The needs of the many: Influence of personality on third-party judgments of utilitarian rule violations

Alexander Behnke^{1*}, Diana Armbruster^{1*}, Anja Strobel²

¹ Faculty of Psychology, Technische Universität Dresden, 01062 Dresden, Germany

² Department of Psychology, Chemnitz University of Technology, 09120 Chemnitz,
Germany

*these authors contributed equally to the work

Corresponding Author:

Diana Armbruster

Technische Universität Dresden

Faculty of Psychology, Personality and Individual Differences

D-01062 Dresden

Germany

Phone: +49 351 463-36997

Fax: +49 351 463-36993

Email: diana.armbruster@tu-dresden.de

Abstract

Safeguarding the rights of minorities is crucial for just societies. However, there are conceivable situations where minority rights might seriously impede the rights of the majority. Favoring the minority in such cases constitutes a violation of utilitarian principles. To investigate the emotional, cognitive, and punitive responses of observers of such utilitarian rule transgressions, we conducted an online study with 1004 participants. Two moral scenarios (*vaccine policy* and *epidemic*) were rephrased in the third-party perspective. In both scenarios the protagonist opted against the utilitarian option which resulted in more fatalities in total, but avoided harm to a minority. The scenarios varied in whether the minority would have been harmed *accidentally* or *deliberate*. The majority of participants chose not to punish the scenarios' protagonists at all. However, 30.5% judged that protecting the minority over the interests of the majority when only accidental harm would have occurred (*vaccine policy*) was worthy of punishment. In comparison, only 11.5% opted to punish a protagonist whose decision avoided deliberate harm to a minority at the cost of the majority (*epidemic*). Emotional responses and appropriateness ratings paralleled these results. Furthermore, complex personality $\times$ situation interactions revealed the influence of personality features, i.e., psychopathy, empathy, altruism, authoritarianism, need for cognition and faith in intuition, on participants' responses. The results further underscore the need to consider the interaction of situational features and inter-individual differences in moral decisions and sense of justice.

Keywords: third-party judgement, utilitarian rule violations, deliberate vs. accidental harm, personality traits

1 Introduction

Protecting the rights of a minority within a larger group or society is one of the cornerstones of modern democracy. However, there are situations in which upholding these rights infringes upon the rights of the majority. In moral decision making, such conditions often represent a conflict between *deontic* and *utilitarian* rules. While *deontological* rules are based on situation-transcending fundamental principles of right and wrong, *utilitarian* rules are outcome-based in favor of the ‘greater good’, i.e. to optimize the benefit for all (Gawronski & Beer, 2017). Depending on the actual situation, choosing the needs of the few over the needs of the many might not result in any noticeable harm to the majority at all. However, there are situations in which the consequences might be disastrous. We adapted well-established moral dilemma scenarios (Greene, Nystrom, Engell, Darley, & Cohen, 2004; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001) to a third-party perspective to investigate how uninvolved third parties respond to individual decisions that avoided harm to a minority at the cost of disastrous consequences for a majority.

Understanding third-party judgements of moral transgressions is of great theoretical and practical importance. Third parties or noninvolved observers are essential for successfully dealing with moral transgressions in larger societies. Increasing anonymity and loose one-time interactions make third-party punishment a necessity to ensure sufficient and consequential sanctions (Bendor & Swistak, 2001; Boyd, Gintis, Bowles, & Richerson, 2003). Maintaining social cooperation and interpersonal trust depend on consistent punishment of rule violations—if need be by third parties (Boyd et al., 2003). Hence, uninvolved group members have been suggested to act as everyday judges who assess observance of social norms and inflict sanctions in cases of transgressions (Weiner, 2006). However, to date, most research on moral decision making in dilemma situations has focused on the first-party perspective (e.g., Cushman, Young, & Hauser, 2006; Greene et al., 2009; Greene et

al., 2004; Greene et al., 2001; Hauser, Cushman, Young, Jin, & Mikhail, 2007). Studies employing the third-party perspective often yielded similar results although differences between first- and third-party judgements have also been reported (Nadelhoffer & Feltz, 2008; Tassy, Oullier, Mancini, & Wicker, 2013). In sum, despite its recognized importance there is still a lack of research on third-party moral decision making (Cushman, 2008; DeScioli, Bruening, & Kurzban, 2011).

We adapted two moral dilemmas to a third-party perspective: *vaccine policy* and *epidemic*. In both scenarios, the respective protagonist decided against the utilitarian option, i.e., against the needs of the many. While adhering to deontological principles and safeguarding the rights of a minority, the protagonists' decisions ultimately resulted in more net harm. In *vaccine policy*, a fatal disease is spreading, which can be prevented by vaccinating as many people as possible. However, since a very small proportion of vaccinated people die due to being allergic to the vaccine, the person in charge decided not to impose compulsory vaccination on the population. As a result, millions died from the disease although no one died because of intolerance to the vaccine. In *epidemic*, the medicine for treating a raging deadly disease is scarce and cannot be quickly produced. Thus, not every patient can be treated on time. Due to genetic reasons, a minority (X type) requires five times more of the drug than the rest of the population (Y type). The person in charge decided against excluding members of the minority from the treatment. As a result, X-type people were also saved, however, for every X-type person saved, five other people died who could not be treated (for the exact wording of the two dilemmas see supplement).

While the two dilemmas share important features they also differ with regard to others. In *vaccine policy*, a utilitarian decision would have resulted in the *accidental* deaths of a minority. Conversely, in *epidemic*, the X-type minority would have had to be actively and *deliberately* excluded from treatment (and thus condemned to die) to save more Y-type

individuals. This difference is not trivial. The dilemmas' protagonists had to weigh saving the lives of the majority at the cost of either the unintentional deaths of a minority (*vaccine policy*) or the latter's intentional exclusion from life-saving treatment (*epidemic*). Thus, the justifiability of opting against the utilitarian choice differs between the two scenarios.

Aside from dilemma characteristics, additional factors are likely to modulate third-party responses to these two scenarios. Previous research confirmed that deliberate cognitions as well as intuitive emotional reactions exert complex effects on moral decisions (Fiske & Tetlock, 1997; Greene et al., 2004; Waldmann, Nagel, & Wiegmann, 2012). Moral transgressions which result in greater harm or unfairness inflicted upon a victim elicit in third parties stronger negative emotions like contempt, disgust, anger, or disappointment towards a perpetrator (e.g., Fehr & Fischbacher, 2004; Fiske & Tetlock, 1997; Haidt, 2003; Hopfensitz & Reuben, 2009). These negative emotions are in turn associated with harsher punishment (Carlsmith, Darley, & Robinson, 2002; Fehr & Fischbacher, 2004; Fiske & Tetlock, 1997; Lotz, Baumert, Schlosser, Gresser, & Fetchenhauer, 2011). The influence of perceived unfairness or harm on punishing tendencies is thus likely to be mediated by negative moral emotions (McCall, Steinbeis, Ricard, & Singer, 2014; Seip, Van Dijk, & Rotteveel, 2014; Wang et al., 2011). Although negative emotions are frequently the main focus, moral dilemmas often result in an intricate mix of partly contradictory feelings including positive sentiments compassion, comprehension or sympathy (Haidt, 2003; Horne & Powell, 2016; Rudolph & Tscharaktschiew, 2014) that need to be taken into account. Unsurprisingly, positive emotions towards a protagonist are associated with milder punishment and weakened negative emotions (e.g., Condon & DeSteno, 2011; McCall et al., 2014; Valdesolo & DeSteno, 2006).

In addition, previous findings indicate several personality traits like psychopathy, empathy, altruism, justice sensitivity and authoritarianism as well as thinking styles as potential

modulators of third-party judgment. Early clinical characterizations of *psychopathy* as “moral derangement” (Rush, 1812) and “moral insanity” (Prichard, 1835) point to a long recognized link with deviant morality. Psychopathy is characterized by shallow affect, callousness, manipulative tendencies, lack of remorse or guilt and antisocial behavior (Blair, White, Meffert, & Hwang, 2013; Decety & Yoder, 2016; Patil, 2015) and is associated with deficits in assessing the appropriateness of moral actions (Bartels & Pizarro, 2011; Patil, 2015; L. Young, Koenigs, Kruepke, & Newman, 2012). Nevertheless, psychopaths appear to be capable of accurately identifying immoral (mostly utilitarian) actions, yet consistently opt for them (Borg et al., 2013; Cima, Tonnaer, & Hauser, 2010; Tassy, Deruelle, Mancini, Leistedt, & Wicker, 2013). This preference for utilitarian options has been suggested to be due to lack of empathic concern for potential victims (Blair et al., 2013). Similarly, lower *empathy* scores have been linked to utilitarian choices in the general population (Decety & Yoder, 2016; Gleichgerrecht & Young, 2013) whereas heightened empathic affect led to the avoidance of utilitarian options (Sarlo, Lotto, Rumiati, & Palomba, 2014). In addition, psychopathy and less altruistic attitudes are associated with higher tolerance for moral transgressions (Kahane, Everett, Earp, Farias, & Savulescu, 2015). The core feature of *altruism* is the tendency to put one’s own needs behind those of others. Regarding third-party punishment, one facet of altruism is of particular interest: the costly punishment of moral violations without or with little direct benefit to those who punish. Altruistic punishment plays a key role in maintaining cooperation (e.g., Fehr & Gächter, 2002; Hopfensitz & Reuben, 2009) and in increasing equality of group members (Fowler, Johnson, & Smirnov, 2005).

Another important trait with regard to third-party judgments is *justice sensitivity*. The trait refers to an inclination to adopt social perspectives of victims, perpetrators, observers, or beneficiaries of unjust or unfair incidents (Baumert & Schmitt, 2016). Higher justice sensitivity scores are linked to reduced trait psychopathy, more empathic concern and perspective taking and a less lenient attitude towards transgressive behavior in moral dilemmas

(Decety & Yoder, 2016). In third parties, assuming adopting a victim's perspective triggers negative empathic concern, while envisioning a perpetrator causing harm produces aversive moral emotions (Cushman, Gray, Gaffey, & Mendes, 2012; Sarlo et al., 2014). Furthermore, increased observer justice sensitivity predicts harsher third-party punishment and stronger feelings of anger (Lotz et al., 2011).

An additional trait of interest is *authoritarianism* which is characterized by compliance with and dogmatic protection of conventional (often religious) standards, an uncritical submission to authorities, and hostile sentiments and retaliatory actions against those who violate norms (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Lerner, Goldberg, & Tetlock, 1998; Szekely, Opre, & Miu, 2015). Regarding moral decisions, one characteristic finding is the association of authoritarianism (and the highly correlated religious fundamentalism) with a clear preference for fixed rules irrespective of situational demands (Conway & Gawronski, 2013; Hunsberger, Pratt, & Pancer, 1994; O. A. Young, Willer, & Keltner, 2013). Hence, people with an authoritarian or religiously fundamentalist mindset both tend to conform to (deontic) rules and experience enhanced negative emotions in moral dilemma situations (Saroglou, Corneille, & Van Cappellen, 2009; Szekely et al., 2015). Thus, they show the opposite response pattern compared to psychopaths in terms of rule compliance and emotional reactions.

Finally, thinking styles like *need for cognition* (NFC) and *faith in intuition* (FI; Epstein, Pacini, Denes-Raj, & Heier, 1996) appear to be modulators of moral judgment and behavior (Strobel, Grass, Pohling, & Strobel, 2017). Deliberative thinking styles like NFC have been linked to utilitarian judgment (Conway & Gawronski, 2013; Paxton & Greene, 2010). Furthermore, NFC was found to promote moral courage and self-reported moral behavior (Kinnunen & Windmann, 2013; Mussel, Goritz, & Hewig, 2013; Strobel et al., 2017). Findings on FI are less consistent. While FI was associated with a preference for deontic deci-

sions in some studies (Bartels, 2008), others could not confirm a link between FI and morality (Conway & Gawronski, 2013; Strobel et al., 2017).

In sum, there are several state- as well as trait-like modulators of moral judgments. Our main aims were to investigate the following potential influence factors on third-party judgements of utilitarian rule violations: (a) dilemma characteristics (avoidance of accidental vs. deliberate harm), (b) personality traits (i.e., psychopathy, empathy, altruism, justice sensitivity, authoritarianism, need for cognition, and faith in intuition), and (c) moral emotions and cognitive processes. While both investigated dilemmas describe hypothetical scenarios they are rooted in reality. Comparable situations are entirely feasible in real life. Investigating how third parties respond thus also offers an insight into how the population might react to the implementation of corresponding measures in similar circumstances.

2 Methods

Participants. Participants were recruited in German-speaking countries via advertisements in social networks and invitation emails on mailing lists of the German National Academic Scholarship Foundation and several German universities. A total of $N = 1004$ participants (534 women, 470 men) completed the study. Participants were on average between 22 and 27 years old ($Mdn \pm QD = 24.5 \pm 2.3$, range 18.1–58.0) and primarily German native speakers (97.6%). The sample was characterized by higher school education (99.1% completed the German high-school certificate Abitur) and further academic education. At the time of participation, 62.2% were studying at universities, 31.3% had already graduated from university with a Master's or Diploma degree, and 5.9% were attending vocational job training. Participants' specializations encompassed all academic disciplines (including psychology albeit with 7.1% only). The majority of participants described themselves as athe-

ists or agnostics (52.8%), 37.1% as Christians (23.8% Protestants and 12.4% Catholics) and 6.9% as followers of other beliefs, mostly Buddhism or natural religions.

General procedure. This study was carried out as part of a larger research project (cf. Behnke, Armbruster, & Strobel, submitted)¹. The local university ethics committee approved the study concept (proposal no. EK241062016). Interested participants were invited via invitation links to a two-step online survey (LimeSurveyGmbH, 2017). Before the experiment started, participants received information on the general aim and procedure of the study and confirmed their informed, voluntary consent by selecting a checkbox. In the survey's first session (approx. 20–40 min), participants completed socio-demographic and personality questionnaires. One week later, they received an invitation email for the survey's second part (approx. 15–30 min). Participants then read short moral dilemmas. After reading each scenario, participants reported their emotional responses and judged the behavior of the scenario's protagonist.

Experimental conditions. The moral dilemmas *epidemic* and *vaccine policy* (Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Koenigs et al., 2007) were rephrased from a third-party perspective (for the exact wording see Supplementary Material). In both scenarios, a protagonist has to make decisions during a public health crisis. If the respective protagonist chooses the utilitarian option many more will be saved but at the cost of harm to a minority. In *vaccine policy*, this harm is accidental while in *epidemic* a deliberate decision would have to be made to exclude certain persons from treatment. Ultimately, both protagonists decided against these actions and choose not to impose mandatory vaccination or treatment restrictions. As a result, these decisions resulted in a higher number of avoidable deaths which constitutes a violation of utilitarian principles. Contrasting the two scenarios

¹ available as Preprint

allows examining whether observers are sensitive to the differences of the rejected alternative (accidental vs. deliberate).

Recording of observer responses. Each participant read and responded to each scenario (*within-subject design*). The two scenarios were part of a larger study consisting of a practice dilemma to familiarize participants with the procedure followed by a total of 16 moral dilemmas (see Behnke et al., submitted, for details). The two scenarios in question were not presented directly after another but embedded in the dilemma series. Thus, potential direct carry-over effects (Wiegmann & Waldmann, 2014) from *epidemic* to *vaccine policy* or vice versa can be excluded. After reading a scenario, participants reported on 7-point Likert scales ranging from 0 (*not at all*) to 6 (*very intensive*) the intensity to which they felt seven different moral emotions towards the protagonist of the respective scenario. The four emotions (1) anger/outrage, (2) contempt, (3) moral disgust, and (4) disappointment were averaged to *negative/hostile emotions* (Cronbach's $\alpha = .88$ for *vaccine policy* and $.91$ for *epidemic*), whereas (1) comprehensive affection, (2) sympathy, and (3) compassion/pity were averaged to *understanding emotions* (Cronbach's $\alpha = .84$ for *vaccine policy* and $.82$ for *epidemic*). In addition, participants rated on a 7-point Likert scale ranging from 0 (*completely disagree*) to 6 (*completely agree*) the extent to which they considered the protagonist's decision morally appropriate. Afterwards, participants indicated whether the protagonist should be punished and if so, how long they should be imprisoned. Duration of prison sentences could be freely set with a slider ranging between 0 and 100 years. Other sanction types (e.g., community work or fines) could not be imposed. There was no time limit for reading a scenario or responding to subsequent questions.

Personality assessment. The Self-Report Psychopathy Scale III (SRP-III; Williams & Paulhus, 2004) was used to assess the trait-psychopathy facets callous affect, erratic lifestyle, and interpersonal manipulation. The German Interpersonal Reactivity Index (IRI-

SPF; Paulus, 2009) was used to measure the empathy facets empathic concern, perspective taking, fantasy, and personal distress. In addition, the altruism scale of the German revised NEO-Personality Inventory (NEO-PI-R; Ostendorf & Angleitner, 2004) was employed as measure of trait altruism. Neuroticism was assessed using the respective scale of the German NEO-Five Factor Inventory (NEO-FFI; Borkenau & Ostendorf, 1993). The Justice Sensitivity Short Scales (USS-8; Beierlein, Baumert, Schmitt, Kemper, & Rammstedt, 2013) served for measuring justice sensitivity. Obedience to authorities was assessed using the respective scale of the ALLBUS survey battery (Diekmann et al., 2012). The German version of the Rational-Experiential Inventory (REI; Keller, Böhner, & Erb, 2000) was used to assess the need for cognition and faith in intuition; and self-esteem was measured with the single-item self-esteem scale (SISE; Robins, Hendin, & Trzesniewski, 2001).

Due to the conceptual and empirical overlapping of various traits and in order to reduce the number of predictors for subsequent analyses, five superordinate personality factors were extracted using an explorative factor analysis (principal component analysis with Promax rotation). A more detailed description of questionnaires, statistical procedures, and results can be found at Behnke et al. (submitted). The first factor (PF1) is characterized by high levels of altruism, faith in intuition, the empathy traits fantasy, empathic concern, and perspective taking on the one hand and low levels of victim injustice sensitivity and the psychopathy trait callous affect on the other. The second factor (PF2) consisted of increased neuroticism (i.e. trait anxiety) and personal distress with decreased self-esteem. The third factor (PF3) is characterized by trait psychopathy with lower altruism and increased justice sensitivity from the perpetrator's perspective. The fourth factor (PF4) marked justice sensitivity from all perspectives (i.e., perpetrator, victim, observer, and beneficiary). The fifth factor (PF5) spanned a continuum from marked faith in intuition, authority obedience, and victim justice sensitivity on the one hand to a high motivation for critical, analytical thinking (NFC) on the other.

Statistical analyses. Associations between participants' emotional, cognitive, and punitive responses were analyzed using repeated measure correlations (using R package *rmcorr*; Bakdash & Marusich, 2016). Using Kendall's τ correlations, associations between the EFA-based personality factors and participants' emotional, cognitive, and punitive responses were examined. *P*-values were Bonferroni-corrected for the number of computed correlations. In addition, mixed effect regressions were conducted using the R package *lme4* (Bates, Mächler, Bolker, & Walker, 2015; with *ImerTest*; Kuznetsova, Brockhoff, & Christensen, 2016), including scenario (*vaccine policy* vs. *epidemic*) as within-subject factor, the personality factors as between-subject factors, and all scenario $\times$ personality factor interactions. Due to the bimodal distribution of the assigned punishments, a logistic mixed effect regression was used to analyze whether imposing or non-imposing an imprisonment was predicted by the interplay of scenario and personality factors. In separate linear mixed effect regressions, (i) the duration of imposed imprisonments, (ii) the intensity of negative emotions, (iii) the intensity of understanding emotions, and (iv) the perceived moral appropriateness served as dependent variables and were predicted by the interplay of scenario and personality. Note that the analysis of imprisonment durations based on the $n = 363$ participants who assigned a punishment in at least one of the two scenario conditions; i.e. participants who did not punish in any scenario were not considered. *P*-values were Bonferro-ni-corrected for the number of conducted analyses ($\alpha_{crit} < 0.01$).

3 Results

Overall, punishments and negative emotions were more marked in the *vaccine-policy* scenario compared to *epidemic*, while understanding emotions and moral appropriateness judgments were reduced (see Table 1). Table 2 displays bivariate correlations between personality domains and outcome variables.

----- Insert Table 1 about here -----

----- Insert Table 2 about here -----

Table 3 and 4 summarize the results of the logistic and linear mixed effect regressions analyzing emotional, cognitive, and punitive reactions to the respective scenario (*vaccine policy* vs. *epidemic*) depending on personality differences. Notably, 69.9% (*vaccine policy*) and 88.8% (*epidemic*) judged that the respective protagonist should not be punished at all. The logistic regression (Table 3) showed that punishment was 7.8 times more likely if the omitted intervention would have caused *accidental* harm (*vaccine policy*) than if the omitted intervention would have led to *deliberate* harm of a minority (*epidemic*). If a prison sentence was assigned, imprisonment durations for *vaccine policy* were on average 10.4 years longer than for *epidemic* (Table 3). Correspondingly, third parties felt more negative and less understanding emotions in the *vaccine-policy* scenario. They also judged the inaction in this dilemma as less morally appropriate compared to *epidemic* (Table 4). This general pattern was further modified by personality (see Figures 1 and 2).

----- Insert Table 3 about here -----

----- Insert Table 4 about here -----

Participants with more marked PF1 characteristics (other-oriented empathy, altruism, faith in intuition, low callous affect) felt more intense negative (Figure 2b) as well as understanding emotions (Figure 2c) in both scenarios. However, their negative and understanding emotions were particularly increased in *vaccine policy*. In both dilemmas, they judged the rejection of the utilitarian option as more morally appropriate (Figure 2d) than participants with lower PF1 levels. No association was found between PF1 and the probability or severity of punishment (Figure 1a, 2a).

PF2 characteristics (anxiety, personal distress, low self-esteem) were not associated with differences in punishment probability or severity (Figure 2e). However, there was a scenario $\times$ PF2 interaction on moral appropriateness ratings. The response pattern reveals that low compared to high PF2 lead to higher moral appropriateness ratings in *epidemic* while the opposite was true for *vaccine policy*. As Figure 2h shows, there is a considerable difference in appropriateness ratings in the two dilemmas for participants with less marked PF2 characteristics. Contrariwise, the appropriateness ratings of high PF2 individuals were comparatively similar across the two dilemmas. Thus, while both PF2 groups rated the decision in *epidemic* as more appropriate than the decision in *vaccine policy* the discrepancy was greater for low PF2 individuals. PF2 was not associated with differences in negative and understanding emotions (Figure 2f-g).

Observers with marked PF3 characteristics (trait psychopathy, low perpetrator justice sensitivity) generally reported less understanding emotions for the protagonists in both scenarios with understanding emotions being particularly decreased in *epidemic* (Figure 2k). PF3 was not associated with differences in negative emotions (Figure 2j) or moral appropriateness ratings (Figure 2l). However, PF3 was associated with an increasing probability of punishment in both scenarios (Figure 1a), but did not account for differences in the severity of imposed punishments (Figure 2i).

There were no significant main or interaction effects for PF4 (other-oriented justice sensitivity).

Participants with higher PF5 levels (faith in intuition, victim justice sensitivity, obedience to authorities, low NFC) felt more negative emotions in both scenarios (Figure 2n). They also felt less understanding emotions which was especially evident in *epidemic* (Figure 1n). There was also a PF5 $\times$ dilemma interaction effect on moral appropriateness ratings. In *epidemic*, participants with lower PF5 levels judged the inaction of the protagonist as more

morally appropriate compared to participants with higher PF5 levels. However, in *vaccine policy*, lower PF5 levels were associated with less perceived moral appropriateness of the inaction in question. Intriguingly, judgements of appropriateness in both dilemmas did not differ by much in participants with high PF5 levels while participants with low PF5 levels rated appropriateness in the two scenarios very differently (Figure 2p). Higher PF5 levels were also accompanied by a higher probability to punish the omission of an intervention that would have caused deliberate harm (*epidemic*) (Figure 1b). PF5 main and interaction effects were also found on the duration of assigned imprisonments. Observers with low PF5 levels differentiated strongly between the two dilemmas and imposed harsher sanctions specifically on the protagonist of the *vaccine-policy* scenario (Figure 2m). Contrariwise, observers with high PF5 levels assigned similar punishments in both scenarios.

4 Discussion

Adequate third-party responses to norm transgressions are vital for normal social functioning (Boyd et al., 2003; Fehr & Gächter, 2002). Here, we investigated third-party responses to decisions which while upholding deontic principles of protecting a minority violated utilitarian rules and caused ultimately more net harm. Our findings in a sample of about 1,000 adults confirmed the importance of specific features of moral scenarios. More precisely, the question whether the avoided harm to a minority would have been *accidental* (*vaccine policy*) or *deliberate* (*epidemic*) proved to be decisive. Despite otherwise similar settings, avoiding *accidental* harm to a minority (*vaccine policy*) elicited more marked negative emotions and less understanding emotions. In turn, it was rated as less morally appropriate and was punished more frequently and more severely. Importantly, in *epidemic* the members of the minority (X type) would have to be identified and actively excluded from treatment and thus condemned to die. Contrariwise, in *vaccine policy* it is unknown who is part of the minority and thus at risk to die due to allergies to the vaccine. Taken together,

one could argue that *vaccine policy* constitutes a stronger moral (utilitarian) rule violation since the opposing deontic principle in this scenario seems to be less imperative.

However, it should be noted that a substantial portion of the participants did *not* punish the protagonist in either scenario at all (69.9% and 88.8%, respectively). Thus, participants' responses to both scenarios also reflect the fact that the protagonists' choice against the respective utilitarian option is not simply "immoral" even though it resulted in extensive harm. After all, in opting against the utilitarian option protagonists followed deontic rules which dictate that the needs (much less the lives) of the few must not be discarded because of the needs of the many.

While both *epidemic* and *vaccine policy* are fictional scenarios, similar health-related issues potentially affecting entire societies might occur in real life. Thus, responses of third parties to such dilemmas provide some indication into potential reactions of the public to real events. Interestingly, there is at least one a real-life counterpart to the *vaccine policy* scenario which also emphasizes the role of the public. In contrast to the *vaccine policy* scenario in our study, authorities did opt for the utilitarian approach. Fortunately, the feared millions of deaths did not occur. Unfortunately, the respective vaccination program was nevertheless not exactly a success story: In the fall of 1976, an unprecedented nation-wide vaccination program against a new influenza virus started in the United States of America (Sencer & Millar, 2006). The virus in question had been identified as a descendant of the 1918 strain that caused the Spanish Influenza (Sencer & Millar, 2006), which had an estimated death toll of 50–100 million worldwide (Johnson & Mueller, 2002). However, the dangerousness of the new virus was still uncertain. The risk of a new pandemic was judged to be small, but not zero (Sencer & Millar, 2006). Furthermore, massive inoculation programs come not only with massive financial and organizational costs, they come with the potential risk of a considerable number of people affected by side effects. Experts also warned of the risk that

unrelated health issues that simply coincided with the inoculation might nevertheless in the public's mind be seen as caused by the vaccine (e.g., Neumann, 1976). Thus, a timely decision had to be made in the face of many uncertainties. The program finally started in October 1976 and almost immediately reports followed of serious complications allegedly caused by the vaccine (Sencer & Millar, 2006). Confusion about and distrust in the vaccine grew in the public. Meanwhile, the feared deadly flu outbreak did not manifest. Thus, the program was prematurely terminated in December 1976 (for a detailed history see also Neustadt & Fineberg, 1978). Since the anticipated benefit to the majority was not there, the program was seen as only causing harm to a minority. In the aftermath, communications with and involvement of the public (i.e. third parties) was identified as one crucial factor for the failed implementation (Neustadt & Fineberg, 1978; Sencer & Millar, 2006).

Third-party responses to perceived rule violations also depend on personality. In this study on responses to utilitarian transgressions, negative moral emotions like anger, contempt, disgust, or disappointment were associated with PF1 and PF5. Thus, negative emotions were more pronounced in participants who scored higher in empathy, altruism, faith in intuition, victim justice sensitivity, obedience to authorities, and lower in NFC and callous affect. While the effect was present in both dilemmas, it was particularly strong in the case of accidental harm (*vaccine policy*). Intriguingly, increased *understanding* emotions like compassion, comprehension or sympathy towards a dilemma's protagonist were also associated with some of these traits, namely empathy, altruism, faith in intuition, and low callous affect (PF1). Thus, this group of traits resulted generally in more emotionally charged responses reflecting righteous anger in reaction to the harm caused but also consideration for the predicament of the protagonist. As Tangney et al. (2007) summarized, empathy is an emotional process which affects various aspects of moral behavior including feelings of concern, helping behavior, and inhibited aggression. As our findings indicate, empathic

tendencies of concern and sympathy for others are not necessarily limited to the victims of harmful acts but extend to decision makers in difficult situations.

Contrariwise, higher scores in psychopathy and low perpetrator justice sensitivity (PF3) as well as increased scores in faith in intuition, victim justice sensitivity, obedience to authorities, but low NFC (PF5) were associated with *less* understanding emotions in general and for *epidemic* in particular. Hence, unlike PF1, the emotional pattern linked to higher PF5 scores was marked by enhanced negative and reduced understanding emotions, which is in line with findings reporting increased negative emotions in moral dilemma situations in authoritarian individuals (Saroglou et al., 2009; Szekely et al., 2015). As for PF3, compassion and sympathy for others show distinct negative associations with psychopathy in general (Blair et al., 2013; Hare & Neumann, 2009). Furthermore, the second component of PF3 (low perpetrator justice sensitivity) specifically reflects a less pronounced ability and/or willingness to consider motives and reasons for the actions of a transgressor (Baumert & Schmitt, 2016).

In addition to moral emotions, moral appropriateness ratings were also modulated by personality factors. Individuals with higher PF1 scores (empathy, altruism, faith in intuition and low callous affect) rated the protagonists' decision *against* the utilitarian option in both scenarios as more morally appropriate. This result is in line with findings that show negative associations between empathy and utilitarian tendencies (Choe & Min, 2011; Gleichgerricht & Young, 2013). Furthermore, there were interaction effects on moral appropriateness ratings between dilemma type and two additional personality factors: PF2 (anxiety, personal distress, low self-esteem) and PF5 (faith in intuition, victim justice sensitivity, obedience to authorities, low NFC). Participants with higher PF2 and PF5 scores rated moral appropriateness in response to the two dilemmas comparatively similar. Contrariwise, ratings of participants with low PF2 and PF5 scores differed considerably, indicating

a more nuanced approach when assessing different moral decisions. In particular the findings for PF5 are in line with previous results since obedience to authorities (PF5) is associated with a lesser consideration of context and a preference for fixed rules (Conway & Gawronski, 2013; Hunsberger et al., 1994; O. A. Young et al., 2013). In the third-party perspective investigated here, similar moral appropriateness ratings across the two scenarios of participants with higher PF5 scores also reflect less consideration for the differences between the dilemma characteristics. One other important component of PF5 (low NFC) is by definition characterized by less interest in and enjoyment of effortful cognition (Cacioppo & Petty, 1982), which might have also contributed to the results pattern. Intriguingly, a similar pattern to PF5 was observed for PF2 (anxiety, personal distress, low self-esteem). Anxiety affects cognitive processes by biasing attention towards threat-related information and facilitating negative interpretations of ambiguous stimuli (review: Hartley & Phelps, 2012). Furthermore, anxiety has been suggested to diminish cognitive resources (Shields, Moons, Tewell, & Yonelinas, 2016) which might explain the less differentiated ratings.

Finally, the likelihood to impose sanctions as well as the severity of punishment imprisonments depended on personality. Higher scores in psychopathy and low perpetrator justice sensitivity (PF3) were associated with an increased willingness to punish in both dilemmas. The finding that individuals with higher psychopathy scores (PF3) punish more frequently corresponds with their reported preference for utilitarian rules (Borg et al., 2013; Cima et al., 2010; Tassy, Deruelle, et al., 2013) which are violated in both scenarios. Furthermore, one of the key features of psychopathy is a distinct need for social dominance (Hare & Neumann, 2009), which might manifest itself in a greater willingness to punish when given the opportunity to judge the actions of others. In addition, psychopathy is also marked by a grandiose sense of self and shallow affect including reduced fear and anxiety (Hare & Neumann, 2009). In addition, higher PF5 scores (faith in intuition, victim justice sensitivity, obedience to authorities, low NFC) were linked to a higher likelihood to impose pun-

ishments in *epidemic*. This is in line with findings that link authoritarianism to increased punitiveness (Feather, Boeckmann, & McKee, 2001; McKee & Feather, 2008). Furthermore, victim justice sensitivity (another component of PF5) refers to one's own perceived disadvantages but also to the tendency to retaliatory responses (Baumert & Schmitt, 2016). Furthermore, it has been linked to proactive, reactive, and relational aggression (Bondü & Krahé, 2015) and antisocial and egotistic behavior (Gollwitzer, Rothmund, Pfeiffer, & Ensenbach, 2009). Moreover, when imposing sanctions, observers with higher PF5 scores did not differentiate very clearly between *epidemic* and *vaccine policy* regarding the penalty level. Individuals' high in intuitive/authority-obedient thinking have been suggested to be less willing and/or able to deliberate the situational setting of a (moral) problem in all its complexity or to integrate more than one perspective on it. Rather, they rely on applying situationally invariant deontic rules when making or judging moral decisions (Conway & Gawronski, 2013; Hunsberger et al., 1994; Szekely et al., 2015; O. A. Young et al., 2013) which might be reflected in our findings. Conversely, observers with low PF5 scores (i.e. high NFC) clearly differentiated between the scenario conditions by imposing considerably longer imprisonments specifically in the *vaccine-policy* condition. Correspondingly, previous studies found that NFC promotes a preference for utilitarian decisions (Conway & Gawronski, 2013; Paxton & Greene, 2010; Paxton, Ungar, & Greene, 2012). The latter was explained by a higher individual ability and/or willingness to invest cognitive efforts to identify, deliberate, and weigh motives, reasons, and situational constraints when making decisions or judging others' actions (Conway & Gawronski, 2013; Sargent, 2004; Strobel et al., 2017).

In sum, our investigation of third-party judgements on moral decisions affecting large parts of a society revealed distinct responses, depending on whether *accidental* or *deliberate* harm to a minority was avoided. However, response patterns to the presented utilitarian rule violations were further modulated by various aspects of personality underscoring the im-

portance of inter-individual differences. While PF1 (empathy, altruism, faith in intuition, and low callous affect) modulated moral emotions as well as perceived appropriateness it did not affect punishment. Conversely, PF2 (anxiety, personal distress, low self-esteem) did not affect emotional responses and punishment but modulated appropriateness ratings, while PF3 (higher psychopathy, low perpetrator justice sensitivity) influenced selectively understanding emotions and the willingness to punish. The most comprehensive effects were arguable found for PF5 (faith in intuition, victim justice sensitivity, obedience to authorities, low NFC) which affected all assessed responses (moral emotions, appropriateness ratings, punishment). Intriguingly, PF4 (justice sensitivity) was neither associated with emotional, cognitive or punitive responses which is surprising given that previous studies have linked the trait to responses to moral dilemmas (Cushman et al., 2012; Decety & Yoder, 2016; Lotz et al., 2011; Sarlo et al., 2014). However, it should be noted that two components of justice sensitivity, i.e., perpetrator and victim justice sensitivity, also loaded on PF3 and PF5, respectively, and did thus exert some influence on moral judgements.

Strength, limitations, and future directions

By investigating observers' emotional, cognitive, and punitive reactions, this study comprehensively distinguished levels on which personality traits could influence human judgment behavior. Incorporating a huge sample ($N = 1004$) allowed for detecting even small situation-personality interactions. As the judgment behavior might differ depending on participants' educational, moral, religious or cultural background, our results' generality is limited to predominantly young, well-educated, atheist or Christian adults from Central/Western Europe.

Moreover, although widely employed in experimental research, the ecological validity of moral dilemmas is debatable. In order to avoid carry-over effects (Wiegmann & Waldmann, 2014), the scenarios were presented within a random series of heterogeneous

scenarios. Aggregating various moral dilemmas within one condition category was criticized due to the high content heterogeneity of frequently used moral dilemmas (Christensen, Flexas, Calabrese, Gut, & Gomila, 2014). In order to avoid resulting unwanted error variance, we limited this study to two scenarios contrasting one clearly defined condition difference. Future research is needed to investigate the interplay between personality and other situational or motivational conditions of moral-ethical dilemma scenarios.

In addition, recently published studies investigating moral actions in virtual reality (Francis, Gummerum, Ganis, Howard, & Terbeck, 2018; Francis et al., 2017) reported very different response patterns than those usually found in self-report assessments of moral judgments like the one used here. Generally, participants responded in virtual environments with greater utilitarian actions. Although the VR-studies used a different dilemma (i.e., *foot-bridge*) than the scenarios employed here, one might speculate whether the high percentage of participants who chose *not* to punish utilitarian rule transgressions and thus endorse the deontological decision made by the protagonist would also do so in VR—or in real life.

5 Conclusions

The majority of third-party observers did *not* punish decisions that resulted in tremendous collective harm when safeguarding the rights (and lives) of a minority were the presumed reason behind a protagonists decision to disregard the rights of the majority. However, depending on whether the (avoided) violation of minorities would have been *accidental* or *deliberate*, third-parties' responses varied. While almost a third of the participants decided that avoiding *accidental* harm of a minority at high costs to the majority was worthy of punishment, only 11.5% were willing to punish decisions that avoided *deliberate* harm. Furthermore, key personality traits yielded substantial influence on cognitive, emotional and punitive responses to the selected moral dilemmas. Given the importance of third par-

ties in maintaining moral standards in society and keeping social life functioning, the results provide insights into the complex mechanisms behind differences in moral responses of uninvolved observers.

Conflict of interest

The authors declare no conflict of interest.

References

- Adorno, T.W., Frenkel-Brunswik, E., Levinson, D.J., & Sanford, R.N. (1950). *The Authoritarian personality* (1st ed.). New York,: Harper.
- Bakdash, J.Z., & Marusich, L.R. (2016). rmcrr: Repeated measures correlation (Version 0.1.0) [R package]. Retrieved from <https://cran.r->
- Bartels, D.M. (2008). Principled moral sentiment and the flexibility of moral judgment and decision making. *Cognition*, 108(2), 381-417. doi: 10.1016/j.cognition.2008.03.001
- Bartels, D.M., & Pizarro, D.A. (2011). The mismeasure of morals: Antisocial personality traits predict utilitarian responses to moral dilemmas. *Cognition*, 121(1), 154-161. doi: 10.1016/j.cognition.2011.05.010
- Bates, D., Mächler, M., Bolker, B.M., & Walker, S.C. (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software*, 67(1), 1-48. doi: 10.18637/jss.v067.i01
- Baumert, A., & Schmitt, M. (2016). Justice Sensitivity. In C. Sabbagh & M. Schmitt (Eds.), *Handbook of Social Justice Theory and Research* (pp. 161–180). New York, NY: Springer New York.
- Behnke, A., Armbruster, D., & Strobel, A. (submitted). When the killing has been done: Influences of personality on third-party judgment and punishment of homicides in moral dilemma scenarios. *Plos One*.
- Beierlein, C., Baumert, A., Schmitt, M., Kemper, C.J., & Rammstedt, B. (2013). Four Short Scales for Measuring the Personality Trait of "Justice Sensitivity". *Methods Data Analyses*, 7(2), 279-310. doi: 10.12758/mda.2013.015
- Bendor, J., & Swistak, P. (2001). The evolution of norms. *American Journal of Sociology*, 106(6), 1493-1545. doi: 10.1086/321298
- Blair, R.J.R., White, S.F., Meffert, H., & Hwang, S. (2013). Emotional learning and the development of differential moralities: implications from research on psychopathy. *Sociability, Responsibility, and Criminality: From Lab to Law*, 1299, 36-41. doi: 10.1111/nyas.12169
- Bondü, R., & Krahé, B. (2015). Links of justice and rejection sensitivity with aggression in childhood and adolescence. *Aggress Behav*, 41(4), 353-368. doi: 10.1002/ab.21556
- Borg, J.S., Kahn, R.E., Sinnott-Armstrong, W., Kurzban, R., Robinson, P.H., & Kiehl, K.A. (2013). Subcomponents of Psychopathy Have Opposing Correlations With Punishment Judgments. *Journal of Personality and Social Psychology*, 105(4), 667-687. doi: 10.1037/a0033485
- Borkenau, P., & Ostendorf, F. (1993). *NEO-Fünf-Faktoren Inventar (NEO-FFI): nach Costa und McCrae*. Göttingen: Hogrefe.
- Boyd, R., Gintis, H., Bowles, S., & Richerson, P.J. (2003). The evolution of altruistic punishment. *Proceedings of the National Academy of Sciences of the United States of America*, 100(6), 3531-3535. doi: 10.1073/pnas.0630443100
- Cacioppo, J.T., & Petty, R.E. (1982). The Need for Cognition. *Journal of Personality and Social Psychology*, 42(1), 116-131. doi: 10.1037/0022-3514.42.1.116

- Carlsmith, K.M., Darley, J.M., & Robinson, P.H. (2002). Why do we punish? Deterrence and just deserts as motives for punishment. *Journal of Personality and Social Psychology*, 83(2), 284-299. doi: 10.1037//0022-3514.83.2.284
- Choe, S.Y., & Min, K.H. (2011). Who makes utilitarian judgments? The influences of emotions on utilitarian judgments. *Judgment and Decision Making*, 6(7), 580-592.
- Christensen, J.F., Flexas, A., Calabrese, M., Gut, N.K., & Gomila, A. (2014). Moral judgment reloaded: a moral dilemma validation study. *Frontiers in Psychology*, 5, 607. doi: 10.3389/fpsyg.2014.00607
- Cima, M., Tonnaer, F., & Hauser, M.D. (2010). Psychopaths know right from wrong but don't care. *Social Cognitive and Affective Neuroscience*, 5(1), 59-67. doi: 10.1093/scan/nsp051
- Condon, P., & DeSteno, D. (2011). Compassion for one reduces punishment for another. *Journal of Experimental Social Psychology*, 47(3), 698-701. doi: 10.1016/j.jesp.2010.11.016
- Conway, P., & Gawronski, B. (2013). Deontological and Utilitarian Inclinations in Moral Decision Making: A Process Dissociation Approach. *Journal of Personality and Social Psychology*, 104(2), 216-235. doi: 10.1037/a0031021
- Cushman, F. (2008). Crime and punishment: Distinguishing the roles of causal and intentional analyses in moral judgment. *Cognition*, 108(2), 353-380. doi: 10.1016/j.cognition.2008.03.006
- Cushman, F., Gray, K., Gaffey, A., & Mendes, W.B. (2012). Simulating Murder: The Aversion to Harmful Action. *Emotion*, 12(1), 2-7. doi: 10.1037/a0025071
- Cushman, F., Young, L., & Hauser, M. (2006). The role of conscious reasoning and intuition in moral judgment: Testing three principles of harm. *Psychological Science*, 17(12), 1082-1089. doi: 10.1111/j.1467-9280.2006.01834.x
- Decety, J., & Yoder, K.J. (2016). Empathy and motivation for justice: Cognitive empathy and concern, but not emotional empathy, predict sensitivity to injustice for others. *Social Neuroscience*, 11(1), 1-14. doi: 10.1080/17470919.2015.1029593
- DeScioli, P., Bruening, R., & Kurzban, R. (2011). The omission effect in moral cognition: toward a functional explanation. *Evolution and Human Behavior*, 32(3), 204-215. doi: 10.1016/j.evolhumbehav.2011.01.003
- Diekmann, A., Fetchenhauer, D., Kühnel, S., Liebig, S., Schmidtt-Beck, R., Trappe, H., & Wagener, M. (2012). ALLBUS Allgemeine Bevölkerungsumfrage der Sozialwissenschaften 2012. *GESIS - Leibniz Institute for the Social Sciences*, ZA4614. doi: 10.4232/1.11595
- Epstein, S., Pacini, R., Denes-Raj, V., & Heier, H. (1996). Individual differences in intuitive-experiential and analytical-rational thinking styles. *Journal of Personality and Social Psychology*, 71(2), 390-405. doi: 10.1037//0022-3514.71.2.390
- Feather, N.T., Boeckmann, R.J., & McKee, I.R. (2001). Jail sentence, community service, or compensation?: Predicting reactions to a serious corporate offence. *Australian Journal of Psychology*, 53(2), 92-102. doi: 10.1080/00049530108255129
- Fehr, E., & Fischbacher, U. (2004). Third-party punishment and social norms. *Evolution and Human Behavior*, 25(2), 63-87. doi: 10.1016/S1090-5138(04)00005-4

- Fehr, E., & Gächter, S. (2002). Altruistic punishment in humans. *Nature*, 415(6868), 137-140. doi: 10.1038/415137a
- Fiske, A.P., & Tetlock, P.E. (1997). Taboo trade-offs: Reactions to transactions that transgress the spheres of justice. *Political Psychology*, 18(2), 255-297. doi: 10.1111/0162-895x.00058
- Fowler, J.H., Johnson, T., & Smirnov, O. (2005). Human behaviour - Egalitarian motive and altruistic punishment. *Nature*, 433(7021). doi: 10.1038/nature03256
- Francis, K.B., Gummerum, M., Ganis, G., Howard, I.S., & Terbeck, S. (2018). Virtual morality in the helping professions: Simulated action and resilience. *Br J Psychol*, 109(3), 442-465. doi: 10.1111/bjop.12276
- Francis, K.B., Terbeck, S., Briazu, R.A., Haines, A., Gummerum, M., Ganis, G., & Howard, I.S. (2017). Simulating Moral Actions: An Investigation of Personal Force in Virtual Moral Dilemmas. *Sci Rep*, 7(1), 13954. doi: 10.1038/s41598-017-13909-9
- Gawronski, B., & Beer, J.S. (2017). What makes moral dilemma judgments "utilitarian" or "deontological"? *Social Neuroscience*, 12(6), 626-632. doi: 10.1080/17470919.2016.1248787
- Gleichgerricht, E., & Young, L. (2013). Low Levels of Empathic Concern Predict Utilitarian Moral Judgment. *Plos One*, 8(4). doi: 10.1371/journal.pone.0060418
- Gollwitzer, M., Rothmund, T., Pfeiffer, A., & Ensenbach, C. (2009). Why and when justice sensitivity leads to pro- and antisocial behavior. *Journal of Research in Personality*, 43(6), 999-1005. doi: 10.1016/j.jrp.2009.07.003
- Greene, J.D., Cushman, F.A., Stewart, L.E., Lowenberg, K., Nystrom, L.E., & Cohen, J.D. (2009). Pushing moral buttons: The interaction between personal force and intention in moral judgment. *Cognition*, 111(3), 364-371. doi: 10.1016/j.cognition.2009.02.001
- Greene, J.D., Morelli, S.A., Lowenberg, K., Nystrom, L.E., & Cohen, J.D. (2008). Cognitive load selectively interferes with utilitarian moral judgment. *Cognition*, 107(3), 1144-1154. doi: 10.1016/j.cognition.2007.11.004
- Greene, J.D., Nystrom, L.E., Engell, A.D., Darley, J.M., & Cohen, J.D. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron*, 44(2), 389-400. doi: 10.1016/j.neuron.2004.09.027
- Greene, J.D., Sommerville, R.B., Nystrom, L.E., Darley, J.M., & Cohen, J.D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science*, 293(5537), 2105-2108. doi: 10.1126/science.1062872
- Haidt, J. (2003). The moral emotions. In R. J. Davidson, K. R. Scherer & H. H. Goldsmith (Eds.), *Handbook of Affective Sciences* (pp. 852-870). Oxford: Oxford University Press.
- Hare, R.D., & Neumann, C.S. (2009). Psychopathy: assessment and forensic implications. *Can J Psychiatry*, 54(12), 791-802. doi: 10.1177/070674370905401202
- Hartley, C.A., & Phelps, E.A. (2012). Anxiety and decision-making. *Biol Psychiatry*, 72(2), 113-118. doi: 10.1016/j.biopsych.2011.12.027
- Hauser, M., Cushman, F., Young, L., Jin, R.K.X., & Mikhail, J. (2007). A dissociation between moral judgments and justifications. *Mind & Language*, 22(1), 1-21. doi: 10.1111/j.1468-0017.2006.00297.x

- Hopfensitz, A., & Reuben, E. (2009). The Importance of Emotions for the Effectiveness of Social Punishment*. *Economic Journal*, 119(540), 1534-1559. doi: 10.1111/j.1468-0297.2009.02288.x
- Horne, Z., & Powell, D. (2016). How Large Is the Role of Emotion in Judgments of Moral Dilemmas? *Plos One*, 11(7). doi: 10.1371/journal.pone.0154780
- Hunsberger, B., Pratt, M., & Pancer, S.M. (1994). Religious Fundamentalism and Integrative Complexity of Thought - a Relationship for Existential Content Only. *Journal for the Scientific Study of Religion*, 33(4), 335-346. doi: 10.2307/1386493
- Johnson, N.P.A.S., & Mueller, J. (2002). Updating the accounts: global mortality of the 1918-1920 "Spanish" influenza pandemic. *Bulletin of the History of Medicine*, 76(1), 105-115. doi: 10.1353/bhm.2002.0022
- Kahane, G., Everett, J.A.C., Earp, B.D., Farias, M., & Savulescu, J. (2015). 'Utilitarian' judgments in sacrificial moral dilemmas do not reflect impartial concern for the greater good. *Cognition*, 134, 193-209. doi: 10.1016/j.cognition.2014.10.005
- Keller, J., Bohner, G., & Erb, H.-P. (2000). Intuitive und heuristische Urteilsbildung – verschiedene Prozesse? Präsentation einer deutschen Fassung des "Rational-Experiential Inventory" sowie neuer Selbstberichtsskalen zur Heuristiknutzung. *Zeitschrift für Sozialpsychologie*, 31(2), 87–101. doi: 0.1024//0044-3514.31.2.87
- Kinnunen, S.P., & Windmann, S. (2013). Dual-processing altruism. *Frontiers in Psychology*, 4. doi: 10.3389/Fpsyg.2013.00193
- Koenigs, M., Young, L., Adolphs, R., Tranel, D., Cushman, F., Hauser, M., & Damasio, A. (2007). Damage to the prefrontal cortex increases utilitarian moral judgements. *Nature*, 446(7138), 908-911. doi: 10.1038/nature05631
- Kuznetsova, A., Brockhoff, P.B., & Christensen, R.H.B. (2016). lmerTest: Tests in linear mixed effects models (Version 2.0-32) [R package]. Retrieved from <https://CRAN.R-project.org/package=lmerTest>.
- Lerner, J.S., Goldberg, J.H., & Tetlock, P.E. (1998). Sober second thought: The effects of accountability, anger, and authoritarianism on attributions of responsibility. *Personality and Social Psychology Bulletin*, 24(6), 563-574. doi: 10.1177/0146167298246001
- LimeSurveyGmbH. (2017). LimeSurvey: An open source survey tool (Version v2.05+). Retrieved from <http://www.limesurvey.org>.
- Lotz, S., Baumert, A., Schlosser, T., Gresser, F., & Fetchenhauer, D. (2011). Individual Differences in Third-Party Interventions: How Justice Sensitivity Shapes Altruistic Punishment. *Negotiation and Conflict Management Research*, 4(4), 297-313. doi: 10.1111/j.1750-4716.2011.00084.x/abstract
- McCall, C., Steinbeis, N., Ricard, M., & Singer, T. (2014). Compassion meditators show less anger, less punishment and more compensation of victims in response to fairness violations. *Frontiers in Behavioral Neuroscience*, 8. doi: 10.3389/Fnbeh.2014.00424
- McKee, I.R., & Feather, N.T. (2008). Revenge, retribution, and values: Social attitudes and punitive sentencing. *Social Justice Research*, 21(2), 138-163. doi: 10.1007/s11211-008-0066-z

- Mussel, P., Goritz, A.S., & Hewig, J. (2013). Which choice is the rational one? An investigation of need for cognition in the ultimatum game. *Journal of Research in Personality*, 47(5), 588-591. doi: 10.1016/j.jrp.2013.05.007
- Nadelhoffer, T., & Feltz, A. (2008). The Actor-Observer Bias and Moral Intuitions: Adding Fuel to Sinnott-Armstrong's Fire. *Neuroethics*, 1(2), 133-144. doi: 10.1007/s12152-008-9015-7
- Neumann, H.H. (1976). After the Flu Shots. *New York Times*(September 15), 44.
- Neustadt, R.E., & Fineberg, H.V. (1978). *The swine flu affair : decision-making on a slippery disease*. Washington: U.S. Dept. of Health, Education, and Welfare : for sale by the Supt. of Docs., U.S. Govt. Print. Off.
- Ostendorf, F., & Angleitner, A. (2004). *NEO-Persönlichkeitsinventar nach Costa und McCrae, Revidierte Fassung (NEO-PI-R)*. Göttingen: Hogrefe.
- Patil, I. (2015). Trait psychopathy and utilitarian moral judgement: The mediating role of action aversion. *Journal of Cognitive Psychology*, 27(3), 349-366. doi: 10.1080/20445911.2015.1004334
- Paulus, C. (2009). Der Saarbrücker Persönlichkeitsfragebogen SPF (IRI) zur Messung von Empathie: Psychometrische Evaluation der deutschen Version des Interpersonal Reactivity Index.: Retrieved from Universität des Saarlandes website: <http://psydok.sulb.uni-saarland.de/volltexte/2009/2363/>.
- Paxton, J.M., & Greene, J.D. (2010). Moral Reasoning: Hints and Allegations. *Topics in Cognitive Science*, 2(3), 511-527. doi: 10.1111/j.1756-8765.2010.01096.x
- Paxton, J.M., Ungar, L., & Greene, J.D. (2012). Reflection and Reasoning in Moral Judgment. *Cognitive Science*, 36(1), 163-177. doi: 10.1111/j.1551-6709.2011.01210.x
- Prichard, J.C. (1835). *A treatise on insanity and other disorders affecting the mind*. London,: Sherwood, Gilbert and Piper.
- Robins, R.W., Hendin, H.M., & Trzesniewski, K.H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg self-esteem scale. *Personality and Social Psychology Bulletin*, 27(2), 151-161. doi: 10.1177/0146167201272002
- Rudolph, U., & Tscharaktschiew, N. (2014). An Attributional Analysis of Moral Emotions: Naive Scientists and Everyday Judges. *Emotion Review*, 6(4), 344-352. doi: 10.1177/1754073914534507
- Rush, B. (1812). *Medical inquiries and observations upon the diseases of the mind*. Philadelphia: Kimber & Richardson.
- Sargent, M.J. (2004). Less thought, more punishment: need for cognition predicts support for punitive responses to crime. *Pers Soc Psychol Bull*, 30(11), 1485-1493. doi: 10.1177/0146167204264481
- Sarlo, M., Lotto, L., Rumiati, R., & Palomba, D. (2014). If it makes you feel bad, don't do it! Egoistic rather than altruistic empathy modulates neural and behavioral responses in moral dilemmas. *Physiology & Behavior*, 130, 127-134. doi: 10.1016/j.physbeh.2014.04.002
- Saroglou, V., Corneille, O., & Van Cappellen, P. (2009). "Speak, Lord, Your Servant Is Listening": Religious Priming Activates Submissive Thoughts and Behaviors. *International Journal for the Psychology of Religion*, 19(3), 143-154. doi: 10.1080/10508610902880063

- Seip, E.C., Van Dijk, W.W., & Rotteveel, M. (2014). Anger motivates costly punishment of unfair behavior. *Motivation and Emotion*, 38(4), 578-588. doi: 10.1007/s11031-014-9395-4
- Sencer, D.J., & Millar, J.D. (2006). Reflections on the 1976 swine flu vaccination program. *Emerging Infectious Diseases*, 12(1), 29-33. doi: 10.3201/eid1201.051007
- Shields, G.S., Moons, W.G., Tewell, C.A., & Yonelinas, A.P. (2016). The effect of negative affect on cognition: Anxiety, not anger, impairs executive function. *Emotion*, 16(6), 792-797. doi: 10.1037/emo0000151
- Strobel, A., Grass, J., Pohling, R., & Strobel, A. (2017). Need for Cognition as a moral capacity. *Personality and Individual Differences*, 117, 42-51. doi: 10.1016/j.paid.2017.05.023
- Szekely, R.D., Opre, A., & Miu, A.C. (2015). Religiosity enhances emotion and deontological choice in moral dilemmas. *Personality and Individual Differences*, 79, 104-109. doi: 10.1016/j.paid.2015.01.036
- Tangney, J.P., Stuewig, J., & Mashek, D.J. (2007). Moral emotions and moral behavior. *Annu Rev Psychol*, 58, 345-372. doi: 10.1146/annurev.psych.56.091103.070145
- Tassy, S., Deruelle, C., Mancini, J., Leistedt, S., & Wicker, B. (2013). High levels of psychopathic traits alters moral choice but not moral judgment. *Frontiers in Human Neuroscience*, 7. doi: 10.3389/Fnhum.2013.00229
- Tassy, S., Oullier, O., Mancini, J., & Wicker, B. (2013). Discrepancies between judgment and choice of action in moral dilemmas. *Frontiers in Psychology*, 4. doi: 10.3389/Fpsyg.2013.00250
- Valdesolo, P., & DeSteno, D. (2006). Manipulations of emotional context shape moral judgment. *Psychological Science*, 17(6), 476-477. doi: 10.1111/j.1467-9280.2006.01731.x
- Waldmann, M.R., Nagel, J., & Wiegmann, A. (2012). Moral judgment. In K. J. Holyoak & R. G. Morrison (Eds.), *The Oxford handbook of thinking and reasoning* (pp. pp. 364-389). New York, NY: Oxford University Press.
- Wang, C.S., Sivanathan, N., Narayanan, J., Ganegoda, D.B., Bauer, M., Bodenhausen, G.V., & Murnighan, K. (2011). Retribution and emotional regulation: The effects of time delay in angry economic interactions. *Organizational Behavior and Human Decision Processes*, 116(1), 46-54. doi: 10.1016/j.obhdp.2011.05.007
- Weiner, B. (2006). *Social Motivation, Justice and the Moral Emotions: An Attributional Approach*. Mahwah, NJ: Tayler & Francis.
- Wiegmann, A., & Waldmann, M.R. (2014). Transfer effects between moral dilemmas: a causal model theory. *Cognition*, 131(1), 28-43. doi: 10.1016/j.cognition.2013.12.004
- Williams, K.M., & Paulhus, D.L. (2004). Factor structure of the Self-Report Psychopathy scale (SRP-II) in non-forensic samples. *Personality and Individual Differences*, 37(4), 765-778. doi: 10.1016/j.paid.2003.11.004
- Young, L., Koenigs, M., Kruepke, M., & Newman, J.P. (2012). Psychopathy Increases Perceived Moral Permissibility of Accidents. *Journal of Abnormal Psychology*, 121(3), 659-667. doi: 10.1037/a0027489

Young, O.A., Willer, R., & Keltner, D. (2013). "Thou Shalt Not Kill": Religious Fundamentalism, Conservatism, and Rule-Based Moral Processing. *Psychology of Religion and Spirituality*, 5(2), 110-115. doi: 10.1037/a0032262

Table 1. *Descriptive statistics and correlations of outcome variables (N = 1004)*

Outcome	Descriptive Statistics <i>Frequency / Med (IQR)</i>		Repeated-measures correlations				
	Epidemic	Vaccine Policy	1.	2.	3.	4.	5.
1. Imposition of punishment (yes)	112 (11.15%)	302 (30.08%)	—	—	.35***	-.52***	-.50***
2. Duration of imposed punishments (in years)	0.00 (1.51)	11.19 (6.22)		—	.44***	-.59***	-.52***
3. Negative Emotions	1.75 (0.75)	2.00 (1.50)			—	-.39***	-.44***
4. Understanding Emotions	4.00 (1.00)	2.67 (1.67)				—	.76***
5. Appropriateness	4.00 (2.00)	2.00 (2.00)					—

Note: *** $p < 1.11\text{e-}4$, two-tailed, Bonferroni-corrected.

Table 2. *Correlations of experimental outcomes and personality domains (N = 1004)*

		<i>Vaccine Policy</i>					<i>Epidemic</i>				
		Punishment imposition [†]	Imprisonment duration	Negative Emotions	Under- standing Emotions	Appropriate- ness	Punishment imposition [†]	Imprisonment duration	Negative Emotions	Under- standing Emotions	Appropriate- ness
<i>Vaccine Policy</i>	Punishment imposi- tion [†]	—									
	Imprisonment dura- tion	—	—								
	Negative emotions	.35***	.26***	—							
	Understanding emotions	-.41***	-.34***	-.00	—						
	Appropriateness	-.47***	-.42***	-.18***	.46***	—					
<i>Epidemic</i>	Punishment imposi- tion [†]	.12*	—	.07	-.13**	.03	—				
	Imprisonment dura- tion [#]	—	.12**	.06	-.11**	.01	—	—			
	Negative emotions	.16***	.11**	.43***	.09*	.03	.11*	.09	—		
	Understanding emotions	-.10	.09	.07	.36***	.07	-.38***	-.30***	.07	—	
	Appropriateness	-.16***	-.14***	-.02	.23***	.14***	-.32***	-.26***	-.06	.45***	—
<i>Personality</i>	PF1	-.03	-.04	.29***	.24***	.09**	-.07	-.05	.29***	.22***	.15***
	PF2	-.03	-.04	-.02	-.00	.13***	.08	.06	.02	-.04	-.14***
	PF3	.06	.05	-.07	-.16***	-.05	.17***	.10**	-.11***	-.30***	-.08
	PF4	-.00	-.01	.13***	.09**	.06	.01	.00	.16***	.07	-.00
	PF5	-.00	.00	.10***	-.10***	.13***	.39***	.24***	.14***	-.34***	-.16***

Note: Kendall's τ rank correlations, * $p < 5.38\text{e-}4$, ** $p < 1.08\text{e-}4$, *** $p < 1.08\text{e-}5$, two-tailed, Bonferroni-corrected. [†] As punishment imposition is binary (no vs. yes), point-biserial correlations are reported. PF1 (other-oriented empathy, altruism, faith in intuition, low callous affect); PF2 (anxiety, personal distress, low self-esteem); PF3 (trait psychopathy, low perpetrator justice sensitivity); PF4 (justice sensitivity); PF5 (faith in intuition, victim justice sensitivity, obedience to authorities, low need for cognition).

Table 3. Results of logistic and linear mixed effect regressions for punishment imposition and severity

Predictors	Punishment imposition (no/yes, $N = 1004$)						Duration of imposed imprisonments (in years, $n = 363^{\#}$)					
	b	SE	z	p	OR	90%CI(OR)	b	SE	β	t	p	η^2_p
Intercept	-2.01	0.13	-15.66	<.001			6.49	0.18		36.01	<.001	
Scenario	2.06	0.19	11.05	<.001	7.83	[5.76, 10.63]	10.38	0.36	.74	28.79	<.001	.54
PF1	-0.06	0.09	-0.71	.475	0.94	[0.82, 1.08]	-0.21	0.20	-.03	-1.06	.290	.00
PF2	-0.02	0.08	-0.31	.757	0.98	[0.86, 1.11]	-0.21	0.18	-.03	-1.19	.236	.00
PF3	0.28	0.08	3.57	<.001	1.33	[1.16, 1.51]	0.28	0.18	.04	1.53	.126	.00
PF4	0.07	0.08	0.85	.397	1.07	[0.93, 1.23]	-0.24	0.19	-.04	-1.26	.209	.00
PF5	0.71	0.09	8.15	<.001	2.04	[1.77, 2.36]	-0.73	0.16	-.12	-4.62	<.001	.03
Scenario $\times$ PF1	-0.01	0.16	-0.05	.963	0.99	[0.76, 1.29]	-0.17	0.40	-.01	-0.43	.667	.00
Scenario $\times$ PF2	-0.13	0.15	-0.89	.373	0.88	[0.69, 1.12]	-0.89	0.36	-.07	-2.50	.013	.01
Scenario $\times$ PF3	-0.27	0.15	-1.88	.061	0.76	[0.60, 0.97]	0.26	0.36	.02	0.72	.473	.00
Scenario $\times$ PF4	0.00	0.16	-0.02	.984	1.00	[0.77, 1.29]	-0.26	0.39	-.02	-0.67	.503	.00
Scenario $\times$ PF5	-1.46	0.17	-8.79	<.001	0.23	[0.18, 0.31]	-2.56	0.32	-.21	-8.08	<.001	.08
Overall model statistic	Mixed effect logistic regression: $\chi^2(11) = 296.97, p < 2.2e-16^{***}, R^2 = .473, d' = .823$						Mixed effect linear regression: $F(11, 610.07) = 82.69, p < 2.2e-16^{***}, R^2 = .557$					

Note: [#] Subsample of participants who assigned an imprisonment in at least one of the two scenarios.

Table 4. Results of linear mixed effect regressions for observers' emotional and cognitive responses ($N = 1004$)

Predictors	Negative Emotions [0,6]						Understanding Emotions [0,6]						Perceived moral appropriateness [0,6]					
	<i>b</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	η^2_p	<i>b</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	η^2_p	<i>b</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	η^2_p
Intercept	2.04	0.02		102.85	<.001		3.26	0.02		140.41	<.001		3.02	0.03		89.81	<.001	
Scenario	0.32	0.02	.19	13.27	<.001	.11	-1.08	0.03	-.46	-34.47	<.001	.45	-1.46	0.05	-.46	-27.52	<.001	.32
PF1	0.31	0.02	.37	13.23	<.001	.11	0.29	0.03	.25	10.86	<.001	.08	0.24	0.04	.15	6.14	<.001	.02
PF2	0.01	0.02	.01	0.40	.693	.00	0.01	0.02	.01	0.58	.564	.00	0.04	0.04	.02	1.09	.276	.00
PF3	-0.01	0.02	-.01	-0.33	.745	.00	-0.23	0.03	-.20	-9.17	<.001	.05	-0.06	0.04	-.04	-1.62	.105	.00
PF4	0.03	0.02	.03	1.24	.216	.00	0.00	0.03	.00	-0.01	.991	.00	-0.04	0.04	-.02	-0.96	.335	.00
PF5	0.13	0.02	.15	6.20	<.001	.03	-0.30	0.02	-.26	-12.70	<.001	.10	-0.02	0.03	-.01	-0.69	.491	.00
Scenario × PF1	0.16	0.03	.10	5.63	<.001	.02	0.13	0.04	.05	3.43	.001	.01	-0.09	0.06	-.03	-1.43	.153	.00
Scenario × PF2	-0.03	0.03	-.02	-1.29	.198	.00	0.04	0.03	.02	1.33	.183	.00	0.44	0.06	.14	7.84	<.001	.04
Scenario × PF3	0.05	0.03	.03	1.95	.051	.00	0.20	0.03	.09	5.85	<.001	.02	0.02	0.06	.01	0.35	.729	.00
Scenario × PF4	0.01	0.03	.00	0.22	.829	.00	0.02	0.04	.01	0.43	.667	.00	-0.01	0.06	.00	-0.18	.859	.00
Scenario × PF5	0.01	0.03	.01	0.36	.722	.00	0.27	0.03	.11	8.42	<.001	.05	0.55	0.05	.17	10.04	<.001	.06
Overall model statistic	$F(11, 1714.44) = 47.47, p < 2.2\text{e-}16^{***}, R^2 = .569$						$F(11, 1714.44) = 169.96, p < 2.2\text{e-}16^{***}, R^2 = .650$						$F(11, 1714.44) = 92.43, p < 2.2\text{e-}16^{***}, R^2 = .453$					

Figure 1. Predicted probability of punishment imposition in the two scenarios *epidemic* (deliberate harm) and *vaccine policy* (accidental harm) depending on observers' personality differences.

Figure 2. Punitive, emotional, and cognitive responses (see columns) to harmful omissions protecting a minority from deliberate harm (*epidemic*) or accidental harm (*vaccine policy*) depending on observers' personality differences (see rows). Lower scores ($M-2SD$) of the respective personality factor are indicated by black color and higher scores ($M+2SD$) by light grey color.