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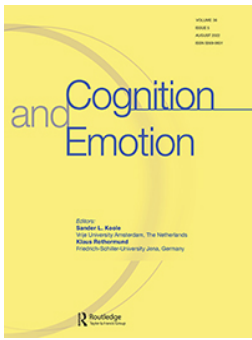
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How does the moral self-concept relate to prosocial behaviour? Investigating the role of emotions and consistency preference

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ABSTRACT

The moral self-concept has been proposed as a central predictor of prosocial behaviour. In two experiments (one preregistered), we explored the nature of the relation between the moral self-concept (explicit and implicit) and prosocial behaviour. Specifically, we investigated the role of emotions associated with prosocial behaviour (consequential or anticipated) and preference for consistency. The results revealed a relation between the explicit moral self-concept and sharing behaviour. The explicit moral self-concept was linked to anticipated and consequential emotions regarding not-sharing. Importantly, anticipated and consequential emotions about not-sharing mediated the relation between self-concept and behaviour. Yet, the relation was independent of preference for consistency. The implicit moral self-concept was neither related to prosocial behaviour nor to emotions associated with behaviour. Overall, our study demonstrates the interplay between cognitive and emotional processes in explaining prosocial behaviour. More specific, it underlines the link between the moral self-concept and prosocial behaviour and highlights the role of emotions about the omission of prosocial behaviour.

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Moral identity; prosocial behaviour; emotions; self-consistency


Prosocial behaviour benefits society in several ways and has therefore been the topic of many investigations. By definition, prosocial actions benefit others (Penner et al., 2005). Moreover, prosocial behaviour seems to be beneficial in itself: Moral acts in everyday life, when committing them or when being the benefactor, have been found to increase happiness (Hofmann et al., 2014). Consequently, recent investigations examined the motives behind prosocial behaviour (Böckler et al., 2016; Paulus, 2018) and explored how to promote it (Flook et al., 2015).

Moral identity and prosocial behaviour

A growing body of research highlights the role of *moral identity* in prosocial behaviour (Hardy & Carlo, 2011). A strong moral identity implies that moral traits (e.g.

being fair, helpful, generous) are perceived as central to one's self-concept and thus as essential for defining oneself (Aquino & Reed, 2002). The moral self-concept is assumed to correlate positively with prosocial behaviour (Blasi, 1983), a view which is supported by several empirical findings (Aquino et al., 2011; Reynolds & Ceranic, 2007; Winterich et al., 2013; for review see Hertz & Krettenauer, 2016). A strong moral identity has been associated with actual behaviour across different contexts, such as charity, volunteerism, or cheating (e.g. Reynolds & Ceranic, 2007; Winterich et al., 2013). For example, Aquino and Reed (2002) asked people to imagine a person with certain moral characteristics, to rate how central these characteristics are for themselves, and how strongly they demonstrate having these characteristics. The more people reported having these characteristics is

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central to them, the more often they reported having volunteered within the last two years and the more food they donated to a charity that gives food to the needy.

While most studies examined the explicit moral self-concept, which is assumed to reflect a cognitively accessible representation of oneself (e.g. Aquino & Reed, 2002), a few studies reported findings between the implicit moral self-concept and prosocial behaviour (e.g. Johnston et al., 2013). The implicit moral self-concept is usually assessed using an implicit association test (IAT). It is suggested to reflect more automatic schemas and early processes (e.g. Pletti et al., 2019). In addition, explicit, self-reported motives seem to reflect cognitively represented goals, whereas implicit motives seem to stem from affective experiences with actions (McClelland et al., 1989). To account for both mechanisms, the current study addressed the relation of the explicit and implicit moral self-concept with prosocial behaviour.

To date, little is known about how the moral self-concept relates to prosocial behaviour and for whom this relation is particularly strong. Understanding these factors would allow to finetune our theories on the moral self-concept and on prosociality. Blasi's (1983) self-model explains the link between moral identity and behaviour by people's striving for self-consistency. If morality is central to the self, moral behaviour is required to act self-consistently. Colby and Damon's (1992) research aligns with this model and posits the integration of moral goals and self-goals as key to moral identity. Social-cognitive accounts consider cognitive, affective and self-processes as interwoven, forming a coherent personality on the basis of cognitive-affective moral schemas (Lapsley & Narvaez, 2004). Integrating this research, it remains an open debate on how identity is linked to moral actions (Hardy & Carlo, 2011). Following associative and ideomotor theories on action selection (De Wit & Dickinson, 2009; Ridderinkhof, 2017), emotions associated with prosocial behaviour might link moral identity to moral action. Following Blasi's (1983) account on moral identity, striving for self-consistency is one prominent candidate. In the following, we will introduce these potential mechanisms in detail.

Consequential emotions and anticipated emotions of prosocial behaviour

A line of theorising addresses the role of emotions for the link between moral identity and behaviour (Hardy

& Carlo, 2011; Stets & Carter, 2012). Emotions are considered important when trying to explain moral behaviour (Blasi, 1999; Lapsley & Narvaez, 2004; Stets & Carter, 2012). Emotions reflect an evaluation of events that are considered as relevant and they direct future behaviour (Scherer, 2000). Previous research demonstrated that prosocial actions increase the benefactor's happiness (Aknin et al., 2018; Bierhoff, 2002; Curry et al., 2018). Behavioural studies (Dunn et al., 2008; Nelson et al., 2016) and neurophysiological studies (Harbaugh et al., 2007; Moll et al., 2006) support this link, suggesting that prosocial behaviour such as donating and volunteering is rewarding in itself. With the rewarding effect of prosocial behaviour generally being present, it seems to be not equally rewarding for everybody and dependent, for example, on individuals' values (Hill & Howell, 2014).

Moral identity might be one important factor that relates to how one feels about engaging in prosocial behaviour or refraining from it. Self-determination theory suggests that actions, which are consistent with one's values, are intrinsically motivating and lead to well-being (Ryan & Deci, 2000). Prosocial behaviour should accordingly be more pleasurable for people with a strong moral self-concept. Looking at this from the other side, not meeting one's own standards and not following what is important to oneself should lead to negative emotions such as guilt (Tracy & Robins, 2004). Indeed, moral identity generally relates to self- and other-evaluative moral emotions (Lefebvre & Krettenauer, 2019), such as ratings of guilt when imagining or remembering moral norm transgressions. Previous studies suggest that emotions play a role in linking the moral self-concept to behaviour. For example, emotion expectancies in hypothetical scenarios were found to mediate the relation between the moral self-concept and self-reported antisocial behaviour in adolescents and adults (Johnston & Krettenauer, 2011; Kavussanu et al., 2015). Research with children hints at an indirect effect of the moral self-concept on prosocial behaviour through anticipated emotions about not-sharing (Christner et al., 2020). With regard to prosocial behaviour in adults, Aquino et al. (2011) demonstrated that seeing a video of moral goodness relates to donation behaviour, particularly for people with a strong moral self-concept, and this link is mediated through feelings of moral elevation. Previous evidence thus suggests that emotions expected after prosocial behaviour differ depending on individuals' moral self-concept, and these emotions seem to relate to actual prosocial behaviour.

In this line of research with adults, emotions were assessed in the context of scenarios that participants had to imagine or remember. To provide a differentiated examination of emotions, it is important to distinguish emotional consequences and predictions about future emotional states (Malti & Krettenauer, 2013; Tangney et al., 2007). Emotional consequences are directly experienced emotional states, which likely comprise bodily phenomena, emotional experience and appraisal of the situation (Scherer, 2000). Anticipated emotions are predictions about future emotional states and thus reflect expectations on a more cognitive level. While anticipated emotions likely build on previous affective experiences, the two types of emotional appraisals tend to differ (Wilson & Gilbert, 2005). For example, a majority of participants expect that spending money on personal issues would make them happier compared to spending money on others, while the opposite is actually the case (Dunn et al., 2008). From a theoretical perspective, both emotional consequences and anticipated emotions can be hypothesised to link the moral self-concept to behaviour. On the one hand, based on associative theories on action selection, positive emotional experiences following prosocial behaviour might trigger this behaviour in the future (De Wit & Dickinson, 2009). In line with this notion, prosocial actions and happiness seem to enhance each other in everyday life (Aknin et al., 2012; Snippe et al., 2018). On the other hand, recent approaches of ideomotor theory suggest that anticipated emotional consequences guide action selection (Eder et al., 2015; Ridderinkhof, 2017). Likewise, theories on decision-making emphasise the role of anticipated emotions in guiding choices (Mellers et al., 1999; Zeelenberg et al., 2008). Accordingly, the more positive someone would expect to feel after behaving prosocially, the more likely he/she will behave prosocially, for instance deciding fairly in economic games (Haselhuhn & Mellers, 2005). Anticipated emotions might thus be one driving factor for prosocial action.

Taking together research on the moral self-concept, prosocial behaviour and emotions, we address the following question: What drives the relation between the moral self-concept and prosocial behaviour? The current study examines, first, the role of emotional consequences of prosocial behaviour, and second, the role of anticipated emotions. It extends previous research by differentiating between consequential and anticipated emotions on a conceptual level and investigating the role of

both. The current work therefore allows to finetune theories on the role of emotions for the moral self-concept. Additionally, we extend previous research by addressing actual prosocial behaviour and behaviour-specific emotions, that is, emotions regarding the particular prosocial behaviour of interest rather than emotions regarding a set of hypothetical behaviours (Johnston & Krettenauer, 2011; Kavussanu et al., 2015) or a general feeling of elevation (Aquino et al., 2011). Finally, the current study brings research on the explicit and implicit moral self-concept together in order to provide a detailed view of the link between the moral self-concept, prosocial behaviour and emotions.

Self-consistency

A third process that might contribute to the relation between the moral self-concept and prosocial behaviour is striving for self-consistency. Following Blasi's (1983) influential theory, people with a strong moral self-concept might behave prosocially in order to act self-consistently. Accordingly, the relation between self-concept and behaviour should be most prominent for individuals who strongly endorse consistency. This notion aligns with cognitive dissonance theory, suggesting that humans aim to minimise dissonance (Festinger, 1957), which particularly occurs when a behaviour is inconsistent with one's self-concept (Aronson, 1969). Notwithstanding this basic need, individuals differ in the extent to which they prefer consistency (for review, see Guadagno & Cialdini, 2010). Despite the key claim of Blasi (1983), linking moral identity with prosocial behaviour through self-consistency, empirical research on this notion is – surprisingly – absent so far. We thus tested the hypothesis that the relation between the moral self-concept and behaviour is especially strong when one's preference for consistency is high.

Current studies

The current studies aimed to clarify the relation between moral self-concept and prosocial behaviour. We examined the role of consequential emotional states (Experiment 1), anticipated emotional states (Experiment 2), and preference for consistency (Experiment 2). For that purpose, we assessed two adult samples. Participants in both experiments completed a sharing task in which they could donate money to charities or keep the money for themselves. This

task served to assess sharing behaviour. To assess the emotional relevance of sharing, we requested participants in Experiment 1 in half of the trials to donate half and in half of the trials to donate nothing and to report their emotional state (valence on a scale from unhappy to happy) afterwards. In Experiment 2, we asked participants to imagine that they would donate half or nothing and to report their anticipated emotional state. Similar procedures have been widely used to investigate anticipated emotions in previous research on moral or interpersonal decision making (Krosch et al., 2012; Pletti et al., 2016; Van der Schalk et al., 2012, 2015). We decided for donating half as the proxy for a sharing decision based on people's general tendency to avoid inequality (Dawes et al., 2007). This choice is also supported by a previous study employing a similar donation task, in which participants donated on average around half (28€ out of 50€) (Böckler et al., 2016). To address the role of self-consistency, participants completed a questionnaire on their preference for consistency in Experiment 2 (Collani & Blank, 2013). Finally, we assessed the explicit and implicit moral self-concept by means of an established questionnaire (Aquino & Reed, 2002) and an IAT (only in Experiment 1).

Based on moral identity theories (Aquino & Reed, 2002; Blasi, 1983), we hypothesised that the moral self-concept correlates positively with sharing behaviour. Second, following self-determination theory (Ryan & Deci, 2000), sharing should be particularly pleasurable and not-sharing should be particularly unpleasant for individuals who strongly endorse being a moral person, that is, for individuals with a strong moral self-concept. We thus hypothesised that the stronger the moral self-concept, the better people feel after sharing and the worse after not-sharing (Experiment 1), and the better people anticipate to feel after sharing and the worse after not-sharing (Experiment 2). Third, and for the purpose of the current study most important, we examined two hypotheses regarding the relation between emotional states and behaviour. Based on associative theories on action control (e.g. De Wit & Dickinson, 2009), we expected that emotional consequences of sharing and not-sharing are associated with sharing behaviour (Experiment 1). That means, the better people feel after sharing and the worse they feel after not-sharing, the more they spontaneously share. Based on ideomotor approaches (e.g. Eder et al., 2015; Ridderinkhof, 2017), which highlight the role of anticipated emotional consequences for action selection,

we expected that anticipated emotions are related to sharing behaviour (Experiment 2). That means, the better people expect to feel after sharing and the worse they expect to feel after not-sharing, the more they spontaneously share. We examined whether consequential or anticipated emotions mediate the relation between moral self-concept and prosocial behaviour and whether emotions regarding sharing or not-sharing are pivotal therefore. Fourth, based on Blasi's self-model (1983), we hypothesised the relation between the self-concept and behaviour to be stronger, the higher individual's preference for consistency (Experiment 2).

Experiment 1

Methods

Participants

Overall, 82 adults ($M = 25.9$ years, $SD = 9.3$, 58 female) participated in the experiment (see Supplemental Material for details on sample size determination). We excluded one additional participant from the final analyses because of missing data. Participants provided informed consent before the testing and the local ethics committee approved the experiment. We recruited participants from the local students pool and by word of mouth in a large European city. They received compensation of 5€ or one subject hour in addition to their earnings from the sharing task.

Procedure

We tested participants individually in the university laboratory. Participants first completed the sharing task, then the implicit and explicit moral self-concept measures, and finally questionnaires on social desirability and belief in a just world. Finally, participants received their compensation and were debriefed about the study's purpose. The session lasted around 45 min.

Measures

Sharing task. The task was adapted from the donation task by Böckler et al. (2016). The current version for assessing sharing behaviour as well as associated emotional states entailed three conditions: Free Sharing (FS), Sharing (sharing half; SH), and Not-Sharing (sharing nothing; SN). The FS condition served to assess spontaneous prosocial behaviour. The SH and SN conditions served to assess the emotional significance of sharing by requiring participants once to

donate half of their money (SH) and once to donate nothing (SN) and reporting their associated emotional states afterwards. That means the behaviour in the SH and SN condition was held constant across participants. This allowed us to assess the emotional states associated with the same behaviour (Sharing/Not-Sharing) across participants. We chose this procedure because participants' emotional states after FS were confounded with the shared amount. Investigating emotional states after FS would have not allowed us to examine the relation of the moral self-concept with sharing behaviour and emotions regarding sharing separately. The procedure we chose allowed us to compare a general emotional stance towards sharing between participants.

In each trial, participants could distribute 50€ between a charity and themselves. In FS trials, participants decided how much money to donate (0–50€; “Which amount would you be willing to donate to support this organization?”). In SH and SN trials, participants were informed about a mandatory allocation (25€ in Sharing, 0€ in Not-Sharing, “You donate ... € and keep ... € for yourself”). Eight charities served as recipients, addressing diverse social issues. Each charity was part of each sharing condition, resulting in eight trials per condition (thus, 24 trials overall). At the beginning of each trial, the charity's goal was introduced. The sharing task started with FS trials to prevent any influence from the predefined trials. SH and SN trials were randomised afterwards. We informed participants that one trial out of all would be randomly chosen and implemented, meaning the donation would be realised and participants would receive 20% of the not-donated money.

Emotion rating. Participants rated their emotional state after each trial on a continuous scale ranging from *extremely unhappy* (0) to *extremely happy* (400) (“How do you feel about that decision?”). The portrait version of the 5-point Self-Assessment Manikin for rating Valence (Bradley & Lang, 1994; Suk, 2006) served as anchors. The scale was introduced at the beginning of the sharing task following Bradley and Lang (1994). The negative extreme was explained to reflect that one feels unhappy, upset, discontent, melancholic, or desperate. Participants were instructed to use this extreme when feeling completely unhappy about a decision. The positive extreme was explained to reflect that one feels happy, pleased, content, satisfied, or hopeful. Participants were instructed to use this extreme when feeling completely happy

about a decision. When feeling completely neutral about a decision, participants were instructed to use the middle of a scale.

At the beginning of the session, participants indicated their current emotional state. We initially planned to control for participants' mood. However, we decided to disregard this rating since the emotion question after each trial directly referred to the decision rather than the current feeling in general.

Explicit moral self-concept. We assessed the explicit moral self-concept using the Self-Importance of Moral Identity questionnaire (Aquino & Reed, 2002; translation by Pohling et al., 2018). The questionnaire includes 10 items, all answered on a 7-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7). Half of the items reflect the centrality of moral characteristics for the participant's self (Internalisation), while the other half reflects what extend the participant demonstrates having these characteristics (Symbolisation). To prevent misunderstandings of the questionnaire arising in a pilot study, the experimenter explained additionally to the written instruction to answer the items from one's perspective. Cronbach's alpha of the moral self-concept scale in our sample was $\alpha = .80$ (Internalisation: $\alpha = .76$; Symbolisation: $\alpha = .68$).

Implicit moral self-concept. We assessed the implicit moral self-concept with an IAT (Perugini & Leone, 2009). The target categories were *Moral/Immoral* and *Self/Others*. The procedure mostly followed the original IAT (for more details, see Supplemental Material). We relied on the improved scoring algorithm by Greenwald et al. (2003).

Control variables. Since the explicit moral self-concept measure appears to suffer from *Social Desirability Response Bias* (Aquino & Reed, 2002), participants completed the respective questionnaire by Satow (2012). We extended the questionnaire with five distractor items. The proportion of answers given in the most desirable way counted as response bias.

To account for a confounding effect in the adults' implicit moral self-concept, we assessed participant's *Personal Belief in a Just World* using the questionnaire by Dalbert (1999). To clarify, since the congruent blocks of the IAT contain me/moral words on one side and others/immoral words on the other, reaction time differences may not only stem from a strong

association of me and moral but also from a strong association of others and immoral, which may even superimpose the congruency effects of the moral side. Since the personal belief in a just world includes the prevailing perception of the social environment as being orderly and just, we collected this parameter as a control variable for analyses regarding the implicit moral self-concept.

Data analysis

First, in order to examine the hypothesised positive relation between the moral self-concept and sharing behaviour, we computed separate hierarchical linear regressions for the explicit and implicit moral self-concept with sharing behaviour as an outcome variable. As explicit reports of the moral self-concept might be prone to social desirable response tendency, we controlled for social desirability in Step 1 and tested the incremental contribution of the explicit moral self-concept in Step 2. To shed light on the nature of a relation between the explicit moral self-concept and behaviour, we additionally computed two models for the two subscales (Internalisation, Symbolisation) separately. When addressing the relation with the implicit moral self-concept, we included personal belief in a just world in Step 1 and tested the incremental contribution of the implicit moral self-concept in Step 2.

Second, in order to examine the expected relation between the moral self-concept and emotional states following (not-)sharing, we computed linear mixed models to account for the repeated emotion measure. The full model with emotion ratings as outcome variable included the control variable (social desirability for models on the explicit moral self-concept and belief in a just world for models on the implicit moral self-concept), the respective moral self-concept, the emotion condition (Sharing; Not-Sharing), and the interaction of emotion condition and the moral self-concept. We additionally included the random factor of participant since every participant completed both emotion ratings for Sharing

and Not-Sharing. The null model included only the control variable and the random factor of participant. To test the full model's significance, we compared the full model to the null model. To test the significance of the interaction and individual factors, we compared the respective model with a reduced model that lacks the interaction or factor of interest using likelihood ratio tests.

Third, in order to test the hypothesised relation between emotional states and sharing behaviour, we computed linear mixed models as well. The full model with the outcome variable emotion ratings including the factors sharing behaviour, emotion condition, the interaction between sharing behaviour and emotion condition, and the random factor for participant. The null model included only the random factor for participant.

Finally, to examine whether emotional states regarding prosocial behaviour mediate the relation between the moral self-concept and sharing behaviour, we computed regression analyses as suggested by Baron and Kenny (1986) and we tested the significance of indirect mediation effects with percentile bootstrapping using the R package lavaan (Rosseel, 2012). We computed a parallel mediation analysis to examine the mediating role of emotions about Sharing and emotions about Not-Sharing simultaneously.

Results

Table 1 presents descriptive statistics of key variables. Figure 1 depicts descriptive statistics of the emotion

Table 1. Means and standard deviations for key variables in Experiment 1.

Variable	<i>M</i> (scale max)	<i>SD</i>
Free sharing behaviour	31.41€ (50)	12.27
Moral self-concept	5.07 (7)	0.77
Emotion rating following free sharing	302 (400)	56.2
Emotion rating following sharing	182 (400)	69.1
Emotion rating following not-sharing	98 (400)	72.9

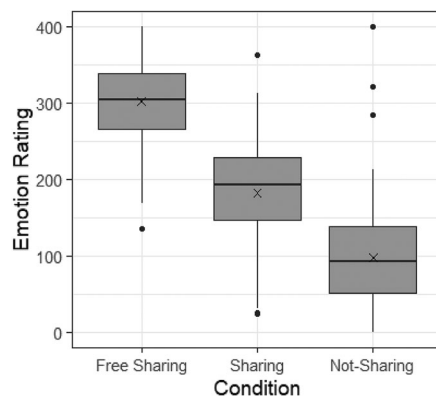


Figure 1. Emotion ratings after Free Sharing (FS), Sharing (SH) and Not-Sharing (SN) trials in Experiment 1. Crosses represent mean ratings across participants. Hinges of the boxes represent the first and third quartiles. Lower/upper whiskers extend to the smallest/largest value within the inter-quartile range * 1.5 from the hinges.

ratings. Sharing condition had a strong effect on the associated emotions, $F(2, 243) = 195.2, p < .001, \eta^2 = .616$, with FS decisions eliciting the most positive emotions, followed by SH, followed by SN.

Table 2 displays a full correlation matrix for descriptive purpose. One participant was excluded from all analyses regarding the implicit moral self-concept since more than 10% of the IAT trials had a latency of less than 300 ms (Greenwald et al., 2003). In the following, we will first address relations between the moral self-concept and sharing behaviour, next between the moral self-concept and emotional states, then between emotional states and sharing behaviour, and finally the mediation hypothesis. In the Supplemental Material, we report an examination of the degree to which effects were driven disproportionately by single participants.

Hierarchical linear regression analyses on the relation between the moral self-concept and sharing behaviour are displayed in Table 3. As hypothesised, the explicit moral self-concept related to sharing behaviour beyond the effect of social desirability. The stronger the moral self-concept, the more participants decided to donate across trials. This relation relied similarly on the Internalisation and Symbolisation subscale. With respect to the implicit self-concept, the control measure of belief in a just world but not the implicit moral self-concept was linked to sharing behaviour.

In order to examine the relation between the moral self-concept and emotional states, we computed linear mixed models. For the explicit moral self-concept, the full model was a better fit compared to the null model, $\chi^2(3) = 82.99, p < .001$. A comparison with a reduced model revealed a significant interaction of the explicit moral self-concept and emotion condition, $\chi^2(1) = 5.45, p = .020$. To follow-up on the interaction, we computed separate linear regressions for the two conditions, revealing a negative relation between the moral self-concept and emotion ratings about Not-Sharing, $\beta = -.40, t = -3.79, p < .001, \text{Model: } R^2 = .16, p < .001$, but no relation with emotion ratings about Sharing, $\beta = -.13, t = -1.16, p = .249$. Social desirability was not significant for the emotion rating in any condition, $ps > .261$. That is, in line with the correlational findings in Table 2, the stronger participant's moral self-concept, the worse they report to feel after not donating anything.

Additionally, we computed these models for the two subscales of the explicit moral self-concept

separately. Both subscales mirror the findings for the overall explicit moral self-concept: The full models were a better fit compared to the null models (Internalisation: $\chi^2(3) = 78.68, p < .001$; Symbolisation: $\chi^2(3) = 81.04, p < .001$), the interaction between the respective moral self-concept and emotion condition was significant (Internalisation: $\chi^2(1) = 4.13, p = .042$; Symbolisation: $\chi^2(1) = 4.42, p = .036$), and the moral self-concept related negatively to emotion ratings about Not-Sharing (Internalisation: $\beta = -.32, t = -3.03, p = .003, \text{Model: } R^2 = .12, p = .008$; Symbolisation: $\beta = -.37, t = -3.50, p < .001, \text{Model: } R^2 = .15, p = .002$), but not to emotion ratings about Sharing (Internalisation: $\beta = -.10, t = -0.88, p = .383$; Symbolisation: $\beta = -.13, t = -1.14, p = .258$). Social desirability did not contribute significantly in any model, $ps > .202$. Taken together, Internalisation and Symbolisation similarly mark the negative relation between the moral self-concept and emotions following not-sharing.

For the implicit moral self-concept, the full model was a better fit compared to the null model, $\chi^2(3) = 69.441, p < .001$. A comparison with a reduced model revealed no significant interaction between the implicit moral self-concept and emotion condition, $\chi^2(1) = 2.05, p = .152$. We, therefore, dropped the interaction from the model to get interpretable main effects. Comparing the remaining model with reduced models revealed no effect on the implicit moral self-concept, $\chi^2(1) = 0.02, p = .899$, and personal belief in a just world $\chi^2(1) = 1.31, p = .253$. Only a main effect of emotion condition was significant, $\chi^2(1) = 67.37, p < .001$, with more positive emotion ratings after Sharing compared to Not-Sharing.

When examining the relation between emotional states and sharing behaviour, the full model was a better fit compared to the null model, $\chi^2(3) = 104.07, p < .001$. Comparing the full model with a reduced model revealed a significant interaction, $\chi^2(1) = 4.54, p = .033$. To examine the interaction, we ran separate linear regressions from sharing behaviour on emotion ratings for the two emotion conditions (Sharing; Not-Sharing). As hypothesised, the worse participants felt after not donating anything, the more they donated themselves, $\beta = -.58, t = -6.37, p < .001$. Surprisingly, the relation between sharing behaviour and emotional states following sharing half was also negative, $\beta = -.36, t = -3.49, p < .001$.

Results of the parallel mediation analysis are presented in Figure 2. Consistent with the mediation

Table 2. Correlation matrix of all variables in Experiment 1.

	1	2	3	4	5	6	7	8
2	0.84***	–						
3	0.91***	0.56***	–					
4	0.25*	0.28*	0.17	–				
5	0.27*	0.27*	0.22 ⁺	–0.09	–			
6	–0.15	–0.11	–0.16	0.06	–0.36***	–		
7	–0.40***	–0.33**	–0.38***	–0.10	–0.58***	0.46***	–	
8	0.19 ⁺	0.09	0.22*	0.12	0.03	–0.15	–0.11	–
9	0.15	0.12	0.15	0.08	0.22*	–0.13	–0.09	0.16

Notes: (1) Explicit moral self-concept; (2) Explicit moral self-concept Internalisation; (3) Explicit moral self-concept Symbolisation; (4) Implicit moral self-concept; (5) Free sharing behaviour; (6) Mean emotion after Sharing; (7) Mean emotion after Not-Sharing; (8) Social desirable response tendency; (9) Belief in just world. *** $p < .001$; ** $p < .01$; * $p < .05$; ⁺ $p < .1$.

hypothesis, the explicit moral self-concept related to emotions about not-sharing and FS behaviour. Moreover, emotions about not-sharing predicted FS behaviour. When controlling for emotions about not-sharing additional to social desirability, the predictive effect of the self-concept on behaviour was not significant, $\beta = .05$, $p = .635$. Significance of the indirect mediation effect via emotions about not-sharing, computed by percentile bootstrapping with 10,000 samples revealed a significant mediation effect, 95% CI [0.38, 6.19]. That means, emotions about not-sharing significantly mediated the relation between the moral self-concept and behaviour. For emotions about sharing, the findings revealed no relation with the moral self-concept and thus no indirect mediation effect emerged.

Exploratory analyses

As presented in Table 2, both emotions regarding sharing and not-sharing correlated negatively with FS behaviour. Exploratory analyses revealed that the negative relation with emotions regarding sharing stems from those participants, who wanted to give more than half (see Supplemental Material for details).

Discussion

Experiment 1 investigated the role of emotions following prosocial behaviour for the relation between the moral self-concept and behaviour. As expected, the explicit moral self-concept correlated positively with the amount donated to charities. Extending separate research on the moral self-concept and emotions, we found a relation between the explicit

Table 3. Hierarchical linear regressions of the moral self-concept (explicit, implicit) on free sharing behaviour in Experiment 1 and Experiment 2.

	Sharing Behaviour				Sharing Behaviour			
	Experiment 1				Experiment 2			
	Step 1		Step 2		Step 1		Step 2	
	β	p	β	p	β	p	β	p
Social desirability	.03	.757	–.02	.875	.08	.472	.08	.460
Explicit Self-concept			.27	.016			.22	.041
R^2, p	0.00	.757	0.07	.050	.01	.472	.06	.095
$\Delta R^2, p$.07	.016			.05	.041
Social desirability	.03	.757	.01	.932	.08	.472	.07	.520
MSC internalisation			.27	.016			.26	.016
R^2, p	0.00	.757	.07	.051	.01	.472	.07	.041
$\Delta R^2, p$.07	.016			.06	.016
Social desirability	.03	.757	–.01	.907	.08	.472	.08	.443
MSC symbolisation			.22	.055			.13	.239
R^2, p	0.00	.757	.05	.150	.01	.472	.02	.385
$\Delta R^2, p$.05	.055			.02	.239
Belief in just world	.23	.037	.24	.031	–	–	–	–
Implicit self-concept			–.11	.325	–	–	–	–
R^2, p	0.05	.037	0.07	.071	–	–	–	–
$\Delta R^2, p$			0.01	.325	–	–	–	–

Notes: For the models, R^2 and p -values are reported; for the individual predictors, standardised beta-values and p -values are reported.

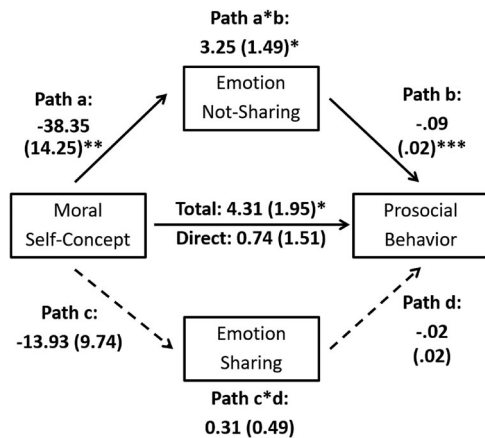


Figure 2. Parallel mediation model for the mediators *emotions after not-sharing* and *emotions after sharing* with regression coefficients. Values in brackets indicate standard errors. Solid arrows indicate significant paths with $p < .05$. * $p < .05$; ** $p < .01$; *** $p < .001$.

moral self-concept and emotional consequences of prosocial behaviour: The stronger the participants' explicit moral self-concept, the worse they felt after not-sharing. Additionally, the worse people felt after not sharing anything or after sharing half, the more they decided to share themselves. The surprisingly negative relation between sharing behaviour and emotions about sharing half stems mostly from participants who decided to share on average more than half. The amount that participants were asked to share condition (25€ out of 50€) was therefore too little for participants who wished to share more, resulting in the negative correlation between sharing behaviour and emotions after sharing. Importantly, the mediation analysis suggests that particularly emotions about not-sharing mediate the relation between self-concept and behaviour. We will expand on the theoretical relevance of these findings in the general discussion.

The implicit and explicit, particularly internalisation, moral self-concept correlated positively, suggesting that both address different aspects of an underlying moral self-concept. Nevertheless, effects of the implicit and explicit self-concept differed, relating to dual-process theories (Lapsley & Hill, 2008). The finding that sharing behaviour was only related to the explicit self-concept fits to meta-analytical evidence suggesting that explicit measures of moral identity are more strongly related to behaviour than implicit measures (Hertz & Krettenauer, 2016). It is, however, different from previous research suggesting that an implicit measure predicts actual responses to moral

situations (Johnston et al., 2013; Perugini & Leone, 2009). Our findings could result from the explicit nature of the prosocial behaviour and emotion measure. Both requested the participant to make a decision (i.e. how much to donate or how he/she felt). Such respondent behaviour, in contrast to behaviour enacted in absence of situational cues, could be driven by self-reported rather than implicit motives, which might be respectively reflected in the explicit or implicit self-concept (McClelland et al., 1989). For prosocial behaviours of that type, such as donating goods when confronted with the opportunity, we conclude that the explicit moral self-concept is most relevant.

Experiment 1 provided support for the relation between the moral self-concept and prosocial behaviour and clarified one potential mechanism, namely consequential emotions. Alternative theories suggest other mechanisms, namely anticipated emotions and the preference for consistency, which we investigated in Experiment 2. We dropped the implicit moral self-concept measure and the respective control questionnaire on Belief in a Just World. This decision resulted from our expectation that the implicit self-concept is rather related to consequential than anticipated emotions, as consequential emotions are less cognitively controlled. Because Experiment 1 did not reveal the expected relations, we only investigated the explicit moral self-concept in Experiment 2.

Experiment 2

We preregistered our methods, hypotheses and planned analyses of Experiment 2 on "aspredicted.org" (<https://aspredicted.org/ed4bx.pdf>).

Method

Participants

The final sample comprised 88 participants with a mean age of 26.7 years ($SD = 11.0$, 62 female; see Supplemental Material for details on sample size determination). We conducted the study in a large European city and the local ethics committee approved it. Participants gave informed consent prior to the testing. They were compensated with 3€ or 0.5 student subject hour in addition to their share from the task.

Procedure

We tested participants individually in the University's laboratory. They first completed the sharing task and afterwards questionnaires on preference for consistency, social desirable response tendency, the moral self-concept and demographic information. Finally, they received their compensation and were debriefed about the study's purpose. The procedure lasted around 20 min.

Measures

Sharing task. The sharing task closely followed the one from Experiment 1. The main difference was that Imagined Sharing and Not-Sharing trials replaced the Sharing and Not-Sharing trials, resulting in the following three conditions: Imagined Sharing (sharing half; ISH), Imagined Not-Sharing (sharing nothing; ISN), Free Sharing (FS). ISH and ISN served to assess participants' emotion when anticipating that they would share or not share. Hence, participants were asked to imagine that they would be giving 25€ or 0 € to the respective charity. FS trials were identical as in Experiment 1. The order of conditions differed from Experiment 1: ISH and ISN trials were presented first (randomised order) and FS trials last. We thereby aimed to assess actually anticipated emotions that are not biased by a previous sharing decision.

Emotion rating, explicit moral self-concept, social desirability. The measures were identical as in Experiment 1. Cronbach's alpha of the moral self-concept scale was $\alpha = .83$ (Internalisation: $\alpha = .84$; Symbolisation: $\alpha = .73$).

Preference for consistency. Preference for consistency was measured with the questionnaire by Collani and Blank (2013), which is based on the scale by Cialdini et al. (1995). It consists of seven items answered on a 5-point scale ranging from *strongly disagree* (1) to *strongly agree* (5), with higher scores

Table 4. Means and standard deviations for key variables in Experiment 2.

Variable	<i>M</i> (scale max)	<i>SD</i>
Free sharing behaviour	27.86€ (50)	12.56
Moral self-concept	4.94 (7)	0.88
Preference for consistency	3.56 (5)	0.48
Anticipated emotion for free sharing	310 (400)	52.9
Anticipated emotion for imagined sharing	215 (400)	78.8
Anticipated emotion for imagined not-sharing	96 (400)	62.9

reflecting a stronger preference for consistency. Three items address private consistency and two items each address public consistency and consistency of others. Cronbach's alpha of the overall scale was $\alpha = .47$. This is rather low but almost comparable to previous work reporting alphas between .54 and .71 (Collani & Blank, 2013). Cronbach's alpha of the theoretically most interesting preference for private consistency was $\alpha = .54$.

Data analysis

Our analytical strategy mostly followed the one from Experiment 1, with the only difference that we examined anticipated emotional states instead of consequential emotional states. Additionally, in order to test the hypothesis that the moral self-concept relates to behaviour, particularly for individuals with a strong preference for consistency, we computed a multiple linear regression on sharing behaviour testing the interaction between the moral self-concept and preference for consistency.

Results

Table 4 presents descriptive statistics of key variables. Mean ratings of the anticipated emotions for each condition are displayed in Figure 3. Condition had a significant effect on the emotions, $F(2, 261) = 233.2$, $p < .001$, $\eta^2 = .641$. Anticipated emotions were rated most positively for FS decisions, followed by ISH, and least positive for ISN.

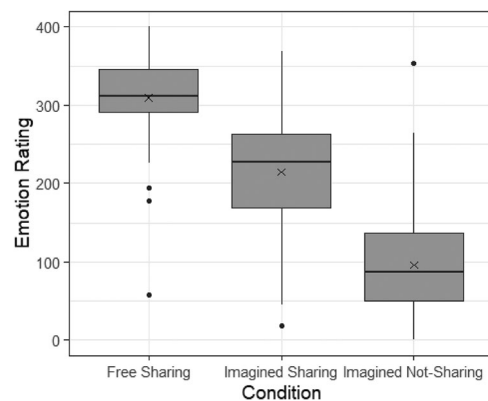


Figure 3. Anticipated emotion ratings for Free Sharing (FS), Imagined Sharing (ISH) and Imagined Not-Sharing (ISN). Crosses represent mean ratings across participants. Hinges of the boxes represent the first and third quartiles. Lower/upper whiskers extend to the smallest/largest value within the inter-quartile range * 1.5 from the hinges.

For descriptive purpose, correlations of all variables are presented in Table 5. The pattern of correlations for preference for private consistency is the same as for the overall preference for consistency scale. Our analysis procedure followed Experiment 1.

Hierarchical linear regression analyses on the relation between the moral self-concept and sharing behaviour are displayed in Table 3. As in Experiment 1, the explicit moral self-concept related to sharing behaviour beyond the effect of social desirability. This relation relied mostly on the Internalisation subscale.

Linear mixed models on the relation between the moral self-concept and emotional states revealed the following results: For the explicit moral self-concept, the full model was a better fit compared to the null model, $\chi^2(3) = 106.21$, $p < .001$. A comparison with a reduced model revealed a significant interaction of the explicit moral self-concept and emotion condition, $\chi^2(1) = 10.436$, $p = .001$. Separate linear regressions for the two conditions revealed a negative relation between the moral self-concept and emotion ratings about Not-Sharing, $\beta = -.32$, $t = -3.15$, $p = .002$, Model: $R^2 = .13$, $p = .003$, but no relation with emotion ratings about Sharing, $\beta = .15$, $t = 1.39$, $p = .167$. Social desirability was not significant for the emotion rating in any condition, $ps > .093$. That is, the stronger participant's moral self-concept, the worse they anticipate to feel when not donating anything.

Separate models for the two subscales of the explicit moral self-concept mirror the findings for the overall scale. The full models were a better fit compared to the null models (Internalisation: $\chi^2(3) = 103.58$, $p < .001$; Symbolisation: $\chi^2(3) = 103.31$, $p < .001$), the interaction between the respective moral self-concept and emotion condition was significant (Internalisation: $\chi^2(1) = 7.28$, $p = .007$; Symbolisation: $\chi^2(1) = 8.00$, $p = .005$), and the moral self-concept related negatively to emotion ratings about Not-Sharing (Internalisation: $\beta = -.30$, $t = -2.99$, $p = .004$, Model: $R^2 = .12$, $p = .004$; Symbolisation: $\beta = -.25$, $t = -2.41$, $p = .018$, Model: $R^2 = .09$, $p = .017$), but not to emotion ratings about Sharing (Internalisation: $\beta = .10$, $t = 0.88$, $p = .379$; Symbolisation: $\beta = .16$, $t = 1.49$, $p = .141$). Social desirability did not contribute significantly in any model, $ps > .084$. Internalisation and Symbolisation similarly mark the negative relation between the moral self-concept and anticipated emotions about not-sharing.

When examining the relation between emotional states and sharing behaviour, the full model was a better fit compared to the null model, $\chi^2(3) = 125.11$, $p < .001$. Comparing the full model with a reduced model revealed a marginally significant interaction, $\chi^2(1) = 2.83$, $p = .092$. To account for that, we ran separate linear regressions from sharing behaviour on anticipated emotion ratings for the two emotion conditions (Sharing; Not-Sharing). As hypothesised, the worse participants expected to feel when not donating anything, the less they donated themselves, $\beta = -.57$, $t = -6.50$, $p < .001$. Emotional states anticipated when sharing half also related negatively to sharing behaviour, $\beta = -.25$, $t = -2.37$, $p = .020$.

Results of the parallel mediation analysis are presented in Figure 4. The findings regarding emotions anticipated for not-sharing aligned with the mediation hypothesis: The moral self-concept related to emotions anticipated for not-sharing and to FS behaviour. Emotions anticipated for not-sharing related to FS behaviour as well. Controlling for anticipated emotions regarding not-sharing additionally to social desirability rendered the predictive effect of the self-concept on behaviour non-significant, $\beta = .04$, $p = .681$. Percentile bootstrapping with 10,000 samples revealed a significant mediation effect via anticipated emotions about not-sharing, 95% CI [0.21, 4.82]. For anticipated emotions regarding sharing, the findings revealed no relation with the moral self-concept and thus no indirect mediation effect emerged.

To investigate whether preference for consistency moderates the relation between the moral self-concept and sharing behaviour, we entered the moral self-concept, preference for consistency, and the interaction term of both as predictors in a multiple linear regression on sharing behaviour. The interaction term was not significant, $b = -4.71$, $p = .078$. A simple slope analysis for low, medium and high preference for consistency (-1 SD, mean, $+1$ SD) revealed a significant positive slope for low preference for consistency, $b = 5.33$, $p = .004$ (medium: $b = 3.06$, $p = .091$; high: $b = 0.79$, $p = .754$). This suggests the tendency that the moral self-concept related to sharing behaviour particularly if the preference for consistency is low. However, the non-significant interaction term in the regression model indicates that simple slopes do not differ significantly. Considering only the most relevant subscale exploratively, namely preference for private consistency, revealed no moderating effect either, $b = -1.92$, $p = .351$. Simple slope effects were

Table 5. Correlation matrix of all variables in Experiment 2.

	1	2	3	4	5	6	7
2	.85***	–					
3	.88***	.49***	–				
4	.48***	.46***	.37***	–			
5	.22*	.26*	.12	–.01	–		
6	.15	.09	.16	.10	–.25*	–	
7	–.32**	–.31**	–.24*	–.14	–.57***	.12	–
8	.00	.04	–.04	.04	.08	–.08	–.17

Notes. (1) Explicit moral self-concept; (2) Explicit moral self-concept Internalisation; (3) Explicit moral self-concept Symbolisation; (4) Preference for consistency; (5) Free sharing behaviour; (6) Mean anticipated emotion for sharing; (7) Mean anticipated emotion for not-sharing; (8) Social desirable response tendency. *** $p < .001$; ** $p < .01$; * $p < .05$.

non-significant for low, medium and high preference for private consistency (low: $b = 4.03$, $p = .051$; medium: $b = 2.72$, $p = .154$; high: $b = 1.41$, $p = .593$). Thus, preference for consistency had no effect on the relation between self-concept and behaviour.

Exploratory analyses

As presented in Table 4, both anticipated emotions regarding sharing and not-sharing correlated negatively with sharing behaviour. As in Experiment 1, the negative relation with emotions regarding anticipated sharing stems from those participants, who wanted to give more than half (see Supplemental Material for details).

Discussion

Experiment 2 investigated the role of anticipated emotions and preference for consistency for the

relation between the moral self-concept and prosocial behaviour. As in Experiment 1, the findings support the link between the moral self-concept and behaviour. Additionally, the stronger the moral self-concept, the worse participants expected to feel after not sharing. Both anticipated emotions regarding sharing half and regarding not-sharing correlated negatively with sharing behaviour. The findings thus support the notion that anticipated affective consequences guide behaviour (Eder et al., 2015; Ridderinkhof, 2017). As in Experiment 1, the negative relation between sharing behaviour and emotions about sharing half stems mostly from participants who decided to share on average more than half. Importantly, the anticipated emotions regarding not-sharing mediated the relation between the moral self-concept and prosocial behaviour, thereby corroborating the role of emotions for linking self-concept and behaviour.

The current study did not reveal a moderating effect of preference for consistency on the relation between the moral self-concept and prosocial behaviour. This was also the case if considering only the theoretically most interesting preference for private consistency, supporting the robustness of this result. If at all the study revealed a tendency, it was contrary to what was expected, meaning a positive relation between the moral self-concept and sharing behaviour particularly for low preference for consistency. This finding challenges the classical notion that people with a strong moral identity act accordingly in order to be self-consistent (Blasi, 1983). Interestingly, preference for consistency strongly correlated positively with the moral self-concept. Being consistent therefore might be perceived as moral in itself. In addition, one can distinguish between two types of consistency (Blasi, 1980): Consistency between one's self and one's behaviour versus consistency of one's self or behaviour across situations. While the

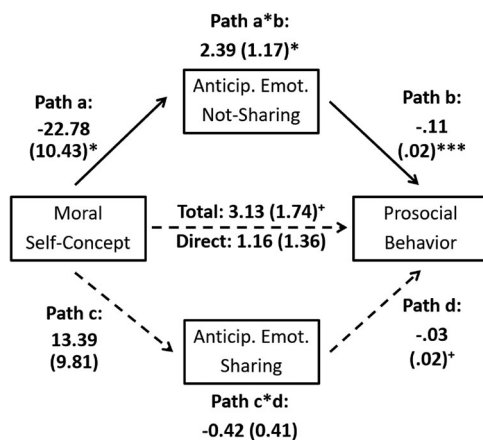


Figure 4. Parallel mediation model for the mediator *anticipated emotions regarding not-sharing* and *anticipated emotions regarding sharing* with regression coefficients. Values in brackets indicate standard errors. Solid arrows indicate significant paths with $p < .05$. $^+p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

theoretical claim on moral identity focuses on the former, the questionnaire employed in this experiment might have tapped into the latter. Future studies with other measures on the preference for self-consistency would be valuable to clarify the role of self-consistency.

Exploratory analyses across experiments

To compare consequential and anticipated emotions regarding prosocial behaviour, we computed analyses across experiments (see Supplemental Material for details). Only emotions regarding sharing differed between experiments, with anticipated emotions regarding sharing being more positive compared to consequential emotions following sharing. The relation between emotion ratings and sharing behaviour was comparable in both experiments.

We decided to use emotion ratings about sharing half and sharing nothing in the mediation analyses in order to have emotion ratings regarding prosocial behaviour that are comparable across participants. However, to account for the reduced autonomy in the predetermined conditions in both experiments, we examined participants' emotions after free sharing behaviour across experiments, since the procedure for these trials was identical: Participants decided how much to share and reported afterwards, how they felt about that decision. Pearson's correlation analysis revealed a positive correlation with sharing behaviour, meaning the more participants decided to share, the better they felt afterwards, $r(168) = 0.34$, $p < .001$. Interestingly, the moral self-concept moderated this relation, $b = .932$, $p = .007$. Simple slope analyses for low, medium and high levels of the moral self-concept (-1 SD, mean, $+1$ SD) revealed significantly positive slopes for a medium, $b = 1.51$, $p < .001$, and high moral self-concept, $b = 2.28$, $p < .001$ (low: $b = 0.74$, $p = .075$). That means, the stronger the moral self-concept, the stronger the relation between the shared amount and positive feelings afterwards.

General discussion

While previous studies provided growing evidence for a relation between the moral self-concept and behaviour (Hertz & Krettenauer, 2016; Jennings et al., 2015), the current study focused on the nature of this relation. The results demonstrate that the moral self-concept, as well as emotional consequences of

sharing, correlate positively with sharing behaviour. In particular emotions following not-sharing and anticipated emotions regarding not-sharing mediated the relation between the moral self-concept and prosocial behaviour. That means, the stronger the moral self-concept, the worse participants felt after not-sharing and expected to feel after not-sharing, and hence the more they shared. The relation between the moral self-concept and prosocial behaviour was independent of participants' preference for consistency. The current findings inform theoretical models on the nature and the psychological mechanisms of the moral self-concept and demonstrate a close interplay between cognitive and emotional processes in human prosocial behaviour.

First of all, in line with our hypotheses and the relevant theories (e.g. Aquino & Reed, 2002; Blasi, 1983; Hardy & Carlo, 2011), the explicit moral self-concept predicted prosocial behaviour in both experiments. In line with previous studies, mostly the internalisation of the moral self-concept, meaning the centrality of moral traits to one's self, promoted this relation (e.g. Aquino et al., 2011; Reed & Aquino, 2003). The study thus contributes to the growing evidence of a positive relation between the moral self-concept and prosocial behaviour.

Emotions regarding actions seem to be intertwined with the self-concept, such that actions not following one's self-concept lead to negative emotions. This pattern is evident for consequential and anticipated emotions and supports theoretical notions on the close interplay between self-concept and emotions (Epstein, 1973; Kunnen et al., 2001). This link is further corroborated by the finding on participants' emotions about their own sharing decision: The stronger the moral self-concept, the better participants felt about sharing more. The consistent findings across experiments resonates with the assumption that anticipated emotions build on previously experienced emotions (Baumeister et al., 2007), although both types of emotions conceptually differ. Emotions after prosocial behaviour might reflect (in-)consistency with one's values, as reflected in the moral self-concept (Blasi, 1999; Sheldon & Elliot, 1999; Tracy & Robins, 2004). Anticipating future emotions is a cognitive process that likely integrates previous affective experiences, but also how important a behaviour is for one's self. The moral self-concept might thus be linked to anticipated emotions through previous experiences or by directly affecting the construction of the anticipated emotion.

Overall, the findings corroborate the notion that prosocial behaviour is more emotionally rewarding for people with a strong moral self-concept.

Importantly, emotions about not-sharing mediated the relation between the explicit moral self-concept and sharing behaviour in both experiments. This supports both associative theories focusing on action outcomes (e.g. De Wit & Dickinson, 2009) and ideomotor approaches (e.g., Ridderinkhof, 2017) on action control. The predominant role of negative emotions about prosocial omissions compared to positive emotions about prosocial action aligns with developmental research on children's moral emotions. In 5- to 9-year-olds, anticipated negative feelings about not-sharing tended to mediate the relation between the moral self-concept and sharing behaviour as well (Christner et al., 2020). In 4- to 12-year-olds, particularly negatively valenced emotions about prosocial omission, not positively valenced emotions in prosocial contexts, explained children's sharing behaviour (Ongley & Malti, 2014). The predominant role of negative emotions suggests guilt avoidance as one mechanism for prosocial action selection (Tangney et al., 2007). Even though our emotion measure did not differentiate between different types of emotions of the same valence, the relation of emotion ratings with the moral self-concept hints to a self-conscious emotion such as guilt. Nevertheless, determining the exact nature of the negative emotional state and replicating these exploratory results remains topic for future research. So far, emotions about omitting prosocial behaviour seem to link the moral self-concept to actual behaviour.

Remarkably, our findings do not show that striving for self-consistency links moral identity to moral action (Blasi, 1983). Preference for consistency did not affect the relation between these two constructs. One could argue that striving for self-consistency might not be a consciously represented motivation, but directly tied to the emotional appraisal in a given situation. Dissonance theory posits that acting inconsistent with oneself leads to an unpleasant state (Aronson, 1969). However, this leaves us with the challenge to find other measures to test peoples striving for self-consistency in order for this to be a testable claim.

Most important findings of the current study build on the explicit measure of the moral self-concept. The moral self-concept IAT, on the other hand, did neither relate to sharing behaviour, nor to emotions experienced after (not-)sharing. Interestingly, also studies with children found no relation between the moral

self-concept IAT and prosocial behaviours (Christner et al., 2020; Sticker et al., 2021). As discussed above, these null findings for the implicit moral self-concept can be explained in reference to dual-process theories (Lapsley & Hill, 2008). Yet, this lack of relations might also be attributable to the limited validity of IAT measures. Recent research identified different processes that cause IAT effects, next to the associations of interest (Meissner & Rothermund, 2013; Mierke & Klauer, 2003; Rothermund & Wentura, 2004). The moral self-concept IAT might thus not solely reflect individuals' associations between themselves and morality. To clarify the role of implicit beliefs in the context of the moral self-concept, it would be interesting to employ alternative measures in future studies that are more suitable to assess propositional beliefs (e.g. De Houwer et al., 2015; Müller & Rothermund, 2019).

The current studies revealed a relation between the explicit moral self-concept and sharing behaviour. We theoretically assume an effect from the moral self-concept to behaviour in a given situation (Hardy & Carlo, 2011), yet, the direction of causality remains open. One could argue that the order of tasks might have affected the moral self-concept assessment. Participants might have inferred their moral self-concept based on their sharing behaviour a moment ago. Yet, the moral self-concept is considered as a relatively stable construct (Blasi, 1983; Walker & Frimer, 2007). This view is supported by previous studies which showed that recalling own moral behaviour does not affect the moral self-concept (Jordan et al., 2011, 2015). It is thus unlikely that the moral self-concept is simply inferred from the sharing behaviour within the same study.

In general, the findings are in line with the theoretical notion that moral goals and own goals are aligned in case of a strong moral self-concept (Colby & Damon, 1992), because not following one's goal is regarded as unpleasant (Sheldon & Elliot, 1999). In addition, the alignment of affective processes with the moral self-concept and the similar effects of experienced and anticipated emotions support the idea of cognitive-affective moral schemas, which allow for a coherent personality and guide reactions to the environment (Lapsley & Narvaez, 2004). Importantly, the findings corroborate the notion that emotions link the moral self-concept to behaviour. What remains open to debate is the question, which processes these emotions reflect. The finding that emotional states linked the moral self-concept to prosocial behaviour strongly suggests that emotions

regarding prosocial omission reflect inconsistencies between behaviour and self-concept (Aronson, 1969; Sheldon & Elliot, 1999). An alternative proposal comes from identity theory, which states that emotions might reflect inconsistency between one's moral identity and how one thinks others perceive oneself in a moral situation (Stets & Carter, 2012). Investigating emotions in prosocial contexts in more detail might help to clarify this point.

Some limitations and open questions have to be noted. In order to assess emotional consequences of sharing, we adopted established measures relying on explicit evaluations of emotional states. It would be valuable to replicate the results with physiological measures of affective consequences, such as reward-related brain activity during sharing tasks (cf. Harbaugh et al., 2007). Additionally, requiring a specific behaviour (Sharing, Not-Sharing) reduced participants' autonomy, which in turn might have rendered their emotional states more negative (Deci & Ryan, 2000). But the reduced autonomy was comparable for both conditions (Sharing, Not-Sharing), thereby allowing us to make comparisons between conditions. Furthermore, we focused exclusively on sharing. Future studies on other forms of prosocial behaviour (helping, comforting) would inform about the generalizability of our results. Developmental theories suggest different domains within prosocial behaviour (Dunfield, 2014; Paulus, 2018). The centrality of each domain and the content of what is considered morally relevant might differ between individuals (Blasi, 1983). Accordingly, emotions would be expected to be related most strongly to the central moral self-concept domains. Finally, as sample sizes were relatively small, replicating these findings in larger samples is desirable.

Overall, the current study adds to research on the importance of the moral self-concept and emotions for prosocial behaviour. It extends previous research by showing that the effect of the moral self-concept on behaviour can be explained by anticipated emotions and emotional consequences of omitting prosocial behaviour. The study thus corroborates the relation between the moral self-concept and prosocial behaviour and deepens our understanding of this link by suggesting a mechanism that might drive this relation.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

Data and analysis script are openly available in the Open Science Framework at [https://osf.io/q7pdm/\(DOI:10.17605/OSF.IO/Q7PDM\)](https://osf.io/q7pdm/(DOI:10.17605/OSF.IO/Q7PDM)).

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