b
Physical pain	5.59 (1.51) _a	5.08 (1.49) _a
Similarity	1.47 (0.57) _a	2.74 (1.3) _b
Dehumanization	4.07 (2.25) _a	2.21 (0.95) _b
High competence		
Social pain	4.52 (1.64) _a	7.22 (1.69) _b
Physical pain	5.45 (1.23) _a	4.96 (1.53) _a
Similarity	2.58 (1.10) _a	4.83 (0.95) _b
Dehumanization	3.83 (0.92) _a	2.54 (1.17) _b

Note. Means with different subscript in a given row are significantly different from each other at $p < .05$.

participants ascribed a lower capacity to suffer pain in the low morality condition ($M = 5.28$, $SD = 1.29$) than in the high morality condition ($M = 6.18$, $SD = 1.17$). In contrast, the analysis did not yield a main effect of competence on pain scores, $F(1, 92) = 2.28$, $p = .134$, $\eta_p^2 = .02$. Finally, we found a main effect of pain type on pain scores, $F(1, 92) = 20.55$, $p < .001$, $\eta_p^2 = .18$. Similarly to what we found in the previous studies, social pain ($M = 6.19$, $SD = 2.08$) was considered to be more painful than physical pain ($M = 5.27$, $SD = 1.44$).

There was no a significant interaction between competence and pain type, $F(1, 92) = 1.51$, $p = .222$, $\eta_p^2 = .01$, nor between morality and competence, $F(1, 92) = 0.590$, $p = .445$, $\eta_p^2 = .00$. Similarly, the three-way interaction among morality, competence, and pain type was not significant, $F(1, 92) = 0.86$, $p = .358$, $\eta_p^2 = .00$. However, as predicted, we found a significant interaction between morality and pain type, $F(1, 92) = 48.08$, $p < .001$, $\eta_p^2 = .34$. The analyses indicated that lower ratings of social pain were found for the target lacking moral qualities than the highly moral target, $t(94) = 6.54$, $p < .001$, $d = 1.34$ 95% CI = [0.88, 1.77]. No differences emerged between the two moral target conditions when physical pain was considered, $t(94) = 1.71$, $p = .090$, $d = 0.34$ 95% CI = [-0.05, 0.75].

Perceived similarity

Next, we considered the effect of our manipulation on ratings of perceived similarity with the target. We computed a 2 (morality: High vs. low) \times 2 (competence: High vs. low) between-subjects ANOVA on similarity scores (see Table 4 for descriptive statistics). The analysis yielded a main effect of morality, $F(1, 92) = 72.11$, $p < .001$, $\eta_p^2 = .44$, which indicated that participants in the high morality condition perceived a higher degree of similarity with the target ($M = 3.79$, $SD = 1.54$) than in the low morality condition ($M = 2.03$, $SD = 1.03$). Similarly, we found a main effect of competence, $F(1, 92) = 59.88$, $p < .001$, $\eta_p^2 = .39$, which indicated that the high competence condition resulted in higher perceived similarity ($M = 3.71$, $SD = 1.53$) than the low competence condition ($M = 2.10$, $SD = 1.18$). These two main effects were qualified by a significant interaction between morality and competence manipulation, $F(1, 92) = 5.58$, $p = .020$, $\eta_p^2 = .06$. The analyses revealed that participants provided higher ratings of similarity when the target was highly moral than when the target lacked moral qualities, $t(94) = 6.56$, $p < .001$, $d = 1.34$ 95% CI = [0.89, 1.78], or when the target was high in competence than when the target was low in competence, $t(94) = 5.75$, $p < .001$, $d = 1.17$ 95% CI = [0.73, 1.60].

Dehumanization

To test the effect of our manipulation on dehumanization ratings, we computed a 2 (morality: High vs. low) \times 2 (competence: High vs. low) between-subjects ANOVA for dehumanization scores (see Table 4 for descriptive statistics). This analysis yielded a main effect of morality, $F(1, 92) = 29.01$, $p < .001$, $\eta_p^2 = .24$, showing that participants ascribed a higher degree of humanity to the target in the high morality condition ($M = 3.99$, $SD = 1.38$) than in the low morality condition ($M = 2.68$, $SD = 0.88$). In contrast, the analysis did not yield a main effect of competence on dehumanization ratings, $F(1, 92) = 0.02$, $p = .890$, $\eta_p^2 = .00$, or an interaction between morality and competence, $F(1, 92) = 0.93$, $p = .336$, $\eta_p^2 = .01$.

Mediation analysis

Last, we examined whether participants' perceived similarity with the described target and/or participants' perception of target's humanity mediated the relationship between the morality manipulation (high vs. low) and the attribution of social suffering (see Table 5 for correlations between variables). We used a bootstrapping procedure (Hayes, 2013) estimating direct and indirect effects with multiple potential mediators. First, we found that the manipulation of morality (coded as: Low = -1, high = 1) predicted the dependent variable (i.e., social pain scores), $B = 2.31$, $SE = 0.35$, $p < .001$. Moreover, morality predicted both perceived similarity ($B = 1.76$, $SE = 0.27$, $p < .001$) and dehumanization ($B = -1.57$, $SE = 0.29$, $p < .001$). When perceived similarity and dehumanization were included in the regression equation, dehumanization predicted social pain ($B = -0.40$, $SE = 0.11$, $p = .009$), whereas the direct effect of the manipulation of morality on social pain was decreased ($B = 1.47$, $SE = 0.43$, $p = .01$). The analysis provided support for the idea that dehumanization ($B = 0.64$, $SE = 0.18$; CI = LL: 0.28; UL 0.99, 5,000 bootstrap samples) mediated the relationship between the morality manipulation and the perception of social pain. In contrast, perceived similarity neither predicted the perception of social pain ($B = 0.11$, $SE = 0.12$, $p = .40$), nor did it play any mediation role ($B = 0.19$, $SE = 0.19$; CI = LL: -0.16; UL 0.61). Further analyses revealed that neither similarity (CI = LL: -0.29; UL 0.50) nor dehumanization (CI = LL: -0.24; UL 0.34) played a role in the relationship between morality and physical pain.

Study 4 thus confirms the findings obtained in Studies 1, 2, and 3. We provided each participant with information on morality and competence. Social pain judgements were more strongly influenced by information regarding the morality of a social target than information on the target's competence. Whereas in Study 3 our manipulation of morality marginally affected competence scores, in the present study, our results confirm that morality and competence manipulations affected only morality and competence scores, respectively. More importantly, the attribution of humanity partially mediated the interactive relationship between the perception of morality and social pain judgements.

Meta-analysis

In four studies, we have shown consistent evidence that perception of morality influences social pain judgements. By contrast, we found consistent null effects of morality on physical pain judgements. The mean directions of the relationship between morality and physical pain judgements have been mixed. Indeed, in Studies 1 and 2, the statistical means seemed to suggest that higher ratings of physical pain could be associated with the highly moral target (see Tables 1 and 2), whereas in Studies 3 and 4, the direction of the

Table 5. Correlations between variables (Study 4)

	M	SD	1	2	3	4	5	6
1. Morality	0.50	0.50	1	.00	.56**	-.49**	.56**	-.17
2. Competence	0.50	0.50		1	.51**	.01	-.15	-.05
3. Similarity	2.91	2.90			1	-.32**	.39**	-.06
4. Dehumanization	3.16	3.16				1	-.52**	.05
5. Social pain	6.19	6.18					1	.08
6. Physical pain	5.26	5.27						1

Note. ** $p < .01$.

means seemed to suggest that higher physical pain judgements could be associated with low moral targets (see Tables 3 and 4). As we pointed out, such differences on physical pain judgements have always turned out to be non-significant. Yet, it might still be possible that in aggregate, multiple non-significant effects could accumulate to show an overall but modest evidence of a link between perception of morality and physical pain judgements. To test this possibility, we meta-analytically combined the results from the effect sizes reported in Studies 1–4 ($N = 213$).

The meta-analysis showed that the weighted combined Z -score for social pain judgements was statistically significant ($Z = 8.54, p < .001$), whereas that for physical pain judgements was not ($Z = -0.78, p = .96$). Furthermore, the effect size for social pain judgements was large ($r = .61, d = 1.56$), whereas that for physical pain was close to zero ($r = -.02, d = 0.049$). These findings are particularly relevant considering that both the manipulation of the target's moral qualities and the measures of social and physical pain judgements were kept identical across the four studies. In sum, social pain judgements seem to be reliably linked to the perception of a target's moral qualities. By contrast, subjective impressions of physical pain judgements do not seem to correspond to different perceptions of a target's morality.

GENERAL DISCUSSION

Although knowledge on the experience and consequences of social pain has increased during the last decade (Eisenberger *et al.*, 2003; MacDonald & Leary, 2005; Riva, Sacchi, *et al.*, 2011; Riva, Wirth, *et al.*, 2011), much less is known about beliefs regarding the social pain of others. Four studies provided consistent support for our hypothesis that individuals ascribe a lower capacity to experience social pain (but not physical pain) to those who are believed to lack moral qualities compared with those who are perceived to be highly moral. Our findings are in line with recent evidence showing that second-hand experiences of social and physical pain are indeed inferred differently (Meyer *et al.*, 2013; Nordgren, MacDonald, & Banas, 2011; Riva & Andrighetto, 2012). At the same time, the present data extend these findings showing that a target's moral status can influence the inference of the target's pain of isolation, rejection, or betrayal more than the pain of physical assault or injury.

While Study 1 tested this general hypothesis, Study 2 corroborated these findings showing that the effect of morality on social pain judgements is driven by the depiction of a target low in morality (compared to a control condition and a highly moral target). This latter finding is consistent with prior research showing that negative moral information has a stronger impact in predicting impressions than positive moral information (Brambilla *et al.*, 2011; Reeder & Brewer, 1979; Skowronski & Carlston, 1987). Indeed, moral traits are hierarchically restrictive traits: Honest individuals are expected to behave almost exclusively honestly, while dishonest individuals could engage in both honest and dishonest behaviours (see Trafimow & Trafimow, 1999). As a result, negative moral traits are more diagnostic of an individuals' underlying moral character. Indeed, if a person steals money, he/she will be perceived as dishonest. By contrast, if someone pays the train ticket, this does not necessarily result in a perception of morality. Our findings confirm the salience of negative moral information (or negative information more generally, Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001) and extend its effects from the impression formation domain to the attribution of social suffering.

Study 3 enabled us to disentangle the effects of perceived morality from those of competence, another important evaluative dimension. Indeed, this study confirmed the

specific role of morality given that differential perceptions of perceived competence had no comparable effects on pain judgements. Study 4 further replicated our findings and revealed a possible psychological mechanism for the relation between moral qualities and pain judgements. Indeed, the study revealed that the attribution of humanity (rather than perceived similarity) partially mediated the relationship between the morality manipulation (high vs. low) and the attribution of social suffering.

Classic work on dehumanization (Bandura, Underwood, & Fromson, 1975; Kelman, 1976) emphasizes a strong link between aggression, violence, evil, and dehumanization, and subsequent research has established a strong relationship between moral status and the attribution of humanity (Bastian *et al.*, 2013). This prior research suggests that when we perceive others to be fully human, we also feel compelled to consider their needs, care about them, and alleviate their suffering (Staub, 2012). In agreement with this research, our findings suggest that when observers perceive that someone lacks moral qualities and therefore deny this person full humanness (Bastian *et al.*, 2013, 2014), they downplay the experiences this person might feel as a consequence of ostracism, exclusion, and rejection.

In this regard, our results are based on a unidimensional conceptualization of dehumanization. This might be seen as a departure from previous studies that mostly used a two-dimensional conceptualization of dehumanization (i.e., animalistic and mechanistic dehumanization; Haslam & Loughnan, 2014). However, recent research that focused on the link between morality and humanity in an interpersonal context showed that both forms of dehumanization correlated strongly and were therefore analysed in a single construct (Bastian, Jetten, & Radke, 2012; Bastian *et al.*, 2013). Our research fit with this perspective and applied a similar conceptualization to interpersonal pain perception.

Based on our data, one way to prevent perpetrators from engaging in a downward spiral of social suffering might be to refrain from perceiving the victim as lacking moral status. Similarly, one way to motivate individuals to hold firmly to moral standards is to make the effect that perceived immorality has on empathy for social suffering salient. A further implication of our findings is that diminished attributions of the capacity to experience social pain may decrease the perceived need to provide the support that human targets typically elicit (see Cuddy, Rock, & Norton, 2007) because the perception of suffering triggers prosocial behaviour (Batson, Chang, Orr, & Rowland, 2002; Batson & Moran, 1999).

Concerning physical pain judgements, we did not find any effects of morality on pain attributions. Although previous work suggested that witnessing the physical pain of a distant other (e.g., an out-group member) elicits fewer neural activity and physiological reactions than a close other, our findings are similar to past research on racial bias that did not find an intergroup bias on explicit judgements of physical pain (Avenanti *et al.*, 2010; Riva & Andrighetto, 2012). However, future research should employ measures different from self-report (e.g., physiological markers and neuroimaging technology) to explore potential effects of moral perception on social and physical pain at the implicit level.

As they stand, our findings are the first showing that morality and the attribution of social pain are inherently linked. Clearly, future studies could expand our insights adopting a more fine-grained analysis. Indeed, in the current set of studies, we considered morality mainly in terms of trustworthiness and honesty (see also Ellemers *et al.*, 2008; Leach *et al.*, 2007; for a review, Brambilla & Leach, 2014). Even if the moral domain might be conceived more broadly than this definition implies (Graham, Haidt, & Nosek, 2009), trustworthiness and honesty are more generally and more strongly considered moral than are other relevant traits (Brambilla & Leach, 2014). Notwithstanding, one direction that would be interesting to take in further research is to investigate how moral qualities such as harm, fairness, loyalty,

authority, and purity (that have recently been described as the ‘foundations’ of moral judgement; see Graham *et al.*, 2011) relate to pain attribution. In a similar vein, in the light of the recent distinction between agentic and experience components of the moral character (Gray & Wegner, 2011), one interesting direction for future research is to investigate how these two components impact the attribution of social and physical pain. Indeed, although a good deal of work has investigated the link between moral agency versus patiency and the perception of suffering in general (Gray & Wegner, 2011; Gray, Young, & Waytz, 2012), no prior investigation has examined how these moral components impact the inference of social and physical pain in others. Furthermore, going beyond morality, future research might also investigate whether other prosocial traits ascribed to the target – such as his/her friendliness and kindness – affect the attribution of social and physical pain.

So, as many questions as we have hoped to answer, there are many more that we could ask. For instance, one intriguing question that stems from the current research regards the accuracy of observers’ perception of the link between morality and social suffering. Does the effect we found reflect just a biased perception of witnesses and observers or does it somehow mirror an accurate perception of reality? In other words, are more morally disengaged people less sensitive to the pain of social rejection? Future studies should explore this possibility. For instance, it might be possible to prime people with an immoral behaviour (e.g., asked to remind a time when they behaved in moral way vs. immoral ways) and then measure their sensitivity to social pain.

In this sense, we argue that ascribing lower levels of social pain to targets low in morality might reflect a functional response. Given the key role of morality for individual and group survival, people might be more sensitive when distressing social events, such as ostracism, exclusion, rejection, isolation, betrayal, and other forms of social disconnection, occur to someone who is perceived to have a low moral status, that is someone who constitutes a threat for group life (De Waal, 1996). In other words, a person low in morality is someone who might be expected to undergo frequent and prolonged experiences of social threats and, when they happen, the consequences of such experiences (e.g., the betrayal of a low moral person, such as a thief or a murderer) are likely to be perceived as less severe and intense. In contrast, observers might be more sensitive in cases in which experiences of social threats occur to a person who is equipped with moral qualities, that is someone who typifies the ideal image of the self.

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Appendix: Items related to social (from I to I0) and physical pain (from I1 to 20) (Studies I–4)

1. Being ignored by a friend.
2. Feeling betrayed by someone who is important.
3. Feeling unappreciated by someone who is important.
4. Being excluded from a group of friends.
5. Being betrayed by one's partner.
6. Losing touch with one's fellows.
7. The exclusion from one's group.
8. Losing the trust of one's parents.
9. Being humiliated in front of one's fellows.
10. Learning about the death of a former classmate.
11. Receiving an injection in the mouth.
12. Taking a cold shower.
13. Getting soap in the eyes under the shower.
14. Be burned on the face by a lit cigarette.
15. Have a leg cramp.
16. A punch to the face.
17. A strong slap in the face.
18. The deprivation of food and water for 2 days.
19. Being beaten on the back.
20. Getting hit in the head.