



Dealing With the COVID-19 Pandemic

How Defense Strategies Relate to Empathic Reactions During Lockdowns

Stefanie Hechler^{1,2} , Clarissa Wendel², and Dana Schneider^{2,3}

¹German Centre for Integration and Migration Research (DeZIM), Nationaler Diskriminierungs- und Rassismusmonitor (NaDiRa) & Cluster Daten - Methoden - Monitoring, Berlin, Germany

²Department of Social Psychology, Friedrich-Schiller-University Jena, Germany

³DFG Network "Understanding Others", Institute of Psychology, Friedrich-Schiller-University Jena, Germany

Abstract: The COVID-19 pandemic with its substantial changes to social life affects social cognitions, which are important for solidarity during a global crisis. We investigated how distal defense strategies for dealing with threat, perceived threat, and contact experiences relate to people's empathic reactions during lockdowns in two countries. In three studies ($N = 1,332$), we found that more experienced threat is associated with higher personal distress. In Germany, but not in the United Kingdom, people who applied social defenses reported more empathic concern. Additionally, general positive contact experiences related positively to empathic concern and perspective taking. These other-directed empathic reactions correlated highly with solidarity with others across all studies. The findings indicate that people's empathy changes with their social experiences during this global crisis.

Keywords: COVID-19 pandemic, defense strategies, empathy, coping with threat, solidarity

On March 11, 2020, the World Health Organization declared the COVID-19 outbreak a global pandemic (Saglietto et al., 2020). To prevent collapse of the national health care systems, most governments decided for lockdowns and case isolations in their countries (Dunford et al., 2020; Gollwitzer et al., 2020; Jetten et al., 2020; Piguillem & Shi, 2020; van Bavel et al., 2020). The reactions and associated social cognitions people showed were diverse: While some people engaged in egocentric behavior such as panic buying or reactance behavior (e.g., *corona parties*), others stayed at home voluntarily to protect their fellow citizens, bought groceries for their elderly neighbors, or engaged in other forms of prosocial actions (Schneider, 2020). Various social psychological theories can offer explanations to this behavior (Rudert et al., 2021). Here, we focus on a combination of theories regarding existential threat, social networks, and empathic reactions. In times of personal and social distress, such as during the COVID-19 pandemic, prosocial behavior is urgently needed – and it is known to be predicted by other-oriented empathy (Atkins et al., 2004; Feddes et al., 2015; Welp & Brown, 2014). For example, concern for and understanding of others enhances voluntary physical

distancing and wearing a face mask to minimize the spread of the disease (Pfattheicher et al., 2020). An important question is, therefore, how the experienced threat, applied defense strategies to cope with it, and restrictions of face-to-face social contacts interact with people's empathic reactions.

Empathy has been described as a motivated account, meaning that other-oriented empathic reactions, such as perspective taking and empathic concern, are avoided or approached depending on the person and situation (Zaki, 2014). As such, it seems likely people show different forms of empathic reactions depending on their ability to cope with threat. For example, emotional unclarity through distress impairs the ability to cognitively understand others' affective experiences (Eckland et al., 2018). Also, acute stress has been shown to decrease cognitive empathy but may heighten affective empathy (Tomova et al., 2017). Moreover, perceived threats, such as threat to health, income, or social order, can reduce empathic reactions (e.g., Karos et al., 2018; Negd et al., 2011). It is therefore important to determine more precisely the factors that buffer negative effects of stress and threat to maintaining other-related empathic reactions in a

pandemic crisis. The empathic categories of the Interpersonal Reactivity Index (IRI; Davis, 1980) are most relevant in this context due to their established nature as multifaceted self-report empathy measure. It assesses personal distress, the feeling of uneasiness in negative social interactions, empathic concern, compassion toward others, and perspective taking, the tendency to adopt others' points of views (Davis, 1980). This allows investigating potential variability in self-related empathic reactions (e.g., empathic distress) and other-related empathic reactions (e.g., empathic concern, perspective taking).

To overcome initial anxiety and arousal reactions to threat, people engage in approach-motivated distal defense strategies (henceforth referred to as defense strategies) that relieve their stress (Jonas et al., 2014; see also Festinger, 1957, *cognitive dissonance theory*; Pyszczynski et al., 2015, *terror management theory*; Fritsche, et al., 2011, *group-based control theory*; Proulx & Inzlicht, 2012, *meaning maintenance model*). Specifically, they shift their focus on domains different from the threatening area if they cannot resolve the threat itself like a global pandemic. Such defense strategies can take personal or social, and concrete or abstract forms – a 2×2 taxonomy derived from the *General Process Model of Threat and Defense* by Jonas et al. (2014). The application and implication of these defense strategies depend on salient personal and situational affordances. Construal level theory (Trope & Liberman, 2010) describes that the psychological distance people take to certain objects or events ranges from concrete to abstract, which also occurs during threatening experiences. For example, people may react to threat on a personal abstract level by enhancing their self-clarity (Landau et al., 2009) and self-esteem (Schmeichel et al., 2010) or seek immediate incentives in a personal concrete strategy, such as entertainment or food consumption (Fransen et al., 2008). On a social abstract level people under threat, for example, emphasize their cultural worldviews and in-groups (Burke et al., 2010) and feel that social norms are especially important (Giannakakis & Fritsche, 2011). As a social concrete strategy, they concretely seek social interactions with close others (Maner et al., 2007). Newly elicited stress may suppress these distal defense strategies and set a person back to anxiety and arousal (Pearson et al., 2011), and associated personal distress and social withdrawal (for review, see Singer & Klimecki, 2014).

Next to such distal defense strategies, supporting social networks have repeatedly shown to buffer distress during experiences of threat, especially in times of adversity and uncertainty (e.g., Haslam et al., 2009; Nitschke et al., 2021). For example, the presence of others buffers against acute and chronic stress by strengthening social identities (e.g., Haslam et al., 2019; Häusser et al., 2012;

see Steffens et al., 2017, for a meta-analysis). Conversely, social isolation, chronic levels of stress, and prolonged feelings of worry can lead to sustained arousal (Cho et al., 2019; Nater et al., 2011) that can cause poorer relationship quality (Gordon et al., 2021). During the lockdowns in the COVID-19 pandemic, people are not only exposed to the pandemic threat but are also explicitly asked to maintain physical distance, making stress reduction and upholding empathy through active social networks more difficult.

In the current study, we investigate how distal defense strategies and experiences of social contacts relate to other-oriented empathic reactions during the COVID-19 pandemic. We aimed at capturing the everyday experiences that differed from those before the pandemic, especially dealing with the threat and social distancing rules, and relating them to empathic reactions. During the first lockdown in 2020, we assessed individuals' defense strategies as spontaneous choice via free text productions at three subsequent time points in Germany (Study 1a) and at two time points in the United Kingdom (Study 1b). In a second study, we applied the same measurement during the second lockdown in Germany but experimentally manipulated defense strategy by asking each participant for one explicit strategy. We predicted that social defense strategies compared to personal strategies relate to more empathic concern and perspective taking because these are other-oriented empathic reactions (e.g., Singer & Klimecki, 2014). In contrast, we assumed that personal and concrete strategies relate more to the self-oriented empathic reaction personal distress as they often only bring brief relief (e.g., Jonas et al., 2014). Additionally, we exploratively examined how perceived threat and the quality of social contacts that people maintain (despite the lockdown restrictions) relate to their empathic reactions. This study was approved by the ethics committee of a German University (#FSV20/013). Pre-registrations are filed with aspredicted.org. Pre-registrations, data, syntax, and additional analyses are provided on OSF: <https://osf.io/tgdex/>. We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the studies.

Study 1a

Material and Methods

Study 1a was conducted during the first lockdown in Germany. Data collection started on April 27, 2020, and ended on May 27, 2020. Participants completed our survey at three time points. After filling in the first questionnaire, they were contacted to fill out the second questionnaire after 2 days, and similarly, after filling out the second questionnaire, the participants were contacted 2 days later

to receive the third and final questionnaire. During data collection, the following measures were in place: public gatherings of more than two people were forbidden unless they belonged to one household or family. Many politicians asked citizens to stay at home and substantially reduce face-to-face contact. Schools, nonessential shops, restaurants, and other service providers were closed (Deutsche Welle, 2020a). During data collection, Germany gradually loosened its lockdown measures while maintaining the social distancing rules (Deutsche Welle, 2020b).

We originally determined that a sample size of 120 participants would be sufficient to detect small effects ($f = .15$) with a power of $1 - \beta = .95$ and a significance level of $\alpha = .05$ in a residual change model as pre-registered. Given that we experienced high dropout rates and faced the risk of not being able to code defense strategies (see details below), we collected data from as many participants as possible.

Participants

We recruited the German sample via university mailing lists, social media, and the crowdsourcing platform *Prolific Academic*. Participants recruited via *Prolific* received 1.38€ for their participation. Participation was voluntary. Those participants who fulfilled inclusion criteria at time 1 (T1) were contacted to complete the second and third questionnaires (T2, T3). These contained that

- (a) the participants correctly answered an attention-catch item (16 participants excluded),
- (b) the participants fully completed the questionnaire (124 excluded),
- (c) participation took place between 2 p.m. and 2 a.m. as we asked for daily experiences (84 excluded), and
- (d) the participants spent time on the questionnaire between $-1SD$ and $+3SD$ of the mean completion time (90 excluded).

The final sample consisted of 552 participants ($n_{T1} = 500$; $n_{T2} = 411$; $n_{T3} = 334$). Fifty-two of the participant codes at T2 and T3 did not match any code at T1. Two hundred thirty-four participated via *Prolific*. Three hundred six participants were female, five diverse, and 54 did not indicate their gender. Their mean age was 29.57 years ($SD = 10.91$). Four hundred one obtained a qualification to enter higher education, of whom 183 had a university degree. During data collection, 57.23% of the participants reported to work from home or currently being on vacation or leave.

Procedure and Measures

Participants followed an online link to the study composed via *SociSurvey* (Leiner, 2018). They provided informed consent before completing the questionnaire. At T1, they

first provided some demographic data. Then, the participants completed the following sections of the questionnaire:

- (1) In an open answer format, they described their feelings, thoughts, and/ or activities that have been especially important to them on that day for dealing with the corona pandemic and its consequences (*defense strategy*).
- (2) They rated how much this strategy has helped them to feel better.
- (3) Participants indicated their *empathic reactions* based on the Interpersonal Reactivity Index (IRI; Davis, 1980; German translation, Paulus, 2009). Each of the four subscales consisted of four items. *Personal distress* ($\alpha = .82-.88$) included items such as “Right now, I would be feeling helpless being in the middle of a very emotional situation.” *Empathic concern* ($\alpha = .62-.73$) included items such as “Right now, I am feeling tender and concerned when thinking about people less fortunate than me.” *Perspective taking* ($\alpha = .79-.90$) included items such as “Right now, I am trying to look at every question from two sides and therefore consider both.” *Fantasy* was not included in the analysis.
- (4) Participants reported about their experiences of physical and nonphysical contact during the day. Specifically, we asked how much time they spend with others (face-to-face, per telephone, or virtual channels), how many people they had contact with, how close they were to these contacts, and how positively or negatively they experienced the contact (*quality of physical and nonphysical contact*).
- (5) Participants reported how threatened they felt by the COVID-19 pandemic in general, how much their life today differs from what they expected or wanted, and how much the pandemic burdens them (*perceived threat*, five items, $\alpha = .76-.77$). This threat measurement was based on experienced discrepancies due to the pandemic in accordance with Jonas et al. (2014).
- (6) At the first and last time points of data collection, participants additionally indicated their willingness to help others during the pandemic (*willingness to help*, $\alpha = .78-.81$). The four items varied from close others (i.e., family members at risk) to distant others (i.e., refugees on the European border). All items were assessed on a 7-point scale from 1 (= *not at all*) to 7 (= *very much*). We additionally measured self-esteem for explorative reasons. These data were not analyzed for the current paper. Specific details are provided in the Electronic Supplementary Materials, ESM 1.

Data Analysis

Data collection and coding were conducted as pre-registered. We pre-registered analyses that aimed at

finding longitudinal effects using residual change models (the results can be found in additional analyses; <https://osf.io/tgdex/>).¹ However, given that the pre-registered analyses did not yield any conclusive effects, we decided to report explorative analyses. We conducted linear mixed models that describe relations between the variables on a daily basis while controlling for participants as a higher-order random factor. This also provided the possibility of including the data of participants who only took part at one or two time points or whose strategy could not be categorized at one or more occasions.

In the first step, we regressed the empathic reactions on the strategy dimensions (concrete = 0 vs. abstract = 1; personal = 0 vs. social = 1). Continuous variables were mean-centered for analyses. In the second step, we included threat as an additional predictor. In the third step, the quality of nonphysical contact and, in the fourth step, the quality of physical contact were added as additional predictors (higher numbers indicate more positive contact). Comparison of Models 3 and 4 shows whether the quality of physical contact contributes to explaining empathic reactions in addition to nonphysical social contacts (Nitschke et al., 2021). Finally, we controlled for gender, age, and political orientation, as they consistently have shown to affect empathic reactions (Hasson et al., 2018; Smith, 2006; Wieck & Kunzmann, 2015). Detailed information of the stepwise model results can be found in the additional analyses. The procedure enabled us to determine how the activation of a personal or social, concrete, or abstract strategy or their interactions (through the open question format) relate to empathic reactions. In the subsequent steps, we tested whether these effects hold despite the perceived threat and the quality of nonphysical and/or physical contact experiences. Furthermore, we report correlations on how empathic reactions relate to the willingness to help others.

Defense Strategy Dimensions

Two trained independent coders categorized the open answers on defense strategies on the two dimensions *concrete versus abstract* and *personal versus social* based on Jonas et al. (2014). When the coding differed, a third trained coder categorized the cases and the categorization that at least two coders agreed on was chosen. Participants reported more concrete (689) than abstract strategies (310) and a similar amount of personal (478) and social strategies (521). Two hundred forty-six answers were not categorizable or did not

contain any strategy. Half of the participants additionally reported negative experiences (T1 = 54.26%, T2 = 50.61%, T3 = 50.60%). Details on the coding strategies, coder agreement, frequencies, and example answers are presented in Tables E1, E2, and E3 in ESM 1.

Results

After excluding all observations with missing data on any of the variables, we obtained a sample of 853 observations of 465 participants (n_{T1} : 346, n_{T2} : 241, n_{T3} : 196). Model results of personal distress, empathic concern, and perspective taking are provided in the supplementary materials. The findings did not change after controlling for sex, age, and political orientation (see additional analyses; <https://osf.io/tgdex/>).

Personal Distress

Intraclass correlation coefficient (ICC) was calculated from an unconditional means model. It indicated that of the total variance of personal distress, 78.19% was attributable to between-person variation, whereas 21.81% was attributable to within-person variation. The defense strategies did not correlate with personal distress. However, experienced threat, quality of nonphysical contact, and quality of physical contact contributed significantly to explaining personal distress. People who reported more perceived threat also reported more personal distress, $b = 0.27$, 95% CI = [0.19, 0.34]. In contrast, positive nonphysical and physical contacts were associated with less personal distress, $b = -0.07$, 95% CI = [-0.13, -0.02]; $b = -0.08$, 95% CI = [-0.14, -0.03].

Empathic Concern

The ICC indicated that 24.58% was attributable to within-person variation. The strategy dimension personal versus social related positively with empathic concern, $b = 0.18$, 95% CI = [0.07, 0.31]. Reporting a social compared to personal strategy was related to higher empathic concern (see Figure 1, panel 1). Physical contact additionally had a positive relation to empathic concern, $b = 0.06$, 95% CI = [0.02, 0.11]. When positive physical contact was experienced more, people reported more empathic concern. The coefficients of the personal versus social strategy dimension and of physical contact remained significant after controlling for sex, age, and political orientation.

¹ The pre-registered analyses indicated mixed findings concerning the effects from the strategy and contact quality at T1 on empathic reactions at T3, or T2 in Study 1b, respectively (see additional analyses). Moreover, the sample size decreased substantially due to the large drop-out rates, which resulted in large confidence intervals of the coefficients. The data analyses reported deviates from pre-registration: we used mixed model analyses instead of change-models and included perceived threat as additional predictor.

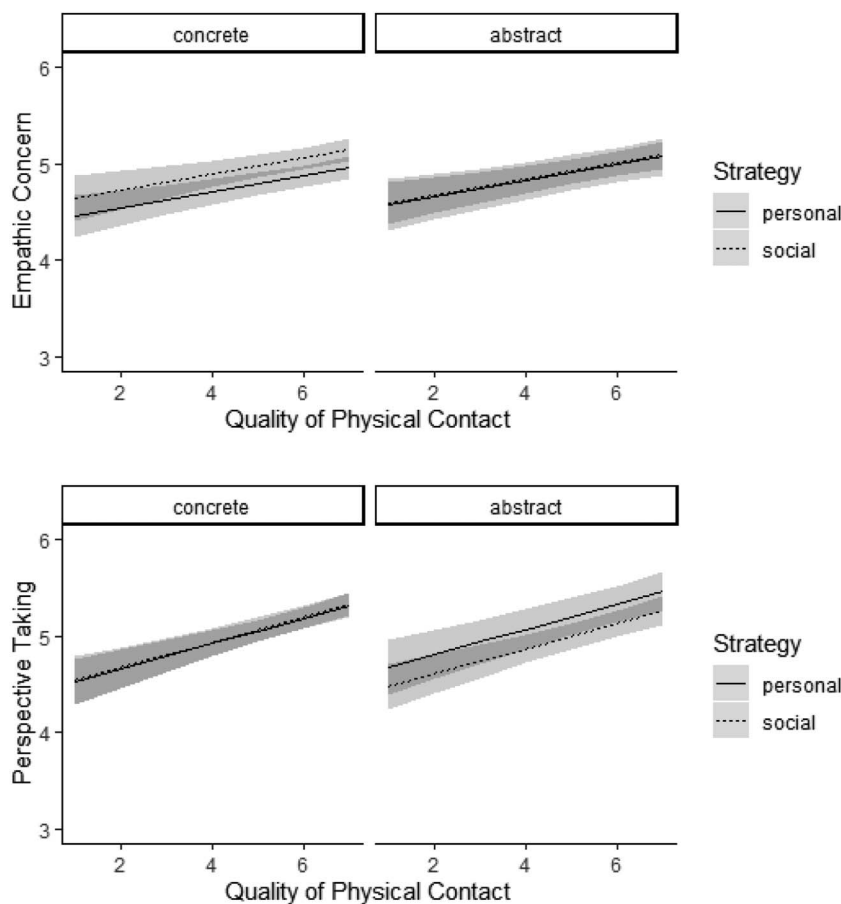


Figure 1. Effects of strategies and contact on empathic concern and perspective taking (Study 1a). Predicted values and their confidence intervals for model terms based on fixed effects of the models.

Perspective Taking

The ICC indicated that 30.28% of the variance of perspective taking was attributable to within-person variation. There was a significant interaction effect of the strategy dimensions on perspective taking at Step 1, $b = -.27$, 95% CI = $[-.52, -.01]$. Specifically, the personal abstract strategies related to more perspective taking compared to social abstract strategies, whereas there was no differential association of concrete social versus concrete personal strategies (see Figure 1, panel 2). Threat related negatively to perspective taking at Step 2, $b = -.07$, 95% CI = $[-.13, -.01]$, indicating that people who reported more perceived threat reported less perspective taking. Moreover, the more positive the quality of nonphysical contact, the more perspective taking the participants reported, $b = 0.06$, 95% CI = $[0.01, 0.11]$. Physical contact was positively related to perspective taking in addition to nonphysical contact, $b = 0.11$, 95% CI = $[0.06, 0.15]$. Figure 1 shows that people who report positive experiences of physical contact also reported more perspective taking. Adding the control variables had no effects on the findings.

Willingness to Help

Since solidarity is one major necessity to address the pandemic, we tested how the three empathic reactions were related to the willingness to help others. Whereas personal distress did not correlate significantly with participants' willingness to help ($r_{T1} = .08$, 95% CI = $[-.003, .17]$; $r_{T3} = .03$, 95% CI = $[-.08, .14]$), the other-related empathic reactions correlated positively with it. The more empathic concern people reported, the more they were willing to help others during the crisis ($r_{T1} = .43$, 95% CI = $[.36, .51]$; $r_{T3} = .48$, 95% CI = $[.39, .56]$). Also, the more the participants reported to engage in perspective taking, the more they indicated willingness to help others ($r_{T1} = .22$, 95% CI = $[.14, .31]$; $r_{T3} = .38$, 95% CI = $[.29, .48]$).

Study 1b

Material and Methods

Simultaneously to Study 1a, we collected data in the United Kingdom for Study 1b. Specificities of material and

methods were the same as in Study 1a, except that we only assessed data twice. After filling in the first questionnaire, we send a link to the second questionnaire 4 days later. In the United Kingdom, the same restriction rules like in Germany applied at the time of data collection, with the addition that people needed a justification to leave their home (e.g., for work, grocery shopping, medical needs, solitary exercise) and were asked to only leave home once per day (Deutsche Welle, 2020a). During the time of data collection, a plan was published to loosen the lockdown restrictions; however, it was only realized after our data collection was finished (Institute for Government, 2021).

Participants

All participants were recruited via *Prolific Academic* and received 1.38€ for their participation. One hundred two participants were not contacted a second time and excluded from the analyses because they did not fulfill the inclusion criteria at T1. The final sample of Study 1b consisted of 273 participants ($n_{T1} = 257$; $n_{T2} = 158$), of whom only 17 participated at T2 and not at T1. There were 182 female participants, and 17 did not indicate their gender. The mean age was 33.82 years ($SD = 11.59$). One hundred sixty-four participants obtained a qualification for higher education, of whom 112 had a university degree; 61.87% of the participants worked or studied from home during the time of data collection. Their political orientation was $M = 41.00$ ($SD = 22.22$; scale ranges from 0 = left to 100 = right) on a left to right scale.

Measures

As in Study 1a, all measured scales were reliable: *empathic concern* ($\alpha = .72/.74$), *perspective taking* ($\alpha = .75/.85$), *personal distress* ($\alpha = .81/.85$), *perceived threat* ($\alpha = .66/.74$), and *willingness to help* ($\alpha = .77/.81$). We additionally measured perceived helpfulness of the strategy and self-esteem.

Data Analysis

As in Study 1a, we regressed the empathic reactions on the strategy dimensions concern using linear mixed models. The predictors threat, physical contact, and nonphysical contact were included in a stepwise procedure. Data analyses deviate from pre-registration in the same way as in Study 1a: We used mixed model analyses instead of change models and included perceived threat as an additional predictor.

Defense Strategy Dimensions

Participants reported more concrete (298) than abstract (69) strategies and more personal (213) than social (154) strategies. Forty-eight answers did not fit the categorization of strategies; 52.26% (T1) and 43.04% (T2) of the participants additionally reported experiencing the current situation negatively.

Results

After excluding participants with missing data on any of the central variables, we obtained a sample of 291 observations ($n_{T1} = 178$, $n_{T2} = 113$). All model parameters are displayed in the supplementary materials in Tables E4–E6 (ESM 1). They did not change when controlling for sex, age, and political orientation.

Personal Distress

28.86% of the total variance of personal distress was attributable to within-person variance. The mixed model indicated that personal distress only increased with higher perceived threat, $b = 0.20$, 95% CI = [0.02, 0.38], whereas all other variables did not contribute to explaining personal distress. The more threat the participants perceived, the more personal distress they experienced. In contrast to Study 1a, the quality of neither nonphysical contact nor physical contact was related to personal distress.

Empathic Concern

32.05% of the variance of empathic concern was attributable to within-person variation. The strategy dimensions were not related to empathic concern. The coefficients showed a similar pattern as observed in Study 1a but were not significant. Including threat into the model significantly increased the model fit: The more threat the participants experienced, the more empathic concern they reported, $b = 0.34$, 95% CI = [0.01, 0.14]. In contrast to Study 1a, physical contact did not affect empathic concern.

Perspective Taking

The ICC of perspective taking was 72.25%, and thus, 27.75% of its variance was attributable to within-person variance. The strategy dimensions did not significantly relate to perspective taking, in contrast to Study 1a. There was a significant positive relation between perceived threat and perspective taking, $b = 0.26$, 95% CI = [0.12, 0.40]. Moreover, quality of nonphysical and physical social contacts was not significantly related to perspective taking.

Willingness to Help

Again, we tested how the three empathic reactions related to willingness to help others at T1 and T2. As in Study 1a, personal distress did not correlate with willingness to help, $r_{T1} = .03$, 95% CI = [−.09, .15]; $r_{T2} = .11$, 95% CI = [−.04, .26]. There was a positive relation between willingness to help and empathic concern, $r_{T1} = .34$, 95% CI = [.23, .45]; $r_{T2} = .40$, 95% CI = [.26, .52], and perspective taking, $r_{T1} = .31$, 95% CI = [.19, .42]; $r_{T2} = .32$, 95% CI = [.17, .46].

Discussion

In sum, the results indicate that the empathic reactions have within-person variation that can be partly explained by their reported experiences. Perceived threat was positively related to *personal distress* in both studies. This seemed to be buffered by positively experienced social contacts only in Germany. Personal distress is a self-focused facet of empathy and as a negative emotion may be more sensitive to proximal defense strategies, such as anxiety (Jonas et al., 2014).

Furthermore, effects on empathic concern and perspective taking were only found in the German sample. Participants who perceived the pandemic as more threatening reported more empathic concern and less perspective taking. Also, in the German sample, strategies and social contact both had effects on the empathic reactions. In the UK sample, in contrast, all empathic reactions varied substantially with perceived threat.

During data collection, the United Kingdom reached the highest death toll in Europe on May 5, 2020, whereas the number of COVID-19 infections in Germany constantly decreased (Die Bundesregierung, 2020; Zimmermann, 2020). Accordingly, the overall perceived threat in the UK sample ($M = 5.62$, $SD = 0.92$) was significantly higher than in the German sample ($M = 4.88$, $SD = 1.16$), $d = 0.69$. Thus, the salient threat in the United Kingdom might have hindered the effectiveness of distal defense strategies and thus strongly affected empathic reactions (Negd et al., 2011; Tomova et al., 2017).

When focusing on the effects in the German sample, we found that participants who reported social strategies or positive social contacts also reported more empathic concern. This indicates that positive awareness and contact with others are, in general, related to warm feelings toward others. Some social strategies also included positive social contact, such as a telephone call with family members, but they also referred to comforting health-related norms, such as washing hands regularly, as especially relevant. Moreover, perspective taking was positively associated with personal abstract strategies, such as goal-seeking, as well as positive social contact. It seems likely that this other-focused cognitive empathic strategy is related to more abstract thinking due to more psychological distance (Trope & Liberman, 2010).

Across both studies, the other-focused empathic reactions correlated positively with people's willingness to help others in times of crisis, but personal distress did not. Note that the results of Studies 1a and 1b rely on correlational data and therefore do not imply a causal direction of the effects. Moreover, they are of an explorative nature as we analyzed the data on a daily basis and did not find comprehensive longitudinal effects as

pre-registered. Still the relation between other-focused, but not self-focused, empathic reactions and prosocial behavior during a global crisis is an important replication of well-established findings in the empathy literature (Singer & Klimecki, 2014).

Study 2

To replicate the findings of Study 1 and indicate the direction of the effects, we conducted an additional experimental study during the second lockdown – 8 months after the initial detection of the virus in Germany. In contrast to Study 1, participants were randomly assigned to describe one of the four defense strategies or describe their room in a control condition.

Material and Methods

Participants

Data were collected from November 9, 2020, until January 30, 2021. The sample was recruited via university mailing lists, social media, and other internet platforms in Germany. Participation was voluntary. Psychology students received partial course credit. There were no other incentives. Overall, 559 people completed the study. Eighteen participants failed the attention check (“If you read this please indicate *very much*”), and 20 participants indicated to have taken part twice. Fourteen participants did not answer the open question about the strategy or did not give a comprehensive answer (e.g., *living room*). Thus, we excluded 52 participants from further data analyses. The final sample consisted of 507 participants with 100–103 participants in each of the five conditions. Three hundred ninety-seven of the participants were female, and seven indicated to be gender diverse. The mean age was 25.75 years ($SD = 9.64$); 63.44% of the sample obtained a degree qualifying for higher education and 24.51% obtained a college or university degree. Most participants were students (74.90%). Only 21.01% of the sample were currently working at their workplace, and 61.21% indicated to be working from home during data collection.

Design and Analyses

We a priori determined that with a total sample size of 540 to detect small effects ($f = .15$) with a power of $1 - \beta = .80$ and a significance level of $\alpha = .05$ in between-group models. Participants were randomly assigned to one of five conditions. Within each condition, they were asked to reflect about (1) a personal concrete, (2) a personal abstract, (3) a social concrete, or (4) a social abstract defense

strategy, or (5) a room scenery (control condition). As such, the study had a 1×5 design with four defense strategies and one control condition as between-subject conditions.

The hypotheses were first tested via one-way between-groups ANOVAs on personal distress, empathic concern, and perspective taking. We subsequently conducted linear models to investigate the effects of the strategy dimensions *social* (personal = 0, social = 1) and *abstract* (concrete = 0, abstract = 1) on the empathic reactions as in Study 1. We added three measured covariates (i.e., perceived threat, quality of nonphysical contact, and quality of physical contact) into the models. In contrast to the previous studies, in Study 2, people were asked to describe either a personal strategy or a social strategy. Some participants may have more difficulty in recalling comforting social interactions than others. Having to describe a social strategy may then even render the strategy less helpful (see *availability heuristic* in Folkes, 1988). Therefore, we added the interaction of personal-social strategies with physical and nonphysical contacts as predictors. Finally, we controlled for effects of participants' sex, age, and political orientation. For the analyses, all continuous predictors were mean-centered.²

Procedure and Measures

The procedure and measures of Study 2 resembled those of Study 1, with the difference that participants were asked to report on a specific defense strategy or their room scenery (control condition). For example, the instructions in the concrete-personal condition read, "Please think about your activities, feelings and/or thoughts during the last 7 days. Please describe a concrete situation in which you have done something for yourself that has done you especially good – and that supported you in coping with the current Corona-situation" (see Codebook, <https://osf.io/tgdex/> for wordings in all conditions). We then assessed the key variables empathic reactions ($\alpha = .65-.84$), perceived threat ($\alpha = .72$), social contact variables, and willingness to help others ($\alpha = .83$). All items were measured on a 7-point scale (1 = *not at all*; 7 = *very much*). Again, we exploratively measured self-esteem and helpfulness but did not include them in the analyses.

Results

Analyses of Variance

The one-factorial ANOVAs on all three empathic reactions indicated that there were no (direct) causal effects of the

defense strategies on all empathic reactions, $F_s(502,4) \leq 1.04$, $p_s \geq .385$. This did not change when including the covariates as pre-registered. Thus, the randomly assigned distal defense strategy to participants did not affect the empathic reactions.

We then tested the effects of the strategy dimensions on the empathic reactions using linear models similar to the procedure in Study 1a and 1b. The analyses contained data of 404 participants, excluding those in the control condition. The results tabulated in the supplementary materials.

Personal Distress

There were no effects of strategy dimension or quality of contact on personal distress. However, personal distress significantly increased with higher perceived threat, $b = 0.31$, 95% CI = [0.19, 0.43]. There was a significant three-way interaction of social strategy dimension, nonphysical contact, and physical contact on personal distress, $b = -0.15$, 95% CI = [-0.26, -0.05]. Participants reported more personal distress after applying a social strategy when they had negative nonphysical and physical contact. However, when they reported positive nonphysical or positive physical contacts, a social strategy decreased personal distress. There was no effect of contact quality on personal distress when people reported a personal strategy.

Empathic Concern

There were no effects of the strategy dimensions or contact on empathic concern. However, perceived threat related positively to empathic concern, $b = 0.10^*$, 95% CI = [0.00, 0.20]. An interaction of personal versus social strategy and quality of nonphysical contact effect showed that people in the social strategy conditions who experienced positive contact reported more empathic concern, whereas positive contact did not affect the effects of a personal strategy on empathic concern, $b = 0.28$, 95% CI = [0.10, 0.46] (see Figure 2, panel 1).

Perspective Taking

The personal versus social dimension did not affect perspective taking. Descriptively, abstract strategy led to more perspective taking than a concrete strategy, but this trend was not significant, $b = 0.28$, 95% CI = [-0.02, 0.57]. There was a three-way interaction of personal versus social strategy with nonphysical contact and physical contact: The social strategies led to more perspective taking and more people experienced positive physical or nonphysical contact, $b = 0.10$, 95% CI = [0.01, 0.19]. Quality of contact did not affect the effect of personal strategies on perspective taking (see Figure 2, panel 2).

² We pre-registered the 1×5 ANOVA and regressions of the strategies on the empathic reactions including the covariates perceived threat, quantity and quality of physical and non-physical contact. Divergent from pre-registration, we did not include quantity of social contact as a covariate into the models. Preliminary analyses indicated that they did not correlate with the reported empathic reactions.

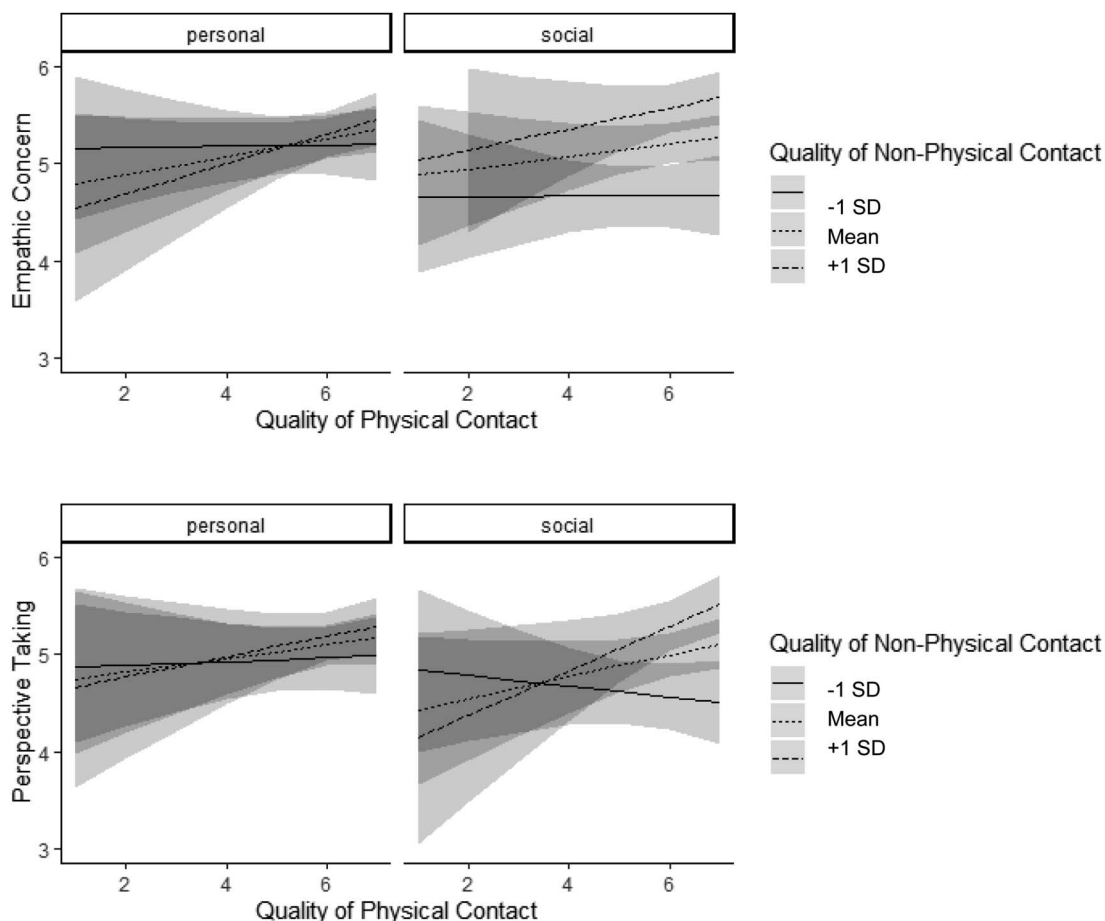


Figure 2. Interaction effects of social strategy dimension with contact (Study 2). Predicted values and their confidence intervals for model terms.

Willingness to Help

Finally, we considered the complete sample to analyze correlations of empathic reactions and willingness to help. As in the previous studies, personal distress did not correlate with willingness to help, $r = .01$, 95% CI = $[-.07, .10]$. There was a positive relation between willingness to help and empathic concern, $r = .38$, 95% CI = $[.41, .54]$, and perspective taking, $r = .36$, 95% CI = $[.28, .43]$.

Discussion

Overall, the experimental manipulation of distal defense strategies did not provide any direct effects on the empathic reactions. When considering other predicting variables, the results show that people who perceive more threat also report more personal distress, as in Study 1a and 1b. Personal distress was buffered by applying a social strategy and experiencing positive social contact. Similar to Study 1a, social defense strategies positively affected empathic concern – as an other-focused reaction – but only when people also reported positive contact. Thus, thinking about (recent)

positive social experiences may buffer empathic distress and foster empathic reactions toward others in times of crisis – which promotes people’s willingness to help others.

General Discussion

Crises, such as the global COVID-19 pandemic, activate various reactions, including anxiety and avoidance, but also approach-motivated distal defense strategies that help to cope with the threat (Jonas et al., 2014). The current study is the first to investigate how individual defense strategies relate to empathic reactions. Specifically, we reported correlational (Study 1a and 1b) and experimental (Study 2) data collected during the lockdowns in Germany and the United Kingdom. Across studies, participants who report to perceive more threat also report more personal distress – that is unease in tense social interactions (a proximal defense strategy). In Germany, the studies indicate that people reporting social in contrast to personal defense strategies and general positive social experiences also report more empathic concern for

others. There were mixed effects of the relation between distal defense strategies and perspective taking. In the UK sample, however, only perceived threat was related to more affective empathic reactions and less cognitive empathic reactions. This may be due to the greater threat the pandemic posed in the United Kingdom compared to Germany during the time of data collection (Zimmermann, 2020) that also mirrors in the perceived threat participants reported.

Previous research has shown that salient social networks also buffer against mental health deterioration (Steffens et al., 2017). The current study adds to this knowledge by showing that specifically positive physical and even non-physical social contacts relate positively to other-related empathic reactions: In Study 1a, they positively correlate, and in Study 2, the experienced positive contact supports the positive effect of social strategies on empathic concern and perspective taking. The current findings indicate that staying in touch with one's social support network despite physical distancing rules helps to maintain empathy toward others.

Other-oriented empathic reactions are also associated with prosocial behavior toward victims of the pandemic (e.g., Pfattheicher et al., 2020) and willingness to help others during the pandemic (the current study). In contrast, personal distress was primarily related to perceived threat (see also Singer & Klimecki, 2014) and did not correlate with participants' willingness to help. This again highlights why upholding one's capacity for empathic concern and perspective taking is especially important during a collective crisis.

In line with previous research, our findings show that empathic reactions have large individual stability (Davis, 1983) and still vary as a function of perceived threat and how people deal with it (Zaki, 2014). Since these results are based on explorative analyses, future studies are needed to reaffirm the current findings. Small effects of a one-time activated strategy, however, could have a larger impact if applied strategically and consistently, for example, taking the time to think about one's positive social relations once per day. When confronted with high levels of threats, it is particularly challenging not to fall into a motivation of avoidance (for review, see Singer & Klimecki, 2014). Our data hint at the fact that indeed people who perceive more threat also experience more empathic concern and less perspective taking, as also previously indicated in the literature (Tomova et al., 2017). This may require active reminding and practice and may inform educators, health care workers, or policy makers to encourage the engagement in distal defense strategies that activate affective empathic reactions.

It is important to keep in mind that, in Studies 1a and 1b, we categorized distal defense strategies based on Jonas et al. (2014). Such defense strategies are of very personal nature, may elicit different mindsets in different individuals, and may have differential effects based on individual differences. This is indicated by the large variety of situations people reported

and the variability of effects across studies in the United Kingdom and Germany. The variability of such personal strategies made coding decisions in particularly difficult and may have caused ambiguity in the data. A small number of reported strategies in the personal abstract category may also have affected the current findings. Thus, future studies are needed to investigate the relationship between personal and abstract defense strategies with empathic reactions.

Moreover, Study 2 shows that participants who reported a defense strategy did not report greater empathy than participants in the control condition. However, the moderation of contact experience on the effect of social strategies on empathic reactions in Study 2 indicates that empathy of those who actually experienced positive contacts may profit from a social strategy for coping, while this may not be suitable for those with negative experiences. This emphasizes the individuality of defense strategies; in other words, not every defense strategy may help every person to cope. Similarly, the defense strategies may not affect people in acute stress (Pearson et al., 2011) who struggle with overcoming proximate defense strategies, as indicated in Study 1b.

The current findings highlight the importance of moving toward other-related empathic reactions to concur threatening times that demand for collective action. One key seems to engage in social distal defense strategies – maintaining and appreciating positive social contacts during societal crises. Thus, future research should focus on possibilities to encourage them – even when they seem hard to reach.

Electronic Supplementary Materials

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1027/1864-9335/a000501>

ESM 1. Measures, Coding of Distal Defense Strategies (Study 1a and 1b), Frequencies of distal defense strategies (Study 1a and Study 1b; Example Strategies from Study 1a, 1b, and 2; Mixed model results (Study 1a and Study 1b), and Regression results (Study 2).

References

- Atkins, R., Hart, D., & Donnelly, T. M. (2004). Moral identity development and school attachment. In D. K. Lapsley, & D. Narvaez (Eds.), *Moral development, self, and identity* (pp. 65–82). Lawrence Erlbaum Associates. <https://doi.org/10.4324/9781410610256>
- Burke, B. L., Martens, A., & Faucher, E. H. (2010). Two decades of terror management theory: A meta-analysis of mortality salience research. *Personality and Social Psychology Review*, 14(2), 155–195. <https://doi.org/10.1177/1088868309352321>

- Cho, J.-H.-J., Olmstead, R., Choi, H., Carrillo, C., Seeman, T. E., & Irwin, M. R. (2019). Associations of objective versus subjective social isolation with sleep disturbance, depression, and fatigue in community-dwelling older adults. *Aging & Mental Health, 23*(9), 1130–1138. <https://doi.org/10.1080/13607863.2018.1481928>
- Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology, 10*, 85. https://www.uv.es/friasnav/Davis_1980.pdf
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*(1), 113–126. <https://doi.org/10.1037/0022-3514.44.1.113>
- Deutsche Welle (2020a, April 14). *Coronavirus: What are the lockdown measures across Europe?* Deutsche Welle. <https://www.dw.com/en/coronavirus-what-are-the-lockdown-measures-across-europe/a-52905137>
- Deutsche Welle (2020b, May 26). *Coronavirus latest: Germany extends social distancing.* Deutsche Welle. <https://www.dw.com/en/coronavirus-latest-germany-extends-social-distancing/a-53565545>
- Die Bundesregierung (2020, May 6). *6. Mai 2020: Regeln zum Corona-Virus [May 6, 2020: Rules on the Corona-Virus. The German Federal Government]*. Die Bundesregierung. <https://www.bundesregierung.de/breg-de/leichte-sprache/6-mai-2020-regeln-zum-corona-virus-1755252>
- Dunford, D., Dale, B., Stylianou, N., Lowther, E., Ahmed, M., & de la Torre Arenas, I. (2020, April 7). *Coronavirus: The world in lockdown in maps and charts.* BBC. <https://www.bbc.com/news/world-52103747>
- Eckland, N. S., Leyro, T. M., Mendes, W. B., & Thompson, R. J. (2018). A multi-method investigation of the association between emotional clarity and empathy. *Emotion, 18*(5), 638–645. <https://doi.org/10.1037/emo0000377>
- Feddes, A. R., Mann, L., & Doosje, B. (2015). Increasing self-esteem and empathy to prevent violent radicalization: A longitudinal quantitative evaluation of a resilience training focused on adolescents with a dual identity. *Journal of Applied Social Psychology, 45*(7), 400–411. <https://doi.org/10.1111/jasp.12307>
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.
- Folkes, V. S. (1988). The availability heuristic and perceived risk. *Journal of Consumer Research, 15*(1), 12–23. <https://doi.org/10.1086/209141>
- Fransen, M. L., Fennis, B. M., Pruyn, A. T. H., & Das, E. (2008). Rest in peace? Brand-induced mortality salience and consumer behavior. *Journal of Business Research, 61*(10), 1053–1061. <https://doi.org/10.1016/j.jbusres.2007.09.020>
- Fritsche, I., Jonas, E., & Kessler, T. (2011). Collective reactions to threat: Implications for intergroup conflict and for solving societal crises. *Social Issues and Policy Review, 5*(1), 101–136. <https://doi.org/10.1111/j.1751-2409.2011.01027.x>
- Giannakakis, A. E., & Fritsche, I. (2011). Social identities, group norms, and threat: On the malleability of ingroup bias. *Personality and Social Psychology Bulletin, 37*(1), 82–93. <https://doi.org/10.1177/0146167210386120>
- Gollwitzer, M., Platzer, C., Zwarg, C., & Görtitz, A. S. (2020). Public acceptance of COVID-19 lockdown scenarios. *International Journal of Psychology*. Epub ahead of print. PMID: 33118180. <https://doi.org/10.1002/ijop.12721>
- Gordon, A. M., Carrillo, B., & Barnes, C. M. (2021). Sleep and social relationships in healthy populations: A systematic review. *Sleep Medicine Reviews, 57*, Article 101428. <https://doi.org/10.1016/j.smr.2021.101428>
- Haslam, C., Steffens, N. K., Branscombe, N. R., Haslam, S. A., Cruwys, T., Lam, B. C. P., Pachana, N. A., & Yang, J. (2019). The importance of social groups for retirement adjustment: Evidence, application, and policy implications of the Social Identity Model of Identity Change. *Social Issues and Policy Review, 13*(1), 93–124. <https://doi.org/10.1111/sipr.12049>
- Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: An emerging agenda for applied psychology. *Applied Psychology: An International Review, 58*(1), 1–23. <https://doi.org/10.1111/j.1464-0597.2008.00379.x>
- Hasson, Y., Tamir, M., Brahm, K. S., Cohrs, J. C., & Halperin, E. (2018). Are liberals and conservatives equally motivated to feel empathy toward others? *Personality and Social Psychology Bulletin, 44*(10), 1449–1459. <https://doi.org/10.1177/0146167218769867>
- Häusser, J. A., Kattenstroth, M., van Dick, R., & Mojzisch, A. (2012). “We” are not stressed: Social identity in groups buffers neuroendocrine stress reactions. *Journal of Experimental Social Psychology, 48*(4), 973–977. <https://doi.org/10.1016/j.jesp.2012.02.020>
- Institute for Government (2021 February 18). *Lifting lockdown in 2021: The next phase of the coronavirus strategy*. Institute for Government. <https://www.instituteforgovernment.org.uk/publications/lifting-lockdown>
- Jetten, J., Reicher, S. D., Haslam, S. A., & Cruwys, T. (2020). *Together apart: the psychology of COVID-19*. Sage.
- Jonas, E., McGregor, I., Klackl, J., Agroskin, D., Fritsche, I., Holbrook, C., Nash, K., Proulx, T., & Quirin, M. (2014). Threat and defense: From anxiety to approach. In J. M. Olson, & M. P. Zanna (Eds.), *Advances in experimental social psychology* (Vol. 49, pp. 219–286). Academic Press. <https://doi.org/10.1016/B978-0-12-800052-6.00004-4>
- Karos, K., Meulders, A., Goubert, L., & Vlaeyen, J. W. S. (2018). The influence of social threat on pain, aggression, and empathy in women. *The Journal of Pain, 19*(3), 291–300. <https://doi.org/10.1016/j.jpain.2017.11.003>
- Landau, M. J., Greenberg, J., Sullivan, D., Routledge, C., & Arndt, J. (2009). The protective identity: Evidence that mortality salience heightens the clarity and coherence of the self-concept. *Journal of Experimental Social Psychology, 45*(4), 796–807. <https://doi.org/10.1016/j.jesp.2009.05.013>
- Leiner, D. J. (2018). *SoSci Survey (Version 3.2.23-1142)*. [Computer software]. <http://www.sosicisurvey.com>
- Maner, J. K., DeWall, C. N., Baumeister, R. F., & Schaller, M. (2007). Does social exclusion motivate interpersonal reconnection? Resolving the “porcupine problem”. *Journal of Personality and Social Psychology, 92*(1), 42–55. <https://doi.org/10.1037/0022-3514.92.1.42>
- Nater, U. M., Maloney, E., Heim, C., & Reeves, W. C. (2011). Cumulative life stress in chronic fatigue syndrome. *Psychiatry Research, 189*(2), 318–320. <https://doi.org/10.1016/j.psychres.2011.07.015>
- Negd, M., Mallan, K. M., & Lipp, O. V. (2011). The role of anxiety and perspective-taking strategy on affective empathic responses. *Behaviour Research and Therapy, 49*(12), 852–857. <https://doi.org/10.1016/j.brat.2011.09.008>
- Nitschke, J. P., Forbes, P. A. G., Ali, N., Cutler, J., Apps, M. A. J., Lockwood, P. L., & Lamm, C. (2021). Resilience during uncertainty? Greater social connectedness during COVID-19 lockdown is associated with reduced distress and fatigue. *British Journal of Health Psychology, 26*(2), 553–569. <https://doi.org/10.1111/bjhp.12485>
- Paulus, C. (2009). *Der Saarbrücker Persönlichkeitsfragebogen SPF(IRI) zur Messung von Empathie: Psychometrische Evaluation der deutschen Version des Interpersonal Reactivity Index [The Saarbrueck Personality Questionnaire on Empathy: Psychometric evaluation of the German version of the Interpersonal Reactivity Index]*. <http://psydok.sulb.uni-saarland.de/volltexte/2009/2363/>
- Pearson, B. L., Blanchard, D. C., & Blanchard, R. J. (2011). Social stress effects on defensive behavior and anxiety. In C. D. Conrad

- (Ed.), *The handbook of stress* (pp. 367–387). Wiley Blackwell. <https://doi.org/10.1002/9781118083222.ch18>
- Pfattheicher, S., Nockur, L., Böhm, R., Sassenrath, C., & Petersen, M. B. (2020). The emotional path to action: Empathy promotes physical distancing and wearing of face masks during the COVID-19 pandemic. *Psychological Science*, *31*(11), 1363–1373. <https://doi.org/10.1177/0956797620964422>
- Piguillem, F., & Shi, L. (2020). *Optimal COVID-19 quarantine and testing policies*. CEPR Discussion Paper No. DP14613. Available at SSRN: <https://ssrn.com/abstract=3594243>
- Proulx, T., & Inzlicht, M. (2012). The five “A”s of meaning maintenance: Finding meaning in the theories of sense-making. *Psychological Inquiry*, *23*(4), 317–335. <https://doi.org/10.1080/1047840X.2012.702372>
- Pyszczynski, T., Solomon, S., & Greenberg, J. (2015). Thirty years of terror management theory: From genesis to revelation. In J. M. Olson, & M. P. Zanna (Eds.), *Advances in experimental social psychology* (Vol. 52, pp. 2–349). <https://doi.org/10.1016/bs.aesp.2015.03.001>
- Rudert, C. S., Gleibs, I. H., Gollwitzer, M., Häfner, M., Hajek, K. V., Harth, S. N., Häusser, J. A., Imhoff, R., & Schneider, D. (2021). Us and the virus: Understanding the COVID-19 pandemic through a social psychological lens. *European Psychologist*, *26*(4), 259–271. <https://doi.org/10.1027/1016-9040/a000457>
- Saglietto, A., D’Ascenzo, F., Zoccai, G. B., & De Ferrari, G. M. (2020). COVID-19 in Europe: The Italian lesson. *Lancet (London, England)*, *395*(10230), 1110–1111. [https://doi.org/10.1016/S0140-6736\(20\)30690-5](https://doi.org/10.1016/S0140-6736(20)30690-5)
- Schmeichel, B. J., Harmon-Jones, C., & Harmon-Jones, E. (2010). Exercising self-control increases approach-motivation. *Journal of Personality and Social Psychology*, *99*(1), 162–173. <https://doi.org/10.1037/A0019797>
- Schneider, D. (2020). *Corona-Krise: Hamsterkäufe, Hygieneregeln, Eigengruppenbezogenheit und Vernachlässigung Fremder, Verschwörungstheorien, aber auch Fensterkonzerte, Hilfskredite und Notfonds – was macht diese Krise mit uns? [Corona crisis: hoarding purchases, hygiene rules, ingroup-focus and neglect of strangers, conspiracy theories, but also window concerts, aid loans, and emergency funds - what does this crisis do to us?]* The Inquisitive Mind – Psychologie für alle. <https://de.in-mind.org/blog/post/corona-krise-hamsterkaeuft-hygieneregeln-eigengruppenbezogenheit-und-vernachlaessigung>
- Singer, T., & Klimecki, O. M. (2014). Empathy and compassion. *Current Biology*, *24*(18), R875–R878. <https://doi.org/10.1016/j.cub.2014.06.054>
- Smith, A. (2006). Cognitive empathy and emotional empathy in human behavior and evolution. *The Psychological Record*, *56*(1), 3–21. <https://doi.org/10.1007/BF03395534>
- Steffens, N. K., Haslam, S. A., Schuh, S. C., Jetten, J., & Van Dick, R. (2017). A meta-analytic review of social identification and health in organizational contexts. *Personality and Social Psychology Review*, *21*(4), 303–335. <https://doi.org/10.1177/1088868316656701>
- Tomova, L., Majdandžić, J., Hummer, A., Windischberger, C., Heinrichs, M., & Lamm, C. (2017). Increased neural responses to empathy for pain might explain how acute stress increases prosociality. *Social Cognitive and Affective Neuroscience*, *12*(3), 401–408. <https://doi.org/10.1093/scan/nsw146>
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*(2), 440–463. <https://doi.org/10.1037/a0018963>
- van Bavel, J., Baicker, K., Boggio, P. S., Capraro, V., Cichocka, A., Cikara, M., Crockett, M. J., Crum, A. J., Douglas, K. M., Druckman, J. N., Drury, J., Dube, O., Ellemers, N., Finkel, E. J., Fowler, J. H., Gelfand, M., Han, S., Haslam, S. A., Jetten, J., Kitayama, S., ... Willer, R. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behaviour*, *4*(5), 460–471. <https://doi.org/10.1038/s41562-020-0884-z>
- Welp, L. R., & Brown, C. M. (2014). Self-compassion, empathy, and helping intentions. *The Journal of Positive Psychology*, *9*(1), 54–65. <https://doi.org/10.1080/17439760.2013.831465>
- Wieck, C., & Kunzmann, U. (2015). Age differences in empathy: Multidirectional and context-dependent. *Psychology and Aging*, *30*(2), 407–419. <https://doi.org/10.1037/a0039001>
- Zaki, J. (2014). Empathy: A motivated account. *Psychological Bulletin*, *140*(6), 1608–1647. <https://doi.org/10.1037/a0037679>
- Zimmermann, D. (2020, June 24). *Tödliches Versagen. Großbritannien in der Corona-Krise [Fatal failure. Great Britain in the Corona crisis.]*. ZDF-heute. <https://www.zdf.de/nachrichten/politik/coronavirus-grossbritannien-versagen-100.html>

History

Received June 15, 2021

Revision received January 31, 2022

Accepted August 16, 2022

Published online March 3, 2023

Authorship

All authors contributed to designing and conducting the studies. Stefanie Hechler, data analysis. All authors, manuscript drafting and revising.

Open Data

Pre-registrations, data, syntax, and additional analyses are provided on OSF <https://osf.io/tgdex/>.

Funding

This research was partly supported by the DFG Network “Understanding Others” (Grant No. SCHN 1481/2-1). Open access publication enabled by German Center for Integration and Migration Research DeZIM e.V.

ORCID

Stefanie Hechler

 <https://orcid.org/0000-0001-7974-4667>

Stefanie Hechler

German Centre for Integration and Migration Research (DeZIM e.V.)

Mauerstraße 76

10117 Berlin

Germany

hechler@dezim-institut.de