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Contingencies of self-worth and the strength of deontological and utilitarian inclinations

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ABSTRACT

Many studies have tried to understand what makes people adopt deontological or utilitarian inclinations when forming moral judgments or making moral choices. The present research examined the impact of motivational factors: contingencies of people's self-worth on the strength of deontological and utilitarian inclinations. Study 1 found positive correlations between two contingencies of self-worth: basing one's self-worth on being a virtuous, moral person (Virtue) and outperforming others (Competition), and the strength of deontological inclinations and utilitarian inclinations respectively. Studies 2 and 3 found that increasing saliency of Virtue as a source of one's self-worth selectively increased the strength of deontological inclinations, leaving utilitarian inclinations unchanged, while the opposite was true for increasing saliency of Competition as a source of self-worth and the strength of utilitarian inclinations: such priming increased utilitarian inclinations while deontological inclinations remained unchanged.

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Introduction

Deontological and utilitarian inclinations in moral judgment

Considering whether to accept inflicting harm to promote the greater good is the core feature of so-called sacrificial dilemmas. Rejection the active causing of harm despite the fact that such harm would bring about better overall consequences is termed a deontological judgment while accepting harm to maximize overall good consequences is termed a utilitarian judgment (Conway & Gawronski, 2013; Conway et al., 2018; Greene, Nystrom et al., 2004; Greene, 2008). The deontological approach emphasizes the upholding of moral standards, rules and obligations regardless of the costs and benefits of possible actions, while utilitarianism, the best-known form of consequentialism, weighs the costs and benefits of possible courses of action: actions which maximize positive consequences being considered as morally good and/or permissible. It should be emphasized however, that deontological or utilitarian judgments in sacrificial dilemmas are labeled in such a way not because people making those judgments are explicitly committed to philosophical principles, but because they match deontological or utilitarian philosophical principles (see: Conway et al., 2018).

The question of what inclines people to endorse judgments or choices that are consistent with a deontological or utilitarian approach when facing sacrificial dilemmas has stimulated a considerable amount of research. A large body of research has focused on basic, nonsocial processes. Greene and colleagues argued for the dual process model which postulates that decisions to reject harming the innocent derive from affective reactions to harm, whereas decisions to maximize outcomes are driven by cognitive evaluations of outcomes (Greene, Nystrom et al., 2004; Greene, Sommerville et al., 2001). Other theorists reformulated the dual process model (Crockett, 2013; Cushman, 2013) or argued for

sacrificial dilemma judgments reflecting heuristic adherence to moral rules (e.g., Nichols & Mallon, 2006; Sunstein, 2005).

However, recently, a growing number of studies has focused on the role of higher-order social processes, related to the concerns about reputation and self-perception, in judgments of acceptance or rejection of inflicting harm in order to promote better overall consequences. People making deontological judgments or choices are seen as warmer and more trustworthy than those making utilitarian judgments or choices, while those making utilitarian judgments are seen as more competent than those making deontological judgments (e.g., Bostyn & Roets, 2017; Everett et al., 2016; Rom & Conway, 2018; Rom et al., 2017). People not only make the above inferences, but accurately predict reputational consequences of endorsement of deontological or utilitarian judgment in sacrificial moral dilemmas and strategically shift their judgments in dilemmas to match situational demands. Rom and Conway (2018) manipulated whether warmth or competence was favored in a given situation and found that people shifted their public dilemma judgments contingent upon situational demands.

However, people are motivated not only to present themselves positively to other people but also to maintain positive views of themselves, in moral and non-moral domains (e.g., Dunning & McElwee, 1995; Epley & Dunning, 2000). They either act and make choices in a manner enabling them to maintain their positive self-image or undertake actions to enhance their self-image after carrying out behavior which threatens their self-esteem (Jordan et al., 2011). Persons' identities – conceptions about who they are – have motivational force, which is explained by the consistency principle. People are compelled to behave consistently with their identity in order to satisfy the need to be true with themselves. Therefore, their judgments and decisions might be also used strategically to maintain their desired self-image, not only to communicate it to the audience.

In case of a moral identity, we are concerned with a kind of identity that revolves around moral concerns (Blasi, 1984; Reynolds & Ceranic, 2007). The social cognitive perspective to moral identity defines it as the cognitive schemas, behavior scripts, moral values, goals and traits exerting influence on one's behavior (Aquino & Reed, 2002). Building on this perspective, Aquino and Reed (2002) developed a measure of moral identity¹ that is organized around moral traits such as honesty, fairness or kindness. Driven by the consistency principle, the more a person aspires or adopts to moral traits, the more their judgments and behaviors are consistent with those traits.

Conway and Gawronski (2013, 2018; Reynolds et al., 2019) examined the relationship between moral identity and deontological and utilitarian inclinations using internalized identity as a moral person subscale of Aquino and Reed (2002) measure, and process dissociation method.² They found positive correlations between moral identity and both deontological and utilitarian inclinations (Conway & Gawronski, 2013; Conway et al., 2018; Reynolds et al., 2019). Their results were the first evidence of a link between utilitarian inclinations and moral concerns – suggesting that a utilitarian desire to maximize welfare might be a morally motivated inclination, rather than it stemming from better cognitive functioning or a reduced concern for harming people, though the evidence for the latter is substantial (e.g., Bartels & Pizarro, 2011; Byrd & Conway, 2019; Kahane et al., 2015; Patil, 2015).

A different way of measuring the importance of being a moral person to person's self-perception can be found in Crocker and her collaborators' approach of contingencies of self-worth (Crocker et al., 2003; Crocker & Wolfe, 2001). They identify seven (external or internal) domains – sources of self-worth. Apart from: (1) being a virtuous or moral person they list (2) appearance, (3) academic competence, (4) family love and support, (5) God's love, (6) others' approval and (7) defeating others in competition as factors that might influence person's self-esteem. The importance of particular domains for thinking about oneself is evaluated by agreement with general statements and not by rating importance of possessing traits related to that domain. In case of the moral domain, a person indicates agreement with statements such as e.g., "Doing something I know is wrong makes me lose my self-respect" or "Whenever I follow my moral principles, my sense of self-respect gets a boost". Thus, Crocker et al.'s (Crocker et al., 2003; Crocker & Wolfe, 2001) measure of the importance of a person's moral self, not specifying moral principles, seems to be even better suited than Aquino's measure for capturing the relationship between moral identity and utilitarian inclinations, assuming that the principle of maximizing total welfare is interpreted as a moral

urge and not solely as a pragmatic dictate. Moreover, Contingencies of Self-Worth Scale also measures the importance of other – than related to moral identity Virtue – domains that might be relevant for understanding deontological and utilitarian inclinations, particularly Approval from others and Competition.

Since Conway and Gawronski (2013, 2018; Reynolds et al., 2019) showed a positive relationship between the importance of the moral self (moral identity) and both the deontological and utilitarian inclinations, in case of Virtue as a contingency of self-worth, I expected that:

H1: The importance attached to viewing oneself as a moral person (basing one's self-worth on Virtue) would be positively related to the strength of both deontological and utilitarian inclinations.

In turn, basing one's self-worth on outperforming others might be associated with utilitarian inclinations. Outperforming others, defeating them in competitive situations, emphasizes the importance of efficacy in obtaining one's goals for a person's self-esteem as well as focus on self-interest. And there is substantial evidence on the relationship between utilitarian inclinations and traits associated with self-interest such as Machiavellianism and psychopathy. Moreover, having a very competitive approach to interpersonal relations results in a lesser reluctance to undertake actions which violate norms (e.g., cheating in academic contexts; Niiya et al., 2008), and, as such, could be related to the strength of one's utilitarian inclinations, since utilitarian solutions often require violations of norms. Thus, I expected that:

H2: The importance attached to outperforming others (basing one's self-worth on defeating others in competition) would be positively related to the strength of utilitarian inclinations.

Approval from others as a contingency of self-worth requires continual validation from others to maintain positive self-view. People making deontological choices in moral dilemmas enjoy more favorable reputations than those making utilitarian choices, and are preferred as social partners (e.g., Bostyn & Roets, 2017; Capraro et al., 2017; Everett et al., 2016; Sacco et al., 2017). Thus, taking a deontological approach might (independently of other factors) be compelling for people whose self-worth is based on social acceptance and on being perceived as a socially attractive person. On the other hand, not caring about social acceptance might enable people to choose a utilitarian course of action which is better in objective terms but might evoke condemnation and distrust in observers. It is therefore unclear whether basing one's self-esteem on approval from others is positively related to deontological inclinations, negatively related to utilitarian inclinations, or both. Accordingly, this question was currently addressed in an explorative manner.

Overview of the studies

This research aimed at extending current knowledge on the relationship between higher order social factors related to self-perception and the strength of deontological/utilitarian (harm rejection/outcome maximization) inclinations in moral judgments. Earlier studies (Rom & Conway, 2018) showed that the desire to produce a contextually favored impression of a person as either caring or competent results in shifts in public choices in moral dilemmas matching the desired impression. Present studies examined whether one's source of self-worth has an impact on deontological and utilitarian inclinations in moral judgment. In three studies, inclinations were measured using Conway and Gawronski (2013) process dissociation method providing an opportunity to identify impact of a particular contingency of self-worth on deontological or utilitarian inclinations more precisely than it is possible with the traditional measure of deontological/utilitarian judgment. In Study 1, which was correlational, relationship between moral inclinations and importance of the three sources of self-worth, controlling for the three best known predictors of deontological and utilitarian inclinations emotional – Empathy (e.g., Conway & Gawronski, 2013; Gleichgerrcht et al., 2013), Cognitive reflectivity (Byrd & Conway, 2019; Patil et al., 2020) and Gender (e.g., Armstrong et al. 2019; Friesdorf et al., 2015)

was examined. In Study 2, the importance of Virtue or Competition for personal self-worth was manipulated before measuring the strength of deontological and utilitarian inclinations. It examined whether increasing the salience of being moral as a source of one's self-worth increases selectively the strength of deontological inclinations, while increasing the salience of being successful in competing with others as a source of one's self-worth increases selectively the strength of utilitarian inclinations. Study 3, preregistered (<https://osf.io/ytahw>), was confirmatory in nature. It replicated Study 2, examining the impact of increasing salience of Virtue or Competition as a source of self-worth on selective changes in deontological and utilitarian inclinations respectively. Additionally, in the group serving as a control group, correlations between utilitarian and deontological inclinations and contingencies of self-worth and moral identity were analyzed. The results of these three studies revealed that basing one's self-worth of Virtue was associated with the strength of the deontological, while basing one's self-worth on Competition was associated with the strength of utilitarian inclinations. Data and materials for all three studies are available at osf.io/B7D2T.

Study 1

Method

Participants

Out of 196 participants who took part in the first wave of data collection 150 participated in the second wave. From the 150 participants four was excluded for failing a check question. Of the 146 that remained, 61 were male and 85 were female, with mean age = 25.34 years, $SD = 3.05$. The participants were registered members of the Ariadna survey panel³ and received compensation for participation in the study.⁴

Materials and procedure

Deontological and utilitarian inclinations. The strength of deontological and utilitarian inclinations was measured using Conway and Gawronski (2013) process dissociation method. This method uses a set of 20 dilemmas with binary choices between “appropriate” and “inappropriate” to calculate conventionally measured deontological judgment – relative deontological judgment – with higher values representing higher endorsement of deontological solutions and at the same time lower endorsement of utilitarian solutions to the dilemmas,⁵ and process dissociation (PD) parameters – Deontological PD and Utilitarian PD parameters – representing deontological and utilitarian inclinations (for the formulas to calculate the parameters see: Conway & Gawronski, 2013, Online Supplement). The Deontological PD parameter in turn can range between 0 and 1 while the Utilitarian PD parameter can range between – 1 and +1. Thus, direct comparisons between the two parameters are not very informative, and scores require appropriate transformation (e.g., standardization) before direct comparisons are conducted. However, direct comparisons of the two parameters' correlations with individual difference variables are not undermined by the aforementioned parameter metrics (Conway & Gawronski, 2013). It is important to stress that deontological and utilitarian PD parameters are not measuring endorsement of philosophical positions – Deontology or Utilitarianism but rather a tendency to reject actively causing harm, which is argued to align largely with deontological philosophy, and concern for the aggregate outcomes, which is argued to align largely with utilitarian philosophy (Conway et al., 2018).

Emotional empathy was measured with the Empathic Concern (EC) subscale of Davis' (1983) Interpersonal Reactivity Index (IRI) scale. The subscale consists of seven items (e.g., and the internal consistency of the measure was satisfactory, with Cronbach's α having a value of .66 for the present data set. Items, e.g., “I often have tender, concerned feelings for people less fortunate than me”, are answered on a 5-point Likert scale ranging from “does not describe me well” to “describes me very well”. The Empathy score was calculated as the average of responses to 7 items of the scale, with a higher score representing greater emotional empathy.

Cognitive reflection was measured using the Cognitive Reflection Test (Frederick, 2005). The original version, used in the study, consists of three short mathematical puzzles requiring one to think carefully and override an intuitive response (e.g., “A bat and a ball cost 1.10 USD in total. The bat costs 1.00 USD more than the ball. How much does the ball cost?” The intuitive answer is 10 cents, while the correct one is 5 cents). The Cognitive reflection score was the sum of the responses to 3 items of the test, with a higher score indicating a higher level of cognitive reflection.

Contingencies of self-worth. Three subscales from Crocker et al.’s (2003) Contingencies of Self-Worth Scale were used: Approval from others (Approval), being a virtuous and moral person (Virtue), and outperforming others in competition (Competition). Example items from each subscale are as follows: I feel worthwhile when I perform better than others on a task or skill (Competition), Doing something I know is wrong makes me lose my self-respect (Virtue), I can’t respect myself if others don’t respect me (Approval). Items are answered on a 7-point scale ranging from “strongly disagree” and “strongly agree”. Each subscale consisted of five items and had satisfactory internal consistency, with Cronbach’s alphas of .70 for Approval, .80 for Virtue and .82 for Competition for the present data set. The scores for each contingency were calculated as the average of responses to 5 items of the given scale. The higher the score on a given subscale the more a person bases their self-worth on that domain.

Check question. To check attention of the participants a statement “It is better to do good than to do bad” was included among items of Contingencies of Self-Worth Scale. It is a “catch question” from the Moral Foundations Questionnaire (Graham et al., 2011) used to identify those who do not pay attention when answering. Those who disagreed with this statement (responses 1–3 on a 6-point scale where 1 represented strongly disagree) were excluded because of assumed lack of attention or very atypical moral preferences.

Participants completed questionnaires in two steps. First, they completed Conway and Gawronski (2013) dilemmas, and between one and two weeks later they completed the remaining questionnaires: the three subscales from the Contingencies of Self-Worth Scale, the EC subscale of the IRI, and the CRT (in this order).

Results

Traditional analysis

Traditional relative deontological judgment in moral dilemmas was calculated according to Conway and Gawronski (2013) procedure. Deontological judgment scores ($M = 0.44$, $SD = 0.21$) were correlated with deontological (deontological PD parameter, $M = 0.65$, $SD = 0.24$) and utilitarian (utilitarian PD parameter, $M = 0.31$, $SD = 0.21$) inclinations, measured using the process dissociation method ($r = 0.72$, $p < .001$; $r = -0.56$, $p = .001$, respectively), and at the same time PD utilitarian and PD deontological inclinations were uncorrelated with each other ($r = 0.12$, $p = .156$). Traditional relative deontological judgment also correlated negatively with Cognitive reflection ($r = -0.20$, $p = .015$), and positively with Empathy ($r = 0.24$, $p = .004$) and Virtue as a contingency of self-worth ($r = 0.19$, $p = .22$), partially supporting Hypothesis 1.

Hierarchical multiple linear regression analysis was performed with traditional relative deontological judgment as a dependent variable and Gender, Empathy, Cognitive reflection and three sources of self-worth as independent variables. In the analysis, in the first step predictors known from the literature to predict deontological/utilitarian judgment were entered: Empathy, Cognitive reflection (CRT) and Gender,⁶ and in the next steps three contingencies of self-worth – Virtue, Competition and Approval were entered, one at a time.

The model including all predictors was significantly predictive, $F(6,139) = 4.39$, $p < .001$, and explained 12% of the variance in strength of deontological inclinations. As seen in Table 1, adding to the model Virtue in the second step, provided and additional, marginally significant ($p = .089$) 2% variance explanation. Adding in the next step Competition in turn significantly ($p = .013$) increased

Table 1. Summary of the hierarchical regression analysis for variables (Empathy, Cognitive reflection (CRT), and the three contingencies of self-worth) predicting traditional deontological vs. utilitarian judgment, study 1.

	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Empathy	.01	0.00	.20*	.01	0.00	.15[†]	.006	0.00	.11	.01	0.00	.10
CRT	-.03	0.02	-.17*	-.03	0.02	-.18*	-.032	0.02	-.16*	-.03	0.02	-.16*
Gender (1-female)	.05	0.03	.11	.05	0.03	.12	.051	0.03	.12	.05	.03	.12
Virtue				.01	0.00	.14[†]	.013	0.00	.26**	.01	0.00	.26**
Competition							-.011	0.00	-.22**	-.01	0.00	-.23**
Approval										.00	.00	.05
<i>R</i> ² / <i>R</i> ² adjusted		.10/.08			.12/.09			.16/.13			.16/.12	
<i>F</i> for <i>R</i> ² change ²		5.32**			2.93 [†]			6.30*			.40	

[†] $p \leq .09$, * $p = .05$, ** $p = .01$, *** $p \leq .001$; Significant predictors bolded

explained variance by 4% and adding Approval had no effect on the explained variance. Interestingly, Cognitive reflection, but not Empathy, predicted conventionally measured deontological judgment after including the contingencies of self-worth in the analysis.⁷ The strongest predictor of conventionally measured deontological judgment was Virtue. Also, Cognitive reflection and Competition negatively predicted conventionally measured deontological judgment. Thus, the more important being a virtuous person is for one's self-esteem, the lower is one's reflectivity, and the less out-performing others serves as a source of one's self-worth, and the stronger is the endorsement of (conventionally measured) deontological judgment.

PD analysis

Utilitarian inclinations (Utilitarian PD parameter) were correlated positively with Cognitive reflection ($r = 0.34$, $p < .001$) and Competition as a source of self-worth ($r = .20$, $p = .014$). Hierarchical multiple linear regression with Utilitarian PD parameter as a dependent variable and Cognitive reflection, Gender and three sources of self-worth as independent variables was performed. The analyzed model was significantly predictive, $F(5,140) = 5.60$, $p < .001$, and explained 14% of the variance in strength of utilitarian inclinations. Cognitive reflection and Competition were significant predictors of utilitarian inclinations ($\beta = .33$, $p < .001$ and $\beta = .23$, $p = .010$, respectively). Only adding Competition to Cognitive reflection and Gender significantly ($p = .030$) increased explained variance from 11 to 13% (Table 2).

Deontological PD parameter was positively correlated with Empathy ($r = 0.35$, $p < .001$) and Virtue as a contingency of self-worth ($r = 0.28$, $p < .001$). Hierarchical multiple linear regression with Deontological PD parameter as a dependent variable and Empathy, Gender (entered in the first step), and three sources of self-worth (entered in next steps, one at the time) as independent variables was conducted. Adding Competition and Approval did not increase the variance explained. However, the model with all predictors included was significantly predictive, $F(5,140) = 6.67$, $p < .001$, explaining 16% of the variance in strength of deontological inclinations⁸ (Table 3). PD deontological was

Table 2. Summary of the hierarchical regression analysis for variables (Cognitive reflection (CRT), gender and the three sources of self-worth) predicting utilitarian inclinations (Utilitarian PD parameter), study 1.

	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
CRT	.33	0.07	.35***	.31	0.07	.33***	.31	0.07	.33***	.31	0.07	.33***
Gender	.17	0.16	.09	.18	0.16	.09	.19	0.16	.09	.19	0.16	.10
Competition				.04	0.01	.17*	.05	0.02	.23**	.05	0.02	.23**
Virtue							-.03	0.02	-.13	-.03	0.02	-.13
Approval										-.01	.01	-.05
<i>R</i> ² / <i>R</i> ² adjusted		.12/.11			.15/.13			.15/.14			.17/.14	
<i>F</i> for change in <i>R</i> ²		9.79***			4.79*			2.41			.40	

* $p = .05$, ** $p = .01$, *** $p \leq .001$; Significant predictors bolded

Table 3. Summary of the hierarchical regression analysis for variables (Empathy, gender, and the three contingencies of self-worth) predicting deontological inclinations (Deontological PD parameter), study 1.

	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Empathy	.02	0.00	.32***	.02	0.00	.25**	.01	0.00	.23**	.01	0.01	.23**
Gender (1-female)	.09	0.04	.18*	.09	.04	.19*	.09	.038	.19*	.09	.04	.19*
Virtue				.01	0.00	.20*	.01	0.00	.25**	.01	0.00	.25**
Competition							-.00	0.00	-.10	-.00	0.00	-.10
Approval										0.00	0.00	.01
R^2/R^2 adjusted	.15/.14			.18/.17			.19/.17			.19/.16		
<i>F</i> for change in R^2	12.78***			5.83*			1.27			0.02		

* $p = .05$, ** $p = .01$, *** $p \leq .001$; Significant correlations bolded

predicted by three variables. First, replicating earlier results Empathy ($\beta = .23$, $p = .009$) and participant Gender ($\beta = .19$, $p = .017$) predicted PD deontological. Also, Virtue was a significant predictor of deontological inclinations ($\beta = .25$, $p = .009$), and adding this variable in the second step significantly ($p = .017$) increased the explained variance from by 3%. Adding in the next steps Competition and Approval had no statistically significant impact on the explained variance.

Discussion

Replicating the earlier results, conventionally measured relative deontological judgment correlated positively with PD deontological inclinations and negatively PD utilitarian ones. Partially supporting Hypothesis 1, Virtue as a contingency of self-worth predicted deontological inclinations (deontological PD parameter). The importance of being a virtuous, moral person turned out to be unrelated to utilitarian inclinations. This result is in contrast with the results of Conway and Gawronski (2013, 2018). A possible explanation is the difference in the psychologies behind two measurements – the Moral Identity Scale used by Conway and colleagues and the Contingencies of Self-Worth Scale used in the present study. These scales might not be as closely related as it may look at first sight. The latter, referring to self-esteem, pertains to reputational concerns, even though directed to the self. As shown by Rom and Conway (2018), people responding to contextually evoked increase on communal aspect of social perception, showed increased endorsement for deontological judgment. Thus deontological judgment is used to enhance a desired self-image even perhaps in communicating with themselves.

Hypothesis 2 was supported: basing one's self-worth on Competition, outperforming others, was a significant predictor of the strength of utilitarian inclinations (Utilitarian PD parameter). These results, therefore, show that motivational factors – contingencies of self-worth – add some explanatory power in identifying the underpinnings of the endorsement of harm rejection and outcome maximization in moral dilemmas. Moreover, although Virtue and Competition were correlated positively (an effect found in earlier studies – Crocker et al., 2003), they were selectively related to deontological and utilitarian judgment respectively.

Study 2

The main goal of Study 2 was to test whether increasing the salience of basing one's self-worth on being a moral person (Virtue) or on being more efficacious than others (Competition) selectively impacts deontological and utilitarian inclinations, respectively. Study 1 revealed that contingencies of self-worth are significant predictors of the endorsement of deontological and utilitarian judgment, however, the data was correlational. To draw more causal conclusions on the relationships between basing one's self-worth on virtue or competition and the strength of the endorsement of deontological and utilitarian judgment additional evidence is needed. Thus, Study 2 compared the strength of preference of harm rejection and outcome maximization for three groups – one control

group and two, where the relative relevance of Virtue and Competition for person's self-worth was manipulated. In these two groups with manipulation, participants completed a task increasing the salience of a particular contingency of self-worth, either Virtue (basing their self-worth on being a moral person) or Competition (basing their self-worth on being better than others in a competitive situation),⁹ before making choices in Conway and Gawronski (2013) set of 20 moral dilemmas. Of course, what person's self-worth is based on is relatively stable across situations, but reflecting on one's behavior – either virtuous or successful in competitive settings, should, in line with Bem's (1972) self-perception theory, lead to relative (in comparison to dispositional, "default" value) increase in the importance of a particular contingency of self-worth in one's self-evaluations. Since reliance on Virtue (Competition) correlated solely with deontological (utilitarian) judgment, and deontological and utilitarian judgment can be measured as PD parameters, it was hypothesized that increasing the salience of Virtue, as a contingency of one's self-worth, selectively increases their deontological parameter, leaving utilitarian parameter unchanged, while increasing salience of Competition selectively increases utilitarian parameter, leaving the deontological parameter unchanged.

Method

Participants

A group of 109 participants were randomly assigned to one of the three groups (Control, Competition and Virtue), but 11 were excluded from statistical analysis because they failed to complete successfully the first task in the study (4 in the Competition activation manipulation group and 7 in the Virtue manipulation group).¹⁰ Of the 98 remaining participants, 65 were female and 33 were male; mean age = 23.66 years, $SD = 6.43$. They were business school students and their friends and acquaintances, and received no compensation for their participation. There were no significant differences in age, $F(2,97) = 2.70$, $p = .07$ ¹¹ or in frequency of participant gender, $\chi^2(2, N = 95) = 2.08$, $p = .35$, across the three groups.

Materials and procedure

Deontological and utilitarian inclinations. Participants completed Conway and Gawronski (2013) set of 20 dilemmas. Traditional relative deontological judgment score, and PD deontological and PD utilitarian inclinations were calculated, as in Study 1. A group serving as a Control group, completed only Conway and Gawronski's dilemmas, while the second and third groups – Virtue and Competition – completed a manipulation task activating reliance on either virtue or competition as a source of self-worth, before responding to the set of 20 dilemmas. Participants took part in the study voluntarily. They were asked to participate in "a study on social and ethical judgment" at the end of class, to send a link to the study to their university e-mail addresses, and then pass the link on to their acquaintances and invite them to participate in the study. Questionnaires were created in LimeSurvey software.

Results

Traditional analysis

A one-way between-subjects ANOVA was conducted to compare the strength of traditionally measured relative judgment across three conditions: Control, Competition and Virtue. The analysis revealed significant effect of Condition – $F(2,95) = 10.31$, $p < .001$, partial $\eta^2 = .18$. Planned comparisons showed that participants in Competition group scored lower ($M = .32$, $SD = .14$) than participants in Control group ($M = .41$, $SD = .16$) $t(95) = 2.28$, $p = .025$, whereas participants in Virtue group scored higher in traditional deontological judgment ($M = .51$, $SD = .19$) than participants in Control group $t(95) = 2.33$, $p = .019$.

Table 4. Pearson's r correlations between traditional deontological vs utilitarian judgment, utilitarian inclinations (Utilitarian PD parameter) and deontological inclinations (Deontological PD parameter) and means and standards deviations for three groups: control, increased salience of competition and virtue as sources of self-worth, study 2.

	Control (n = 35)			Competition (n = 34)			Virtue (n = 29)		
	1.	2.	M (SD)	1.	2.	M (SD)	1.	2.	M (SD)
1.Traditional deontological judgment			.41 (.16)			.32 (.14)			.51 (.19)
2.Utilitarian PD parameter	-.68**		.30 (.21)	-.70**		.47 (.18)	-.69**		.29 (.19)
3.Deontological PD parameter	.63**	.12	.60 (.17)	.58**	.14	.61 (.21)	.70**	.01	.72 (.19)

** p = .01 (two-tailed); Significant correlations bolded.

PD analysis

As can be seen from Table 4, in all three groups, traditionally measured relative deontological judgment was correlated with Deontological PD parameter (positively) and Utilitarian PD parameter (negatively) and at the same time, both parameters were not correlated with each other, replicating the findings of earlier studies.

To investigate how increasing salience of Virtue and Competition as contingencies of person's self-worth impacts on the strength of a person's deontological and utilitarian inclinations, the two PD parameter scores were standardized and a 2 (Parameter: Utilitarian vs. Deontological) \times 3 (Condition: Control vs. Virtue vs. Competition), mixed model ANOVA with Parameter as a within-subjects factor and Condition as a between-subjects factor was conducted. The analysis revealed significant effect of interaction between Parameter and Condition – $F(2,95) = 9.30$, $p < .001$, $\eta_p^2 = .16$ (see Figure 1). Subsequently, two follow-up between-subjects one-way ANOVAs with planned comparisons were carried out to disentangle

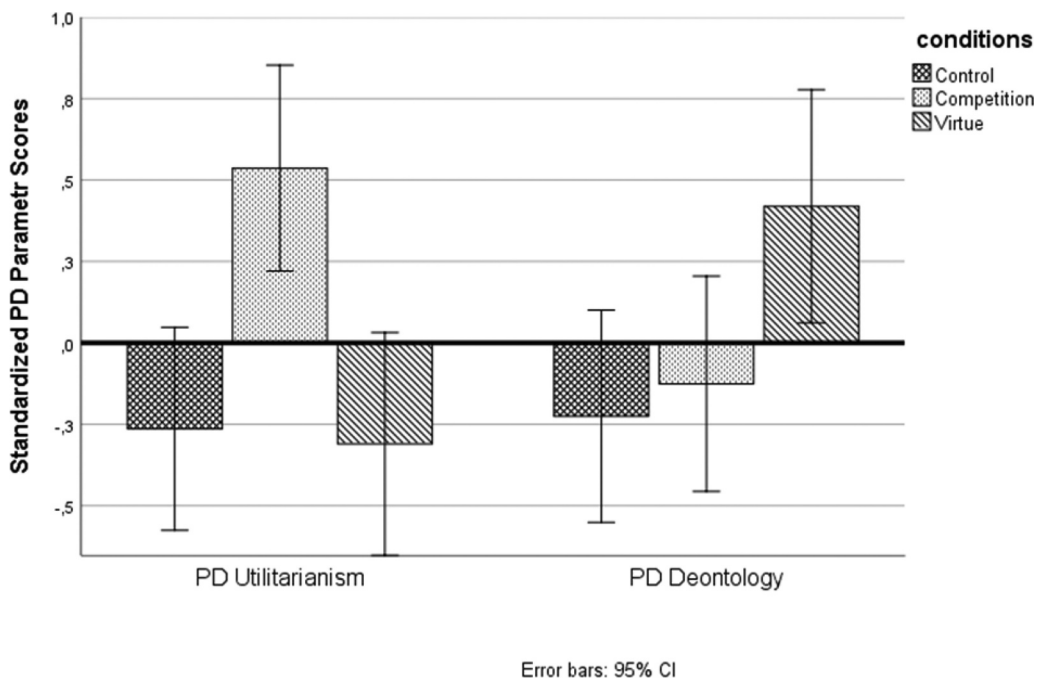


Figure 1. Mean standardized process dissociation (PD) scores on the deontological and utilitarian parameters under increased salience of competition and virtue as contingencies of self-worth and control conditions, study 2.

the interaction, with Deontological and Utilitarian PD parameters as dependent variables. In the case of deontological inclinations one-way ANOVA showed that the effect of Condition was significant, $F(2,95) = 3.93$, $p = .023$, $\eta_p^2 = .08$. Planned comparisons revealed that Deontological PD parameter in the Virtue condition ($M = .42$, $SD = .97$) was higher than in the other two conditions combined, $t(95) = 2.77$, $p = .007$, $M = -.22$, $SD = .88$ for the Control condition, and $M = -.13$, $SD = 1.05$ in the Competition condition. Deontological PD parameter did not differ for the Control and Competition conditions $t(95) = -.43$, $p = .671$. For utilitarian inclinations, the second one-way ANOVA showed significant effect of Condition, $F(2,95) = 8.70$, $p < .001$, $\eta_p^2 = .15$. Planned comparisons revealed that Utilitarian PD parameter was higher in the Competition condition ($M = .54$, $SD = .88$) than in two other conditions combined, $t(95) = 4.17$, $p < .001$, $M = -.26$, $SD = 1.00$ for Control, and $M = -.31$, $SD = .89$ for Virtue. There was no significant difference in Utilitarian PD parameter between the Virtue and Control conditions.

Discussion

In line with Study 1, the strengths of deontological and utilitarian inclinations were related to the contingencies of self-worth. Moreover, the increase in conventionally measured relative deontological judgment in the Virtue primed group was driven by increased deontological inclinations (Deontological PD parameter), with utilitarian inclinations (Utilitarian PD parameter) remaining unchanged. Similarly, in the Competition primed group, a decrease in conventionally measured deontological judgment was driven by an increase in the strength of utilitarian inclinations (Utilitarian PD parameter), with deontological inclinations (Deontological PD parameter) remaining unchanged. Thus, increasing the relative importance of different sources of self-worth selectively affected one type of inclination – either deontological or utilitarian.

Study 3

The aim of the Study 3 was two-fold. First, it was a confirmatory study, examining the relationship found in Study 2, where increasing salience of Virtue or Competition as a source of one's self-worth selectively impacted deontological and utilitarian inclinations respectively. Moreover, it also aimed at exploring, in the group serving as a control to the two experimental groups, the relationship between utilitarian inclinations and importance of one's moral self, measured not only by Contingencies of Self-Worth Virtue subscale but also by Aquino and Reed (2002) Moral Identity Scale.

Method

Participants

Participants were registered members of the Answeo survey panel.¹² A group of 255 participants¹³ was randomly assigned to one of the three groups (Control, Competition and Virtue), resulting in a slightly unequal group division: $n = 93$ in the Control group, $n = 78$ in the Competition group and $n = 84$ in the Virtue group. Out of that group 59 failed the attention check question(s) and were excluded from the analyses.¹⁴ The final sample consisted of 196 participants ($n = 72$ Control group; $n = 60$ Competition group; $n = 64$ Virtue group), of which 95 were male and 101 were female. The mean age was $M = 34.01$, $SD = 11.51$, with no significant age $F(2,193) = 0.554$, $p = .575$, $\eta_p^2 = 0.01$, or gender distribution differences across three groups, $\chi^2(2, N = 196) = 1.95$, $p = .38$. Participants received compensation for participation.¹⁵

Materials and procedure

Deontological and utilitarian inclinations. Conway and Gawronski (2013) set of 20 dilemmas was used to calculate the strength of deontological and utilitarian inclinations. Traditional score of relative deontological judgment (deontological vs utilitarian), and deontological and utilitarian inclinations

measured as PD parameters (Deontological and Utilitarian PD parameters) were calculated the same way as in Study 1 and 2.

Contingencies of self-worth. Three subscales from the Polish adaptation of Crocker et al.'s (2003) Contingencies of Self-Worth were used: Virtue (being a virtuous moral person), Competition (outperforming others in competition) and Approval (approval from others; Wojtaś et al., 2018). The scales had good internal consistency, with Cornbach's $\alpha = .82$ for Virtue and $\alpha = .73$ for Competition for the present data. The scores for Virtue and Competition contingency were calculated as the average of responses to 5 items of a given scale.

Moral identity scale. Polish translation of Aquino and Reed (2002) Moral Identity Scale was used in the study. The scale consists of two subscales: Internalization and Symbolization. Internalization subscale measures the degree to which person's self-concept centers on moral traits. Symbolization measures the degree to which these moral traits are reflected in the person's actions. Internal consistency for two subscales was $\alpha = .64$, and $\alpha = .71$ for Internalization and Symbolization scale respectively. Participants read a list of nine moral traits and rated on a 7-point scale the extent to which they agreed/disagreed with the statements regarding these traits (e.g., "Being someone who has these characteristics is an important part of who I am", Internalization Scale; "The fact that I have these characteristics is communicated to others by my membership in certain organizations", Symbolization Scale). The scores for both scales were calculated as the average of responses to 5 items of a given scale. The higher the score on the MI Internalization the more a person's self-concept centers on moral traits, and the higher the score on the MI Symbolization the more moral traits are reflected in the person's actions.

Attention check questions. A pseudo-dilemma, looking like a dilemma from Conway and Gawronski (2013) dilemma set was placed at the end of that set. In the text of this pseudo-dilemma, participants were told that the present task was checking whether participants in the study read the text carefully before responding, as they were asked in the instructions, and were asked to proceed without answering the question underneath. The question under the pseudo-dilemma was: "Is it appropriate to sometimes check the attention of people participating in internet studies?" Responding to the question indicated that a person did not read the text before choosing the answer. The second attention check question was the same as in Study 1, the "catch question" from MFQ (see p. 9).

Participants assigned to Virtue and Competition groups, before responding to the set of 21 dilemmas¹⁶ completed a task increasing salience of relying on Virtue or Competition as a source of their self-worth ("priming task"), similar to the one used in Study 2.¹⁷ In the Control, group after responding to the dilemma set, participants completed Contingencies of Self-Worth subscales and Moral Identity Scale. Finally they provided demographic information.

Results

Traditional analysis

A one-way between-subjects ANOVA was performed to compare the effect of Condition (Control, Competition and Virtue) on the scores of traditional relative deontological judgment. The analysis revealed significant effect of Condition ($F(2,193) = 14.94, p < .001, \eta_p^2 = .13$), Planned comparisons showed that the scores of traditional relative deontological judgment were lower in Competition ($M = .34, SD = .14$) than in Control group ($M = .40, SD = .17$) $t(193) = 2.01, p = .046$, and higher in Virtue ($M = .50, SD = .17$) than in Control group $t(193) = 3.58, p < .001$.

PD analysis

Replicating the earlier results, the Utilitarian PD parameter and Deontological PD parameter were correlated with traditional deontological judgment and were uncorrelated with each other in all three conditions (Table 5).

Table 5. Pearson’s *r* correlations between traditional score of deontological vs utilitarian judgment, utilitarian inclinations (Utilitarian PD parameter), deontological inclination (Deontological PD parameter), two contingencies of self-worth – virtue, competition and moral identity internalization and symbolization scales in the control group, study 3.

	1	2	3	4	5	6	7
1.Traditional deontological judgment							
2.Utilitarian PD parameter	-.650**						
3.Deontological PD parameter	.786**	-.076					
4.Virtue	.374**	-.069	.468**				
5.Competition	-.260*	.228[†]	-.120	.106			
6.MI Internalization	.103	.071	.180	.472**	.103		
7.MI Symbolization	-.013	-.156	-.161	.170	.210	.070	

†*p* = .06, **p* = .05, ***p* = .01 (two-tailed); Significant correlations bolded.

As in Study 2, to examine how increasing salience of Virtue and Competition as a contingency of person’s self-worth impacts on the strength of deontological and utilitarian inclinations, the two parameter scores were standardized and a 2 (Parameter: Utilitarian vs. Deontological) x 3 (Condition: Control vs. Virtue vs. Competition) mixed model ANOVA with parameter as a within-subjects factor and Condition as a between-subjects factor was conducted. In this analysis, the interaction between Parameter and Condition was significant, $F(2,193) = 13.98$, $p < .001$, $\eta_p^2 = .13$. Subsequently, two follow-up between-subjects one-way ANOVAs with planned comparisons were performed to disentangle the interaction, with the deontological and utilitarian PD parameters as dependent variables. In the case of Deontological PD parameter, the one-way ANOVA showed that the effect of Condition was significant, $F(2,193) = 5.72$, $p = .004$, $\eta^2 = .06$. Planned comparisons revealed that Deontological PD parameter in Virtue condition ($M = .34$, $SD = .90$) was higher than in the other two conditions combined, $t(193) = 3.38$, $p = .001$, $M = -.16$, $SD = 1.05$ for the Control condition, and $M = -.17$, $SD = .97$ for the Competition condition. Deontological PD parameter did not differ for the Competition and Control conditions, $t(193) = -.037$, $p = .971$. For utilitarian PD parameter,

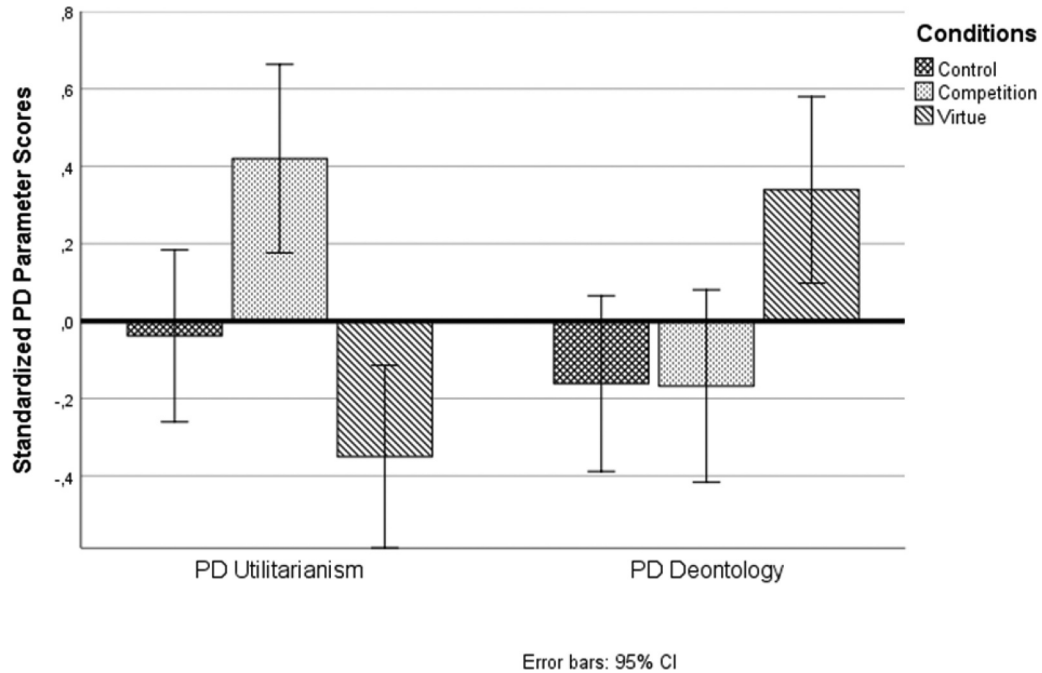


Figure 2. Mean standardized process dissociation (PD) scores on the deontological and utilitarian parameters under increased salience of competition and virtue as contingencies of self-worth and control conditions, study 3.

Table 6. Pearson's r correlations between traditional deontological vs utilitarian judgment, utilitarian inclinations (Utilitarian PD parameter) and deontological inclinations (Deontological PD parameter) and means and standards deviations for three groups: control, increased salience of competition and virtue as sources of self-worth, study 3.

	Control (n = 72)			Competition (n = 60)			Virtue (n = 64)		
	1.	2.	M (SD)	1.	2.	M (SD)	1.	2.	M (SD)
1.Traditional deontological judgment			.40 (.17)			.34 (.14)			.50 (.17)
2.Utilitarian PD parameter	-.650**		.36 (.17)	-.688**		.44 (.17)	-.735**		.31 (.18)
3.Deontological PD parameter	.786**	-.076	.62 (.20)	.639**	.079	.62 (.19)	.629**	.019	.72 (.18)

** p = .01 (two-tailed); Significant correlations bolded.

the second one-way ANOVA showed a significant effect of Condition, $F(2,193) = 10.12$, $p < .001$, $\eta^2 = .09$. Planned comparisons revealed that utilitarian PD parameter in the Competition condition ($M = .42$, $SD = .93$) was higher than in the other two conditions combined, $t(193) = 4.14$, $p < .001$, for Virtue $M = -.35$, $SD = .1.02$, and $M = -.04$, $SD = .92$ for Control. The difference in utilitarian PD parameter between the Virtue and Control conditions was marginally nonsignificant $t(193) = 1.90$, $p = .059$ (Figure 2).

Correlational analysis

As seen in Table 6, and replicating result from Study 1, basing one's self-worth on Virtue was positively correlated with the strength of Deontological PD parameter ($r = .47$, $p < .001$), and basing one's self-worth on Competition was marginally positively correlated with Utilitarian PD parameter ($r = .23$, $p = .06$). Unlike the earlier results of Conway and colleagues (Conway & Gawronski, 2013; Conway et al., 2018; Reynolds et al., 2019) there were no significant correlations between Aquino's Moral Identity Internalization Scale and Deontological PD parameter or utilitarian PD parameter,¹⁸ though the Internalization Scale was positively correlated with Virtue contingency scale ($r = .47$, $p < .001$). Also, different from what is found in the earlier studies (e.g., Aquino & Reed, 2002; Conway & Gawronski, 2013; Conway et al., 2018) the Internalization and Symbolization scales were not significantly correlated.

Discussion

The results of Study 3 confirmed the relationship between basing one's self-worth on being a virtuous person (Virtue) or being better and more successful than others (Competition) with deontological and utilitarian inclinations respectively. Unlike Conway and colleagues' results, no significant relationship was found between moral identity and deontological and utilitarian inclinations. However, the Internalization Scale had relatively low reliability, and was not correlated with Symbolization, hence obtained results have to be interpreted with caution. A better, culturally adapted measurement of moral identity and more research is needed to draw firmer conclusions.

General discussion

The present research contributes to the existing literature by providing evidence that motivational factors related to a person's self-perception – contingencies of a person's self-worth – can also shape the strength of deontological and utilitarian inclinations. The results of these studies showed that basing one's self-esteem on being a virtuous person (Virtue) was associated with the strength of people's deontological inclinations in moral judgment, while basing one's self-esteem on outperforming others (Competition) was associated with the strength of their utilitarian inclinations. Moreover, as the results of Study 1 showed, the impact of

the contingencies of self-worth held even after including the two most important predictors of deontological and utilitarian inclinations – Empathy and Cognitive reflection respectively. In turn, the results of Study 2 and 3 showed that increasing salience of reliance on a particular contingency had a selective impact on the strength of one of the two types of moral inclination: Virtue increased deontological while Competition increased utilitarian inclinations. The results of Study 3 showed no significant positive correlations between moral identity, as measured by the Moral Identity Internalization Scale, and neither deontological nor utilitarian inclinations. However, the Moral Identity Internalization Scale was positively correlated with Virtue as a contingency of self-worth.

In case of relationship between deontological inclinations and Virtue contingency, the research presented here is in line with earlier results on deontological inclinations and the importance of moral self, as measured by Aquino and Reed (2002) Moral Identity Internalization Scale (Conway & Gawronski, 2013; Conway et al., 2018; Reynolds et al., 2019). A person's propensity to choose deontological – based on norms – solutions to moral dilemmas rises with an increase in the importance of seeing oneself as a moral person. Interestingly, opinions about others do not seem to affect the strength of deontological inclinations, since Approval from others, as a source of one's self-worth, was not related to deontological inclinations. Thus, it suggests that even though deontological choices positively affect a person's reputation (e.g., Bostyn & Roets, 2017; Capraro et al., 2017; Everett et al., 2016; Rom & Conway, 2018), and people adjust their choices in moral dilemmas to match situationally expected impression (Rom & Conway, 2018), choosing solutions in line with the deontological principle is not associated with generalized desire for being positively evaluated by others. Instead is driven by more internal motivation of the desire to boost one's self-esteem as a virtuous, moral person living up to personally chosen moral norms.

The present results concerning utilitarian inclinations contrast with earlier results suggesting that the utilitarian outcome maximizing principle has moral roots. Positive correlations between utilitarian inclinations and people's moral identity found in studies by Conway and Gawronski (2013, 2018) implied that utilitarian inclinations are related to moral concerns. In the present study, however, the importance of feeling moral, living up to one's moral standards was unrelated to utilitarian inclinations. This is surprising since the Virtue subscale did not specify any moral principles, and these principles could just involve maximizing total welfare (if a person makes a moral interpretation of this principle). The effect is intriguing and requires further investigation.

There are two important points that need to be taken into account when trying to understand the above results. One relates to the differences in psychologies behind these two measures of the importance of moral self, and the other is related to the impact of culture on the concept of moral identity. Two measures of the importance of the moral self – Virtue contingency and Moral Identity – reflect somewhat different psychologies, hence links between them are not as tight as it may appear at first sight.¹⁹ The Moral Identity Scale used by Conway and his colleagues is based on moral identity as “a self-conception organized around a set of moral traits” (Aquino & Reed, 2002, p. 1424). Consequently, Aquino and Reed (2002) argue that “People's moral identities can vary in content. This means that whereas one person may see being compassionate as central to his or her moral identity, another may emphasize being fair and just” (p. 1424). Such an approach is compatible with the possibility that some moral traits constituting moral identity tone in with the deontological principle while other traits align more with the utilitarian one. For example, being compassionate and caring tone in with harm aversion and as such are associated with a preference for deontological solutions to moral dilemmas, while fair and generous tone in with an impartial concern for the greater good and as such are associated with preference for utilitarian solutions. Since those traits do not exclude each other, people caring deeply about morality may just at the same time be attracted by the merits of both options – deontological and utilitarian – in moral dilemmas and vacillate between them. Still, even the same trait – e.g., fair might be a subject to cultural influences, and as such a potential confound in the relationship between moral identity and deontological/utilitarian inclinations.

The concept of the moral self in the Contingency of Self-Worth Scale is based on the pursuit for a self-image of a person meeting standards set by moral principles. Since lay people tend to evaluate deontological decision makers as warmer, more moral and trustworthy (e.g., Everett et al., 2016; Rom & Conway, 2018; Rom et al., 2017), deontological responses might also be a means to enhance a desired self-image, in order

to build one's self-reputation. Thus, concern for feeling/appearing virtuous should predict increased deontological inclinations and at the same time be unrelated to utilitarian ones. As a result, paradoxically, a measure that is more concrete (referring to specific traits) might be more predisposed to capture the relationship between the importance of a moral self and both deontological and utilitarian inclinations than a measure that is more abstract (referring to unspecified, abstract moral principles, that could include subjective moral principles).

The second important point that has to be taken into account when trying to understand the relationship between moral identity and deontological/utilitarian inclinations in moral judgment, is the fact that the construct of moral identity is culturally biased; it is tied to varying social and cultural obligations (Jia & Krettenauer, 2017). A such moral identity may embrace slightly different values in different cultures. There is some evidence of differences in the construct of moral identity in Western and non-Western cultures (Jia & Krettenauer, 2017; Jia et al., 2019). But even within Western culture some differences might be expected between Protestant and Catholic societies. Productivity and achievement is moralized in Protestantism (the Protestant work ethic) while "(...) cooperation, security, and authority" (Mueller, 1978, p. 143), values are rather associated with rule obedience, which are core values of the Roman Catholic ethic. Thus, since Conway and Gawronski (2013, 2018) found positive correlations between moral identity and utilitarian inclinations in American samples, where the impact of Protestantism on societal values is strong, it may be expected that results in the Polish sample, where the impact of Catholicism is strong, might differ. Still, this possibility is only a speculation, and a lack of significant correlation between deontological inclinations and Moral Identity Internalization Scale as well as a lack of intercorrelation between Internalization and Symbolization Scales, point to the weakness of the measurement of moral identity used in the present study. Firmer conclusions would be possible only with a more reliable measure of moral identity.

Surprisingly, there appear to be no studies analyzing the interrelationship between moral identity, as measured by Aquino and Reed (2002) scale, and basing one's self-worth on being a virtuous, moral person, as measured by Crocker's Contingencies of Self-Worth Scale. Such a comparison would be very informative for understanding relationship between moral self and deontological/utilitarian inclinations.

Utilitarian inclinations turned out to be associated with cognitive reflection, confirming previous results (e.g., Byrd & Conway, 2019; Patil et al., 2020; Royzman et al., 2015), and the Competition (outperforming others in competitive situations) as a contingency of self-worth. The fact the Competition together with cognitive reflection are predictors of utilitarian inclinations offers an interesting hypothesis for understanding the utilitarian mind. These two variables drive the attention to self-interest as a substantial driving force for utilitarian inclinations. Royzman et al. (2015) claim that cognitive reflection is a predictor of moral minimalism: the "tendency to regard utility-optimizing acts as largely a matter of personal prerogative, permissible both to perform and to leave undone" (p. 325). Thus, other factors, emotional and/or motivational, should be responsible for decisions to perform utility-maximizing action. In light of the present research it is the desire to outperform others (among other things, that needs to be stressed) – that makes people willing to perform the most profitable (objectively) but repulsive actions. It seems that such competitive motivation might decrease aversion to breaking norms, perhaps even those concerning the prohibition of harming innocent people. In line with this reasoning, Niiya et al. (2008) have shown that males with competition contingent self-worth were more willing to break norms: to cheat in a laboratory setting. Moreover, competitive motivation as a driving force for utilitarian solutions in moral dilemmas corresponds with previous results showing both psychopathy and Machiavellianism to be associated with utilitarian inclinations (Bartels & Pizarro, 2011). Since there is some evidence of a positive relationship between psychopathy and competitiveness (Ross & Rausch, 2001), it seems worth to examining in future studies whether for example, the relationship between psychopathy (and Machiavellianism) and utilitarian inclinations is mediated by competitiveness. In a similar vein, future studies could also examine how rivalry and competitive mind-sets impact utilitarian inclinations.

Finally, there are different ways of answering the question as to what qualifies as utilitarian judgment – see the five-level taxonomy of Conway et al. (2018) – and, consequently, there are different measures of utilitarian inclinations. This research used only one of these measures: one placing emphasis on the greater good and outcome maximization. However, Kahane et al. (2015) developed the Oxford Utilitarianism Scale

which distinguishes between two utilitarian inclination dimensions: Instrumental Harm and Impartial Beneficence. Using this scale in future research would enable a more nuanced view of how different factors impact upon the endorsement of utilitarian solutions in moral decision making.

Notes

1. The scale consists of two – public (Symbolization) and private (Internalization) – aspects. Symbolization taps the degree to which moral traits are reflected in the respondent's actions in the world, while internalization refers to the degree to which these traits are central to person's self-concept.
2. This method enables deontological and utilitarian inclinations to be calculated both conventionally – as a single dimension with deontological inclinations representing one end of a continuum and utilitarian inclinations representing the other end (thus, the stronger one's deontological inclinations are, the weaker their utilitarian inclinations are, and vice versa) – and as independent parameters (deontological and utilitarian inclinations measured that way are uncorrelated with each other but correlated with conventionally measured inclinations, see: Conway & Gawronski, 2013).
3. The Ariadna survey panel is a Polish research panel with over 80 000 registered Polish responders aged 15–65.
4. They were compensated according to the compensation scheme employed by Ariadna's administrators, namely with points that they could later exchange for rewards in panel's catalog.
5. Conway and Gawronski (2013) battery of dilemmas consists of 10 basic dilemmas presented in two versions: congruent and incongruent. Incongruent dilemmas pit deontological concerns about causing harm against utilitarian concerns about maximizing overall good consequences. In congruent dilemmas, harmful action is unappealing from deontological perspective and at the same time not justified (or very hard to justify) on utilitarian grounds. Choices in incongruent dilemmas set serve as an index of the relative, bipolar measure of deontological/utilitarian judgment. In other, words, bipolar traditional score of deontological vs. utilitarian judgment is a proportion of “inappropriate” responses on 10 incongruent dilemmas. This measure is relative because stronger endorsement of deontological judgment (more choices of solutions that align with deontological principle in the dilemma set) reflect at the same time weaker endorsement of utilitarian judgment.
6. Several studies have reported significant gender differences in strength of deontological inclinations, and such a difference was presently observed. There was a significant difference in the strength of both types of deontological inclinations: measured conventionally $p = .038$, and with the process dissociation method (deontological PD parameter) $p = .007$, with females being significantly more deontological than males. There was no gender difference in the strength of utilitarian inclinations ($p = .662$), but women also had higher scores than men on Empathic Concern ($p = .031$). The gender difference in cognitive reflection was only marginally non-significant ($p = .090$), with men having slightly higher CRT scores. No significant gender differences were observed in the contingencies of self-worth (all p s $> .345$).
7. Additional analysis showed that gender was a significant predictor of conventionally measured deontological inclinations, but the effect was fully mediated by empathy.
8. In this study and a previous study (Byrd & Conway, 2019), Cognitive reflection was uncorrelated with the Deontological PD Parameter. Therefore it was not included in the analysis.
9. In a manipulation check study (a separate study, part of another project), 54 participants (not taking part in Study 2) completed three tasks. First, they completed Scales Measuring Agency and Communion, by Wojciszke and Szlendak (2010), measuring their self-perceptions on two basic dimensions of social perception (agency and communion), then either Virtue ($n = 25$) or Competition ($n = 29$) manipulation task, and finally three subscales from Contingencies of Self-Worth Scale: Virtue, Competition and Approval from Others (Crocker & Wolfe, 2001). In the Virtue/Competition manipulation task, participants were asked to recall three situations from their life when they: (1) had chosen to act in accordance with their moral standards instead of taking a less ethical, easier way (Virtue priming) or; (2) had performed better than other people (Competition priming). After recalling the three situations, they were asked to describe one of them more thoroughly, so somebody reading the description could sense how they felt in that situation. Nine participants were excluded for not following the instructions of the priming task (6 in Virtue and 3 in Competition primed group). Not following the instructions meant writing “I don't remember/I don't know”, providing general reflections without any reference to their personal experience, describing situations of luck (winning a lottery) or group activities without showing how individual contribution of the participants was responsible for the final results.
10. The exclusion criteria were similar to those employed in the manipulation check study. Thus, failing to complete the task activating salience of Virtue or Competition as a source of self-worth meant writing “I don't remember/I don't know”, writing general reflections instead of describing particular events/situations, providing incomprehensible descriptions or listing and describing situations of luck or group successful activities.
11. The value of p was nearly significant, with participants in the Virtue manipulation group being slightly older ($M = 25.86$ years, $SD = 7.17$) than in the Competition manipulation group ($M = 22.24$ years, $SD = 5.87$) and

Control group ($M = 23.23$ years, $SD = 5.99$). However participants in neither the Virtue nor Competition manipulation group differed significantly from the Control group, $t(62) = 1.60$, $p = .11$, and $t(67) = .70$, $p = .49$, respectively.

12. The Answeo survey panel is a newly established Polish research panel with over 7 000 registered Polish participants.
13. In order to obtain small size effects ($f = 0.20$) with 95% power in 2×3 repeated measures, within-between interaction ANOVA, ($\alpha = .05$, correlations among repeated measures $= .1$, non-sphericity correction $= 1$) required sample would be 177. Thus, conservatively the final sample was set at 255.
14. The exclusion criteria were as follows: (1) similarly to Study 2, not conforming with an instruction to provide a description of experiences in the tasks increasing the saliency of Virtue or Competition as a source of self-worth; (2) not providing a correct response to the pseudo-dilemma that served as an attention check question; (3) spending less than one minute on the manipulation task. Additionally, the catch question from MFQ was placed among Contingencies of Self-Worth subscale items (only one person failed this question). All the participants that were excluded failed the pseudo-dilemma attention check question. Among these, five also failed to provide a satisfactory description of their experience during the manipulation task, one also failed the MFQ attention check question. Responses times were not registered due to an error in LimeSurvey settings, thus exclusion was based solely on two criteria described above: responses to attention check questions and not responding properly on the task increasing the saliency of Virtue or Competition as a source of self-worth.
15. They received equivalent of \$ 0.80 for completing the study and \$ 2 after assessment of their response quality. Information about "response quality assessment" aimed at encouraging participants to read all the materials before responding, to avoid distractors while answering, and to put some effort to provide the description of their experience in the task increasing saliency of Virtue or Competition as a source of one's self-worth. They were informed that if they did not provide any examples of their experiences (answering "don't remember" or "don't know"), or did not describe one of their experiences, they would be not paid additional money.
16. This consisted of 20 dilemmas from Conway and Gawronski (2013) and one pseudo-dilemma at the end of the set, as an attention check question.
17. There was a small difference in wording in the instructions in Study 2 and 3, aimed at increasing participants involvement in this task, keeping in mind financial motivation for participation in the study, which was not the case in Study 2. In Study 2 they were asked to list 3 instances of virtuous or successful behavior. In Study 3 they were asked to list 2–3 examples of such behavior but were also asked to leave the study if they cannot remember such situations since not responding to all tasks in the study excludes their results from planned analyses. Additionally, they were asked to try to provide at least 4 sentences when describing their experience in detail (part 2 of the priming task).
18. Actually, in the case of PD Deontology, no significant correlation was found between this parameter and MI Internalization, while PD Utilitarian was positively correlated with MI Internalization in a sample including all participants, but this relationship ceased to be significant for the reduced sample. However, contrary to other studies, scores on the MI Internalization and MI Symbolization scales were not significantly correlated for either the whole or the reduced sample.
19. I am grateful for the Reviewer for bringing my attention to this way of thinking.

Notes on contributor

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Data availability statement

The data described in this article are openly available in the Open Science Framework at <https://osf.io/b7d2t/>

Open scholarship



This article has earned the Center for Open Science badges for Open Data, Open Materials and Preregistered. The data and materials are openly accessible at <https://osf.io/b7d2t/>

References

- Aquino, K., & Reed, A., II. (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology*, 83(6), 1423–1440. <https://doi.org/10.1037/0022-3514.83.6.1423>
- Armstrong, J., Friesdorf, R., & Conway, P. (2019). Clarifying gender differences in moral dilemma judgments: the complementary roles of harm aversion and action aversion. *Social Psychological and Personality Science*, 10(3), 353–363. <https://doi.org/10.1177/1948550618755873>
- 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. <https://doi.org/10.1016/j.cognition.2011.05.010>
- Bem, D. J. (1972). Self-perception theory. *Advances in experimental social psychology*, 6, 1–62. [https://doi.org/10.1016/S0065-2601\(08\)60024-6](https://doi.org/10.1016/S0065-2601(08)60024-6)
- Blasi, A. (1984). Moral identity: Its role in moral functioning. In W. Kurtines & J. Gewirtz (Eds.), *Morality, moral behavior and moral development* (pp. 128–139). Wiley.
- Bostyn, D. H., & Roets, A. (2017). Trust, trolleys and social dilemmas: A replication study. *Journal of Experimental Psychology. General*, 146(5), e1–e7. <https://doi.org/10.1037/xge0000295>
- Byrd, N., & Conway, P. (2019). Not all who ponder count costs: Arithmetic reflection predicts utilitarian tendencies, but logical reflection predicts both deontological and utilitarian tendencies. *Cognition*, 192(May), 103995. <https://doi.org/10.1016/j.cognition.2019.06.007>
- Capraro, V., Sippel, J., Zhao, B., Hornischer, L., Savary, M., Terzopoulou, Z., Faucher, P., & Griffioen, S. F. (2017). *Are Kantians better social partners? People making deontological judgments are perceived to be more prosocial than they actually are*. SSRN. Retrieved November 16, 2017, from <https://ssrn.com/abstract=2905673>.
- 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. <https://doi.org/10.1037/a0031021>
- Conway, P., Goldstein-Greenwood, J., Polacek, D., & Greene, J. D. (2018). Sacrificial utilitarian judgments do reflect concern for the greater good: Clarification via process dissociation and the judgments of philosophers. *Cognition*, 179 (October 2018), 241–265. <https://doi.org/10.1016/j.cognition.2018.04.018>
- Crocker, J., Luhtanen, R., Cooper, M. L., & Bouvrette, S. A. (2003). Contingencies of self-worth in college students: theory and measurement. *Journal of Personality and Social Psychology*, 85(5), 894–908. <https://doi.org/10.1037/0022-3514.85.5.894>
- Crocker, J., & Wolfe, C. T. (2001). Contingencies of self-worth. *Psychological Review*, 108(3), 593–623. <https://doi.org/10.1037/0033-295X.108.3.593>
- Crockett, M. J. (2013). Models of morality. *Trends in Cognitive Sciences*, 17(8), 363–366. <https://doi.org/10.1016/j.tics.2013.06.005>
- Cushman, F. (2013). Action, outcome, and value a dual-system framework for morality. *Personality and Social Psychology Review*, 17(3), 273–292. <https://doi.org/10.1177/1088868313495594>
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113–126. <http://dx.doi.org/10.1037/0022-3514.44.1.113>
- Dunning, D., & McElwee, R. O. B. (1995). Idiosyncratic trait definitions: Implications for self-description and social judgment. *Journal of Personality and Social Psychology*, 68(5), 936. <https://doi.org/10.1037/0022-3514.68.5.936>
- Epley, N., & Dunning, D. (2000). Feeling “holier than thou”: Are self-serving assessments produced by errors in self- or social predictions? *Journal of Personality and Social Psychology*, 79(6), 861–875. <https://doi.org/10.1037/0022-3514.79.6.861>
- Everett, J. A., Pizarro, D. A., & Crockett, M. J. (2016). Inference of trustworthiness from intuitive moral judgments. *Journal of Experimental Psychology. General*, 145(6), 772. <https://doi.org/10.1037/xge0000165>
- Frederick, S. (2005). Cognitive reflection and decision making. *Journal of Economic Perspectives*, 19(4), 25–42. <https://doi.org/10.1257/089533005775196732>
- Friesdorf, R., Conway, P., & Gawronski, B. (2015). Gender differences in responses to moral dilemmas. *Personality & Social Psychology Bulletin*, 41(5), 696–713. <https://doi.org/10.1177/0146167215575731>
- Gleichgerricht, E., Young, L., & Gray, M. (2013). Low levels of empathic concern predict utilitarian moral judgment. *PloS One*, 8(4), 1–9. <https://doi.org/10.1371/journal.pone.0060418>
- Graham, J., Nosek, B. A., Haidt, J., Iyer, R., Koleva, S., & Ditto, P. H. (2011). Mapping the moral domain. *Journal of Personality and Social Psychology*, 101(2), 366–385. <https://doi.org/10.1037/a0021847>
- Greene, J. D. (2008). The secret joke of Kant’s soul. In W. Sinnott-Armstrong (Ed.), *Moral psychology*, Vol. 3: The neuroscience of morality: Emotion, brain disorders, and development (pp. 35–80). Cambridge, MA: MIT Press.
- 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. <https://doi.org/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. <https://doi.org/10.1126/science.1062872>
- Jia, F., & Krettenauer, T. (2017). Recognizing moral identity as a cultural construct. *Frontiers in Psychology*, 8, Article 412. <https://doi.org/10.3389/fpsyg.2017.00412>
- Jia, F., Krettenauer, T., & Lihong, L. (2019). Moral identity in cultural context: Differences between Canadian and Chinese university students. *Journal of Moral Education*, 48(2), 247–262. <https://doi.org/10.1080/03057240.2018.1499504>
- Jordan, J., Mullen, E., & Murnighan, J. K. (2011). Striving for the moral self: The effects of recalling past moral actions on future moral behavior. *Personality & Social Psychology Bulletin*, 37(5), 701–713. <https://doi.org/10.1177/0146167211400208>
- Kahane, G., Everett, J. A., 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(January 2015), 193–209. <https://doi.org/10.1016/j.cognition.2014.10.005>
- Mueller, G. H. (1978). The protestant and the Catholic ethic. *Annual Review of the Social Sciences and Religion*, 2, 143–166.
- Nichols, S., & Mallon, R. (2006). Moral dilemmas and moral rules. *Cognition*, 100(3), 530–542. <https://doi.org/10.1016/j.cognition.2005.07.005>
- Niiya, Y., Ballantyne, R., North, M. S., & Crocker, J. (2008). Gender, contingencies of self-worth, and achievement goals as predictors of academic cheating in a controlled laboratory setting. *Basic and Applied Social Psychology*, 30(1), 76–83. <https://doi.org/10.1080/01973530701866656>
- Patil, I. (2015). Trait psychopathy and utilitarian moral judgement: The mediating role of action aversion. *Journal of Cognitive Psychology*, 27(3), 349–366. <https://doi.org/10.1080/20445911.2015.1004334>
- Patil, I., Zucchelli, M., Wouter, K., Campbell, S., Fornasier, F., Calò, M., Silani, G., Cikara, M., & Cushman, F. (2020). Reasoning supports utilitarian resolutions to moral dilemmas across diverse measures. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/pspp0000281>
- Reynolds, C. J., Knighten, K. R., & Conway, P. (2019). Mirror, mirror, on the wall, who is deontological? Completing moral dilemmas in front of mirrors increases deontological but not utilitarian response tendencies. *Cognition*, 192 (November 2019), 103993. <https://doi.org/10.1016/j.cognition.2019.06.005>
- Reynolds, S. J., & Ceranic, T. L. (2007). The effects of moral judgment and moral identity on moral behavior: An empirical examination of the moral individual. *Journal of Applied Psychology*, 92(6), 1610–1624. <https://doi.org/10.1037/0021-9010.92.6.1610>
- Rom, S. C., & Conway, P. (2018). The strategic moral self: Self-presentation shapes moral dilemma judgments. *Journal of Experimental Social Psychology*, 74(January 2018), 24–37. <https://doi.org/10.1016/j.jesp.2017.08.003>
- Rom, S. C., Weiss, A., & Conway, P. (2017). Judging those who judge: Perceivers infer the roles of affect and cognition underpinning others’ moral dilemma responses. *Journal of Experimental Social Psychology*, 69(March 2017), 44–58. <https://doi.org/10.1016/j.jesp.2016.09.007>
- Ross, S. R., & Rausch, M. K. (2001). Psychopathic attributes and achievement dispositions in a college sample. *Personality and Individual Differences*, 30 (3), 471–480. [https://doi.org/10.1016/S0191-8869\(00\)00038-6](https://doi.org/10.1016/S0191-8869(00)00038-6)
- Royzman, E. B., Landy, J. F., & Leeman, R. F. (2015). Are thoughtful people more utilitarian? CRT as a unique predictor of moral minimalism in the dilemmatic context. *Cognitive Science*, 39(2), 325–352. <https://doi.org/10.1111/cogs.12136>
- Sacco, D. F., Brown, M., Lustgraaf, C. J. N., & Hugenberg, K. (2017). The adaptive utility of deontology: Deontological moral decision-making fosters perceptions of trust and likeability. *Evolutionary Psychological Science*, 3(2), 125–132. <https://doi.org/10.1007/s40806-016-0080-6>
- Sunstein, C. R. (2005). Moral heuristics. *Behavioral and Brain Sciences*, 28(4), 531–541. <https://doi.org/10.1017/S0140525X05000099>
- Wojciszke, B., & Szlendak, M. A. (2010). Skale do pomiaru orientacji sprawczej i wspólnotowej. *Psychologia Społeczna*, 1 (13), 57–70. <http://czasopismo.badania.net/articles/wojciszke-b-szlendak-m-2010-scales-measuring-agency-and-communion/>
- Wojtaś, M., Zawadzka, A. M., & Szabowska-Walaszczyk, A. (2018). Polska adaptacja Kwestionariusza Obszarów Zależności Wartości Ja (CSWS-PL). *Polskie Forum Psychologiczne*, 23(4), 672–692. <http://psjd.icm.edu.pl/psjd/element/bwmeta1.element.psjd-44eece83-9349-4ca3-a2c9-8d9f28050e65>