



## Empathy for the group versus indifference toward the victim: Effects of anxious and avoidant attachment on moral judgment



Jeffrey S. Robinson <sup>\*</sup>, Samantha Joel, Jason E. Plaks

Department of Psychology, University of Toronto, Canada

### HIGHLIGHTS

- Attachment anxiety and attachment avoidance predict utilitarian moral judgments.
- Anxiously attached individuals make utilitarian judgments for more 'pro-group' reasons and act out of a need to belong and a focus on the welfare of the group as a whole.
- Avoidantly attached individuals make utilitarian judgments because they lack empathy for the victim, which originates in a discomfort in caring for others.
- Anxiously attached individuals modify their moral judgments to match the desires of the group.

### ARTICLE INFO

#### Article history:

Received 29 May 2014

Revised 29 September 2014

Available online 6 October 2014

#### Keywords:

Moral judgment  
Attachment  
Utilitarianism  
Deontology

### ABSTRACT

Research on deontological versus utilitarian moral reasoning has been largely silent on how interpersonal experiences shape moral judgment. We hypothesized that both anxious and avoidant attachment would predict the propensity to make utilitarian versus deontological judgments, but via different pathways. In Studies 1 and 2, the link between anxious attachment and utilitarianism was mediated by the need to belong and empathy toward the group. In contrast, the link between avoidant attachment and utilitarianism was mediated by discomfort with caring for others and decreased empathy toward the individual victim. In Study 3, the moral judgments of anxiously attached individuals changed to more closely match the group's desired outcome: utilitarian or deontological. In contrast, the judgments of avoidantly attached individuals moved in opposition to the desire of the group. The distinct paths to utilitarianism displayed by anxious and avoidant individuals suggest that utilitarianism may result from a diverse set of psychological processes.

© 2014 Elsevier Inc. All rights reserved.

Should moral decisions be guided by adherence to certain universal rules or by the aim to maximize benefit for the greatest number of people? This tension between deontological (Kant, 1959/1785) and utilitarian (Mill, 1998/1861) moral philosophies is exemplified by dilemmas in which participants must indicate whether they find it morally acceptable to kill one person in order to save the lives of multiple others (e.g., Foot, 1967; Thomson, 1985).

Much of the recent research on deontological/utilitarian reasoning has focused on the differential roles of emotional versus cognitive processes. Neurophysiological studies have linked deontological judgment with higher activity in brain regions implicated in emotionality (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Koenigs et al., 2007). Other studies have linked utilitarian judgments with increased activation in brain regions implicated in reasoning (Greene, Morelli,

Lowenberg, Nystrom, & Cohen, 2008; Greene et al., 2001), working memory capacity, (Moore, Clark, & Kane, 2008), and rational (Bartels, 2008; Paxton, Ungar, & Greene, 2011) and/or deliberate (Suter & Hertwig, 2011) styles of thinking.

More recent research has begun to refine the prevailing dual-process model. For example, Conway and Gawronski (2013) demonstrated that people may arrive at utilitarian judgments via 1) endorsement of the utilitarian position or 2) rejection of the deontological position. A parallel may be drawn for deontological judgments. The present studies build on this idea by identifying a well-studied, individual difference variable that predicts a priori who will follow one of two routes to utilitarian judgment.

In addition, whereas much of the early work in this literature was largely silent regarding the interpersonal or relational dimensions of moral judgment, researchers have increasingly argued for the need to place moral perceivers within their broader social context. For example, studies have demonstrated that individuals' moral beliefs are heavily influenced by their surrounding culture (Graham et al., 2013; Rai & Fiske, 2011; Shweder, Mahapatra, & Miller, 1987).

<sup>\*</sup> Corresponding author at: Department of Psychology, University of Toronto, 100 St. George St. 4th Floor, Toronto, ON M5S3G3, Canada.

E-mail address: [jeff.robinson@mail.utoronto.ca](mailto:jeff.robinson@mail.utoronto.ca) (J.S. Robinson).

More recently, Koleva, Selterman, Iyer, Ditto, and Graham (2014) identified an important *interpersonal* variable that may also play an important role in moral judgment: attachment style. They reported that anxiously attached individuals show greater preoccupation with issues of harm, fairness, and purity, while avoidantly attached individuals show a lack of concern for harm and fairness violations. In addition, the authors found that higher attachment avoidance predicted a greater tendency to make utilitarian judgments, an effect that was mediated by lower trait empathy. Of particular interest to the current research, Koleva et al. (2014) also reported (in a table) that attachment anxiety predicted greater utilitarian judgment. They did not, however, discuss this association any further.

The present research brings this link between anxious attachment and utilitarianism to the forefront. We argue that by examining and comparing how *both* forms of insecure attachment influence moral judgment, one can elucidate 1) how interpersonal experiences influence moral judgment and 2) begin to isolate distinct varieties of lay utilitarianism.

We suspected that attachment anxiety would predict utilitarian judgment through a different route than that of attachment avoidance. In particular, we hypothesized that whereas avoidant participants would select the utilitarian option out of lack of concern for the sacrificed individual, anxious participants would select the utilitarian option in order to maximize social approval. We turn next to the rationale for this hypothesis.

### The interpersonal roots of moral judgment

Whereas much of the moral judgment literature has treated the moral decision maker as an isolated entity, there is evidence from both classic and recent sources that individuals' moral judgments are meaningfully shaped by their history of interpersonal relationships (e.g., Kogut & Kogut, 2013; Koleva et al., 2014; Turiel, 1983). Why might this be the case? Theorists have long noted that moral values are not only beliefs about how we ought to act toward others but also *expectations about how others will act toward us* (Kohlberg, 1969; Turiel, 1983). Given that a fundamental source of interpersonal behavioral expectations is each individual's history of secure or insecure interpersonal relationships (Bowlby, 1969), there may be a strong connection between attachment style and moral reasoning.

According to attachment theory, early attachment-related experiences with caregivers teach children important lessons about how to relate to close others (e.g., Bowlby, 1969; Zayas, Mischel, Shoda, & Aber, 2011). Those lessons are, in turn, applied to adult relationships later in life (e.g., Mikulincer & Shaver, 2007). Caregivers who are consistently available and attentive teach the child that close others can be relied upon in times of need. This results in a secure attachment style in adulthood, characterized by a tendency to trust and rely on others (Hazan & Shaver, 1987). Caregivers who provide care inconsistently or insensitively teach the child that close others are not reliably available for care. These uncertain models of self and other translate into an anxious attachment style in adulthood, characterized by excessive dependence on close others. Finally, caregivers who are absent or punishing of the child's demands for reassurance teach the child that relying on others is futile at best, and dangerous at worst. These negative models of self and other translate to an avoidant attachment style in adulthood, characterized by a discomfort with closeness with others.

Considerable evidence suggests that adult attachment represents a fundamental lens that helps to shape people's construal of the actions of others (Mikulincer & Shaver, 2007). As such, attachment style appears to play an important role in shaping people's moral perspectives. Attachment style has been found to predict a wide range of morally-relevant behavior, including lying to others (e.g., Ennis, Vrij, & Chance, 2008), volunteering for non-profit organizations (e.g., Gillath et al., 2005), and selling one's material possessions (Kogut & Kogut, 2011). It

follows that attachment style may also help to explain people's differing perspectives on utilitarian moral dilemmas.

### Different paths to utilitarianism

When presented with a utilitarian dilemma, the decision maker is asked to choose between killing versus not killing one person in order to save a group. We propose that there are two distinct paths through which one could reach the utilitarian decision of killing the person to save the group. One such path is through lack of concern for the individual being sacrificed. If the decision maker does not feel particularly moved by the plight of the would-be sacrificed individual, then he or she may be more willing to sacrifice that individual in exchange for the greater good. However, a second path to the utilitarian conclusion is through a heightened concern for the group. Decision makers could choose to sacrifice an individual not because they lack empathy for that individual, but because their concern for the wellbeing of the group outweighs their concern for the single individual. We discuss next how attachment style may relate to each of these pathways.

### Avoidant attachment

Koleva et al. (2014) found that avoidant attachment was associated with higher utilitarian judgment and that this effect was mediated by lower trait levels of empathic concern. One purpose of the present paper was to unpack this association by asking *toward whom* do avoidantly attached individuals lack empathy?

Avoidantly attached people are deeply uncomfortable with having others rely on them: being asked to care for another person threatens avoidantly attached individuals' strong need for independence and autonomy (Shaver, Mikulincer, & Shemesh-Iron, 2010). As a result, avoidantly attached individuals are relatively unwilling to provide comfort and support to their romantic partners, particularly when their partners are in a state of distress (Feeney & Collins, 2001). We suggest that this tendency applies beyond romantic contexts; encountering *any* individual in distress is a threatening situation for avoidant individuals.

The 'victim' in a utilitarian dilemma represents a particularly vivid case of an individual in distress. Thus, we predict that, due to their discomfort with caregiving, people who are high in avoidance will display less empathy for the victim than will people who are low in avoidance. Similar effects have been documented for participants who were high in Machiavellianism and psychopathy (Bartels & Pizarro, 2011; Koenigs, Kruepke, Zeier, & Newman, 2012). However, because groups are more abstract targets than individuals (Lickel et al., 2000) and groups generally elicit less empathy than do individuals (Cameron & Payne, 2011; Slovic, 2007), the difference between high and low avoidant participants will be less evident for group targets than for individual targets. Taken together, we predict that because high avoidants display less empathy than low avoidants for the victim, but similar levels of empathy for the group, high avoidants will show a greater preference than low avoidants for the option that favors the group over the victim.

### Anxious attachment

Koleva et al. (2014) further found a positive association between attachment anxiety and utilitarianism. A second purpose of the present research was to unpack this association to understand why anxiously attached individuals would be drawn to utilitarian judgments. Unlike avoidantly attached individuals, anxiously attached individuals are not threatened by the prospect of giving care to others (Shaver et al., 2010). Therefore, it seems unlikely that anxiously attached individuals prefer utilitarian judgments because they lack empathy for the person being sacrificed. Rather, we hypothesized that anxiously attached individuals choose the utilitarian option because (relative to both avoidant

people and secure people) they experience *heightened* empathy for the group.

Anxiously attached individuals crave approval, connection, and reassurance from others, but are uncertain that they will receive it (e.g., Feeney & Noller, 1990; Rom & Mikulincer, 2003). This uncertainty fosters a strong need to belong and motivates continual efforts to gain the approval of others, including a greater willingness to comply with others' requests (e.g., Impett & Peplau, 2002). In a group context, the best way to gain widespread acceptance would be to conform to the desires of the group as a whole, rather than any specific individual. For example, in the paradigmatic 'trolley problem', individuals are asked whether it is permissible to kill one individual to save five. Killing one person to save five (the utilitarian option) dispenses the good outcome (survival) to more people, thereby potentially creating more opportunities for gratitude and social approval. Therefore, we propose that a strong need to belong leads anxiously attached individuals to be more sensitive to the needs of the group, leading them to prefer the utilitarian option.

To summarize, numerous studies indicate that anxious and avoidant attachment are associated with different interpersonal motivations (i.e. connection and distancing, respectively). We suggest that these different motivational concerns precipitate different levels of sensitivity (e.g., Gardner, Pickett, & Brewer, 2000; Higgins, King, & Mavin, 1982; Uhlmann, Pizarro, Tannenbaum, & Ditto, 2009) to specific aspects of the dilemma situation. Whereas high avoidant individuals' discomfort with caregiving leads them to focus less (than low avoidant individuals) on the sacrificed individual, high anxiously attached individuals' need for belongingness leads them to focus more (than low anxiously individuals) on the group. In sum, we hypothesized that both types of attachment insecurity would promote utilitarian moral judgments, but for different reasons.

## Pretesting

First, because the zero-order correlation between attachment anxiety and utilitarianism reported by Koleva et al. (2014) was small ( $r = .09, p < .05, n = 7533$ ), we deemed it necessary to test whether this association would replicate. This is because an alternative hypothesis seemed plausible to us: anxiously attached people's high need to belong may lead them to adhere especially fervently to societal rules, in the hopes of being identified as an accepted and valued member of the group (e.g., Hechter & Opp, 2001; Posner, 2000). Therefore, our first priority was to test whether anxiously attached individuals' strong need to belong would lead them to make more utilitarian judgments or more deontological judgments.

The second goal of pretesting was to account for the potential confound of trait neuroticism. Neuroticism refers to a general proneness to negative affect. As such, neurotic behavior overlaps with anxious behavior. It may be that neuroticism explains the relationship between anxious attachment and reactions toward a wrongdoer. Previous results suggest, however, that whereas neuroticism is a good predictor of emotional responses to negative events in general, anxious attachment is a better predictor of emotional responses to negative *interpersonal* events in particular (Joel, MacDonald, & Plaks, 2012). Given the interpersonal nature of utilitarian versus deontological dilemmas, we predicted that the association between attachment anxiety and utilitarian judgment would remain significant even when controlling for neuroticism.

## Method

### Participants

We recruited 1205 residents (464 males, 5 provided an alternate gender identification) of the United States through Amazon Mechanical Turk. The average age of the participants was 32.09 ( $range = 18-74$ ).

### Materials and procedure

As part of a larger survey, participants completed a set of questionnaires (Attachment Style Questionnaire, Big Five Aspects Scale, Interpersonal Reactivity Index, and the Consequentialist Scale) and evaluated six utilitarian dilemmas. The order of the questionnaires and moral dilemmas was randomized to control for any effects of item presentation.

### Attachment Style Questionnaire

(Feeney, Noller, & Hanrahan, 1994). Attachment anxiety was measured with 13 items (e.g., "I find that others are reluctant to get as close as I would like",  $\alpha = .89$ ), and avoidance was measured with 16 items (e.g., "I prefer to depend on myself rather than other people",  $\alpha = .85$ ).

### Moral dilemmas

Most consequentialist moral dilemmas used in previous morality research involve the extreme act of killing, which the vast majority of participants rate as severely wrong. Therefore, in order to reduce ceiling effects, we selected vignettes with high disagreement over whether the killing was justified. Of the total number of vignettes reported by Greene et al. (2008), we identified six in which participants made the utilitarian judgment (i.e. it is appropriate to kill one to save many) an average of 57% of the time (See Table 1). Participants evaluated each of the six dilemmas. After reading each vignette, participants were asked, "Based on what you just read, how wrong would it be for you [to act in a utilitarian fashion, using the specifics of the scenario they had just read]?" Participants were asked to indicate their responses using a 7-point Likert scale (where 1 = *not wrong at all* and 7 = *completely wrong*). Lower ratings indicate more utilitarian moral judgments while higher ratings indicate a more deontological judgment. Wrongness ratings across the six dilemmas were highly reliable,  $\alpha = .80$ . Therefore, wrongness ratings across the six dilemmas were aggregated into a single variable.

### Consequentialist scale

Participants' responses to classic utilitarian dilemmas do not directly assess their endorsement of more generalized deontological or utilitarian beliefs. For instance, people may make a deontological judgment not because they endorse the deontological position but because they oppose the utilitarian option (Conway & Gawronski, 2013). Therefore, we included an additional measure of general deontological and utilitarian tendencies that was independent of specific dilemmas. Participants completed the Consequentialist Scale (Robinson, 2012). This measure contains 10 items, five that assess endorsement of utilitarian beliefs (e.g. "The only moral principle that needs to be followed is that one must maximize happiness") and five that assess deontological beliefs (e.g. "Some rules should never be broken"). Participants were asked to read each statement and indicate, using a 5-point Likert scale (1 = *Completely Disagree*, 5 = *Completely Agree*), how much they agreed with each statement. The deontological beliefs sub-scale showed good internal reliability,  $\alpha = .74$ . The utilitarian beliefs sub-scale also demonstrated good internal reliability,  $\alpha = .83$ . In addition, an EFA and CFA were conducted to validate the latent variable structure and to ensure that the items included were tapping into the intended constructs. For a fuller description of the validation of this measure, see Supplementary Online Material.

### Neuroticism

In addition, we measured the potential confound of trait neuroticism. Trait neuroticism was assessed by combining the Volatility and

**Table 1**  
Dilemma summary.

Original name	Dilemmas as they appeared to participants	% Utilitarian judgment
Vitamin deficiency	You are the leader of a mountaineering expedition that is stranded in the wilderness. Your expedition includes a family of six that has a genetically caused vitamin deficiency. A few people's kidneys contain large amounts of this vitamin. There is one such person in your party. The only way to save the lives of the six members of this family is to remove one of this man's kidneys so that the necessary vitamins may be extracted from it. The man will not die if you do this, but his health will be compromised. The man is opposed to this plan, but you have the power to do as you see fit. How wrong would it be for you to forcibly remove the man's kidney in order to save the lives of the six vitamin-deficient people?	35%
Lifeboat	You are on a cruise ship when there is a fire on board, and the ship has to be abandoned. The lifeboats are carrying many more people than they were designed to carry. The lifeboat you're in is sitting dangerously low in the water—a few inches lower and it will sink. The seas start to get rough, and the boat begins to fill with water. If nothing is done it will sink before the rescue boats arrive and everyone on board will die. However, there is an injured person who will not survive in any case. If you throw that person overboard the boat will stay afloat and the remaining passengers will be saved. How wrong would it be for you to throw the injured person overboard in order to save the lives of the remaining passengers on the lifeboat?	71%
Sacrifice	You, your spouse, and your four children are crossing a mountain range on your return journey to your homeland. You have inadvertently set up camp on a local clan's sacred burial ground. The leader of the clan says that according to the local laws, you and your family must be put to death. However, he will let yourself, your spouse, and your three other children live if you yourself will kill your oldest child. How wrong would it be for you to kill your oldest child in order to save your spouse and your other three children?	51%
Sophie's choice	It is wartime and you and your two children, ages eight and five, are living in a territory that has been occupied by the enemy. At the enemy's headquarters is a doctor who performs painful experiments on humans that inevitably lead to death. He intends to perform experiments on one of your children, but he will allow you to choose which of your children will be experimented upon. You have twenty-four hours to bring one of your children to his laboratory. If you refuse to bring one of your children to his laboratory he will find them both and experiment on both of them. How wrong would it be for you to bring one of your children to the laboratory in order to avoid having both of them die?	62%
Euthanasia	You are the leader of a small group of soldiers. You are on your way back from a completed mission deep in enemy territory when one of your men has stepped in a trap that has been set by the enemy and is badly injured. The trap is connected to a radio device that by now has alerted the enemy to your presence. They will soon be on their way. If the enemy finds your injured man they will torture him and kill him. He begs you not to leave him behind, but if you try to take him with you your entire group will be captured. The only way to prevent this injured soldier from being tortured is to shoot him yourself. How wrong would it be for you to shoot this soldier in order to prevent him from being tortured by the enemy?	63%
Crying baby	Enemy soldiers have taken over your village. They have orders to kill all remaining civilians. You and some of your townspeople have sought refuge in the cellar of a large house. Outside you hear the voices of soldiers who have come to search the house for valuables. Your baby begins to cry loudly. You cover his mouth to block the sound. If you remove your hand from his mouth his crying will summon the attention of the soldiers who will kill you, your child, and the others hiding out in the cellar. To save yourself and the others you must smother your child to death. How wrong would it be for you to smother your child in order to save yourself and the other townspeople?	60%

Withdrawal sub-scales of the Big Five Aspect Scale (BFAS) (DeYoung, Quilty, & Peterson, 2007),  $\alpha = .91$  (e.g. "I get upset easily", "I am filled with doubts about things").

## Results and discussion

### Wrongness ratings

A correlation matrix (Table 2) is provided for the variables of interest. Both anxious attachment,  $r(1203) = -.16, p < .001$ , and avoidant attachment,  $r(1203) = -.11, p < .001$ , were negatively correlated with wrongness ratings, indicating that both forms of attachment insecurity predicted rating the utilitarian course of action as less wrong.

### Attachment insecurity versus neuroticism

As depicted in Table 2, both anxious and avoidant attachment were associated with neuroticism. We conducted a hierarchical regression analysis to test whether neuroticism would explain the association

between utilitarianism and anxious attachment. In Step 1, wrongness ratings were regressed on neuroticism and revealed a significant relationship,  $R^2 = .07, F(1, 1197) = 6.07, p < .02$ . In Step 2, anxious and avoidant attachment were added to the model. The model that included anxious and avoidant attachment accounted for significantly more

**Table 2**  
Pre-test: Correlation between variables.

Variables	1	2	3	4	5	6	7
1. Wrongness ratings	–						
2. Anxious attachment	-.16**	–					
3. Avoidant attachment	-.11**	.47**	–				
4. Deontological beliefs	.43**	.01	-.14**	–			
5. Utilitarian beliefs	-.19**	.21**	.16**	-.14**	–		
6. Empathic concern	.29**	-.06*	-.32**	.33**	-.31**	–	
7. Neuroticism	-.07*	.67**	.38**	-.001	.12**	-.06*	–

Note: Increased wrongness ratings indicate a stronger deontological moral judgment.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).



variance than the model that only included neuroticism,  $R^2\Delta = .02$ ,  $F(2, 1195) = 14.04$ ,  $p < .001$ . In addition, the second model revealed a significant effect for attachment anxiety,  $b = -.27$ ,  $SE = .06$ ,  $t(1195) = -4.43$ ,  $p < .001$ ,  $d = .26$ , but there was no significant effect of neuroticism,  $b = .13$ ,  $SE = .08$ ,  $t(1195) = 1.71$ ,  $p = .09$ ,  $d = .10$ , or attachment avoidance,  $b = -.09$ ,  $SE = .06$ ,  $t(1195) = -1.47$ ,  $p = .17$ ,  $d = .08$ .

Given that anxious and avoidant attachment were significantly correlated,  $r(1203) = .47$ ,  $p < .001$ , avoidant attachment may not have significantly contributed to the prediction of wrongness ratings in the full model due to overlapping variance. To address this possibility, we re-conducted the analyses separately for anxious attachment, then

avoidant attachment. A hierarchical regression analysis with neuroticism added first and attachment anxiety added second showed that while attachment anxiety significantly predicted wrongness ratings,  $b = -.29$ ,  $SE = .06$ ,  $t(1196) = -5.17$ ,  $p < .001$ ,  $d = .30$ , the unique effect of neuroticism was not significant,  $b = .12$ ,  $SE = .08$ ,  $t(1196) = 1.6$ ,  $p = .12$ ,  $d = .09$ . A second analysis that substituted attachment avoidance for attachment anxiety showed that while attachment avoidance significantly predicted wrongness ratings,  $b = -.17$ ,  $SE = .06$ ,  $t(1196) = -2.9$ ,  $p < .01$ ,  $d = .17$ , neuroticism did not,  $b = -.07$ ,  $SE = .06$ ,  $t(1196) = -1.18$ ,  $p = .24$ ,  $d = .07$ . Thus, when assessed separately, both anxious attachment and avoidant attachment

**Table 3**  
Dilemma summary.

Original name	Dilemmas as they appeared to participants.	% Utilitarian judgment
Vitamin deficiency	You are the leader of a mountaineering expedition that is stranded in the wilderness. Your expedition includes a family of six that has a genetically caused vitamin deficiency. A few people's kidneys contain large amounts of this vitamin. There is one such person in your party. The only way to save the lives of the six members of this family is to remove one of this man's kidneys so that the necessary vitamins may be extracted from it. The man will not die if you do this, but his health will be compromised. The man is opposed to this plan, but you have the power to do as you see fit. How wrong would it be for you to forcibly remove the man's kidney in order to save the lives of the six vitamin-deficient people?	35%
Nuclear reactor	You are the inspector of a nuclear power plant that you suspect has not met its safety requirements. The plant foreman and you are touring the facility when one of the nuclear fuel rods overheats. The emergency coolant system fails to activate, and a chain reaction is about to begin which will result in a nuclear meltdown. This will release lethal radiation into the nearby town, killing thousands of people. You realize that the only way to stop the meltdown is to push the foreman into the fuel rod assembly. This will remove just enough heat energy from the rod assembly to prevent the nuclear chain reaction. However, it will also incinerate the foreman instantly. How wrong would it be to push the foreman into the fuel rod assembly in order to save the people in the nearby town?	50%
Modified vaccine	A viral epidemic has spread across the globe killing thousands of people. You are a medical researcher and have developed two substances in your laboratory. You know that one of them is a vaccine, but you don't know which because both of the vials have been mislabeled as vaccine. You also know that the other substance is deadly. Once you figure out which substance is the vaccine you can create more to save thousands of lives. You have two lab assistants who work with you, and the only way to identify the vaccine with certainty is to inject the two substances into these people against their wishes. One person will live, the other will die, and you will be able to start saving lives with your vaccine. How wrong would it be to administer the two vaccines to the lab assistants in order to find the cure for the spreading epidemic?	55.7%
Sophie's choice	It is wartime and you and your two children, ages eight and five, are living in a territory that has been occupied by the enemy. At the enemy's headquarters is a doctor who performs painful experiments on humans that inevitably lead to death. He intends to perform experiments on one of your children, but he will allow you to choose which of your children will be experimented upon. You have twenty-four hours to bring one of your children to his laboratory. If you refuse to bring one of your children to his laboratory he will find them both and experiment on both of them. How wrong would it be for you to bring one of your children to the laboratory in order to avoid having both of them die?	62%
Nobel Prize	You and a fellow researcher have discovered a powerful new energy source that is cheap, safe, and clean. You realize that this could lead to the elimination of pollution and poverty around the world. However, your colleague wants to sell this discovery. You know your colleague well enough to know that he will sell the discovery to the highest bidder at the first opportunity. You know that he plans to contact the potential buyers today, some of whom will certainly try to use this as a horrible weapon. The only way that you can prevent him from doing so is to poison him with an extremely deadly chemical normally found in the lab working on these types of projects. Everyone will think that it was just a lab accident, and the discovery will not be sold to those who might create a weapon out of it. How wrong would it be for you to poison your colleague in order to prevent your discovery from being turned into a horrible weapon?	40%
Crying baby	Enemy soldiers have taken over your village. They have orders to kill all remaining civilians. You and some of your townspeople have sought refuge in the cellar of a large house. Outside you hear the voices of soldiers who have come to search the house for valuables. Your baby begins to cry loudly. You cover his mouth to block the sound. If you remove your hand from his mouth his crying will summon the attention of the soldiers who will kill you, your child, and the others hiding out in the cellar. To save yourself and the others you must smother your child to death. How wrong would it be for you to smother your child in order to save yourself and the other townspeople?	60%

continued to predict wrongness ratings for the utilitarian action over and above neuroticism.<sup>1</sup>

#### Relationship of attachment style to Consequentialist Scale

Recall that the Consequentialist Scale measures endorsement of statements supporting a generalized deontological or utilitarian position (independent of any specific scenario). We found that anxious attachment was positively correlated with the endorsement of generalized utilitarian statements,  $r(1203) = .21, p < .001$ , but was not correlated with the endorsement of generalized deontological statements,  $r(1203) = .01, p = .83$ . Avoidant attachment was positively correlated with endorsement of utilitarian beliefs,  $r(1203) = .16, p < .001$ , and negatively correlated with endorsement of deontological beliefs,  $r(1203) = -.14, p < .001$ . This highlights an interesting asymmetry between anxious and avoidant attachment. While both anxious and avoidant attachment was associated with greater endorsement of utilitarian beliefs, only avoidant attachment was negatively associated with deontological beliefs. This relationship suggests that, compared to anxious individuals, avoidant individuals feel less bound to uphold moral principles.

In summary, the pretest results demonstrated that both anxious and avoidant attachment predict (a) rating the utilitarian course of action as less wrong and (b) the endorsement of utilitarian concepts more generally. These associations (which were small in magnitude) could not be explained by trait neuroticism.

#### Study 1

In Study 1 we turned to our main purpose: to identify the mechanisms for these associations. As noted, we expected that anxiously attached individuals would be more likely to endorse the utilitarian option because their strong need to belong fosters a focus on the welfare of the larger group. In contrast, we expected that avoidant individuals would be more likely to endorse the utilitarian option because their discomfort in caring for others fosters less empathy for the individual being sacrificed.

### Method

#### Participants

We recruited 421 residents (159 males) of the United States through Amazon's Mechanical Turk survey service. The average age of participants was 30.29 ( $range = 18$  to 74).

#### Materials and procedure

As part of a larger survey, participants completed the Attachment Style Questionnaire, the Need to Belong scale, and the Caregiving System scale (described in detail below). Participants were also asked to evaluate the six moral dilemmas. After the participants had evaluated the dilemmas, they were asked to complete the individual versus group focus scale (see below) to help provide insight into what motivated their moral judgments. The individual differences questionnaires and the moral dilemma questions were counterbalanced.

#### Dilemmas

Participants evaluated six dilemmas as in Study 1 (see Table 3). Three of the dilemmas were used in the pretesting (Vitamins, Sophie's Choice, and Crying Baby) and three were used for the first time (Nuclear

Reactor, Vaccine, and Nobel Prize) (Greene et al., 2008; Moore et al., 2008). Wrongness ratings across the six dilemmas were reliable,  $\alpha = .76$ . Therefore, we aggregated the ratings into a single variable.

#### Attachment Style Questionnaire

(Feeney et al., 1994). Attachment anxiety was measured with 13 items (e.g., "I find that others are reluctant to get as close as I would like",  $\alpha = .87$ ), and avoidance is measured with 16 items (e.g., "I prefer to depend on myself rather than other people",  $\alpha = .85$ ).

#### Need to belong

(Leary, Kelly, Cottrell, & Schreindorfer, 2005). Ten items measured individuals' self-reported need to belong (e.g., "I want other people to accept me",  $\alpha = .84$ ), using a five-point scale, 1 = *strongly disagree*, 5 = *strongly agree*.

#### Discomfort with caregiving

(Shaver et al., 2010). Ten items from the Caregiving System Scale measured discomfort with caregiving (e.g., "I feel uncomfortable when I'm required to help others",  $\alpha = .91$ ), using a seven-point scale, 1 = *strongly disagree*, 7 = *strongly agree*.

#### Individual versus group focus scale

In typical deontological/utilitarian dilemmas, one individual must be sacrificed for the good of the group. In the present study, we devised four questions to assess participants' subjective emphasis on the sacrificed individual's outcomes or the group's outcomes. To assess focus on the victim, participants rated how much their judgments were affected by 1) "The welfare of the person being sacrificed" and 2) "How the person being sacrificed would feel" (1 = *Didn't affect my judgments at all*, 7 = *Affected my judgments strongly*),  $\alpha = .83$ . To assess sensitivity to the group's welfare, participants were asked to rate the degree to which they considered 1) "The welfare of all the people involved as a whole" and 2) "What I thought would be best for the group as a whole",  $\alpha = .88$ . Participants completed these questions once they had evaluated all six dilemmas.

### Results and discussion

Recall that higher wrongness ratings indicated greater condemnation for the utilitarian course of action. In the present data, wrongness ratings were negatively correlated with both anxious attachment,  $r(419) = -.14, p = .003$ , and avoidant attachment,  $r(419) = -.19, p < .001$ . Thus, as in the pretest, both forms of attachment insecurity predicted rating the utilitarian option *less* wrong. Please see Table 4 for a complete summary of the correlations between the variables of interest.

**Table 4**  
Study 1: Correlation between variables in the path model.

Variables	1	2	3	4	5	6	7
1. Wrongness rating	–						
2. Anxious attachment	–.14**	–					
3. Avoidant attachment	–.19**	.4**	–				
4. Need to belong	–.01	.59**	–.18*	–			
5. Discomfort with caregiving	–.2**	.21**	.36**	–.05	–		
6. Empathy for the victim	.43**	–.05	–.17**	.07	–.34**	–	
7. Empathy for the entire group	–.41**	.11*	.05	.12*	–.07	.02	–

Note: Increased wrongness ratings indicate a stronger deontological moral judgment.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

<sup>1</sup> We also assessed trait empathy (Davis, 1983). Results showed that both attachment anxiety and attachment avoidance predicted wrongness rating over and above empathy concern. See Supplementary Online Material for a full description of the analysis.

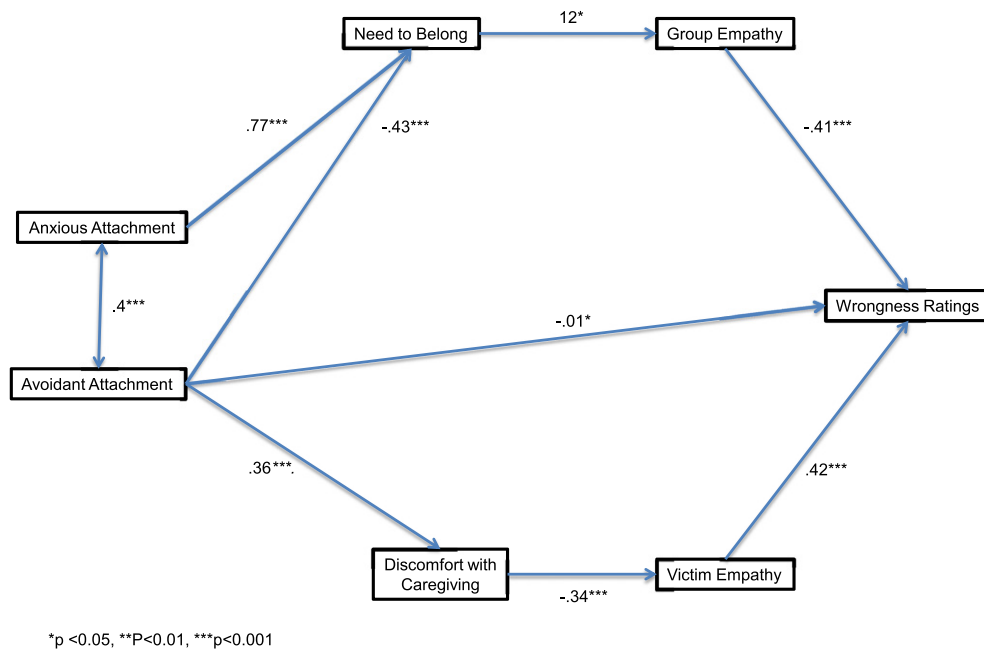


Fig. 1. Study 1 path model predicting wrongness ratings.

We used path analysis to test for mediators of the respective links between attachment insecurity and utilitarianism. The final model is depicted in Fig. 1. This model had good fit, RMSEA = 0.02, 90% CI [0, 0.19]; CFI = .99, and all paths in the model were significant. Consistent with past research, anxiously attached participants reported a higher need to belong,  $\beta = .77, Z = 20.46, p < .001$ . Higher need to belong predicted higher focus on the group,  $\beta = .12, Z = 2.42, p = .02$ . Greater focus on the group was associated with lower wrongness ratings for the utilitarian option,  $\beta = -.41, Z = -10.41, p < .001$ . Although the correlational nature of these data prevent firm causal inferences, this pattern suggests that anxiously attached individuals are more accepting

of the decision to sacrifice an individual to save a group because they are more focused on the group's welfare.

A different story emerged for avoidantly attached individuals. Replicating past research (Shaver et al., 2010), avoidantly attached individuals expressed greater discomfort with caring for others,  $\beta = .36, Z = 7.86, p < .001$ . This discomfort with caregiving was associated with lower empathy for the individual who was sacrificed,  $\beta = -.34, Z = -7.35, p < .001$ . Empathy for the individual sacrificed, in turn, predicted wrongness ratings,  $\beta = .42, Z = 10.59, p < .001$ . Again, although the correlational nature of these data does not permit firm causal inferences, the following interpretation is plausible: avoidantly attached

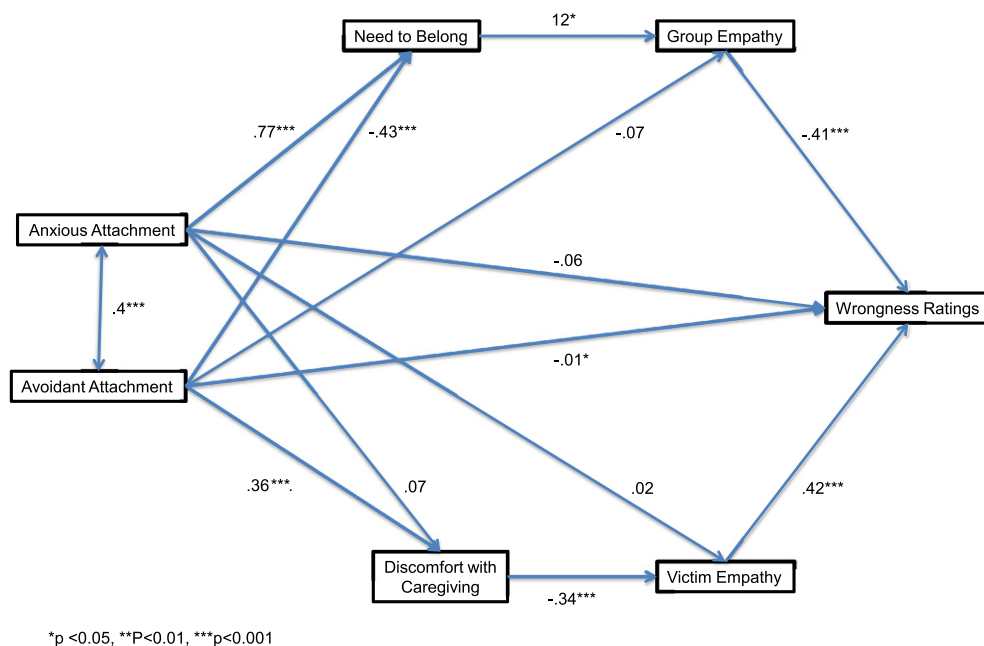


Fig. 2. Study 1 unconstrained path model predicting wrongness ratings.

**Table 5**  
Study 2: Correlation between variables in the path model.

Variables	1	2	3	4	5	6	7
1. Wrongness rating	–						
2. Anxious attachment	-.18**	–					
3. Avoidant attachment	-.15**	.39**	–				
4. Need to belong	-.08	.61**	-.16*	–			
5. Discomfort with caregiving	-.19**	.22**	.41**	-.08	–		
6. Empathy for the victim	.51**	-.08	-.16**	.08	-.3**	–	
7. Empathy for the entire group	-.31**	.1*	.03	.14*	-.12*	.13**	–

Note: Increased wrongness ratings indicate a stronger deontological moral judgment.

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

individuals were more accepting of the decision to sacrifice an individual to save a group because they empathized less with the victim. This tendency was predicted by their general discomfort with caring for others.

We also created an unconstrained model in which we included paths between anxious attachment and discomfort with caregiving, anxious attachment and victim empathy, avoidant attachment and group empathy, and a direct path between anxious attachment and wrongness ratings (see Fig. 2). This model would suggest that anxiously and avoidantly attached individuals reacted similarly to the dilemmas. As depicted in the figure, these added paths were not significant, suggesting that anxiously and avoidantly attached individuals reached utilitarian judgments for different reasons. Although the unconstrained model fit the data well, RMSEA = 0.02, 90% CI [0.0, 0.06]; CFI = .996, a Likelihood Ratio test of the two models suggested that the fit of the unconstrained model was not superior to that of the constrained model,  $\chi^2(4) = 5.08$ ,  $p = 0.28$ . Thus, the constrained model (with the additional, non-significant paths removed) is preferred for its parsimony.

To summarize, Study 1 provided support for the hypothesis that anxiously attached and avoidantly attached individuals are less likely to condemn the utilitarian course of action but do so for different reasons. Although both favor the group over the sacrificed individual, for anxious people this tendency was associated with a stronger need to belong and greater focus on the welfare of the group, whereas for avoidant

people this tendency was associated with discomfort with caring for others and lower empathy for the individual to be sacrificed.

## Study 2

Because the multiple paths linking attachment insecurity and utilitarianism have not, to our knowledge, been demonstrated before, we considered it important to replicate the effects with a new sample (Schimmack, 2012; Simmons, Nelson, & Simonsohn, 2011).

## Method

### Participants

We recruited 488 residents (181 males) of the United States through Mechanical Turk. The average age of participants was 29.99 (range = 18 to 70). Participants reported an average of 15.02 ( $SD = 2.696$ ) years of formal education (beginning at grade one).

### Materials and procedure

The materials and procedure were identical to Study 1.

## Results and discussion

Replicating the previous findings, wrongness ratings were negatively correlated with both anxious attachment,  $r(417) = -.18$ ,  $p < .001$ , and avoidant attachment,  $r(417) = -.15$ ,  $p = .003$ . Both forms of attachment insecurity predicted rating the utilitarian course of action as less wrong. Please see Table 5 for a complete summary of the correlations between the variables of interest.

Again, we used path analysis to test for our hypothesized pathways between attachment insecurity and utilitarian judgment. The final model is presented in Fig. 3. This model was highly similar to that of Study 1 (Fig. 1). The model had good fit, RMSEA = 0.05, 90% CI [0, 0.22]; CFI = .98, and all paths presented in the model were significant. As in Study 1, greater anxious attachment was associated with a greater need to belong,  $\beta = .79$ ,  $Z = 21.87$ ,  $p < .001$ . Need to belong predicted a greater focus on the group's welfare (as opposed to that of the sacrificed

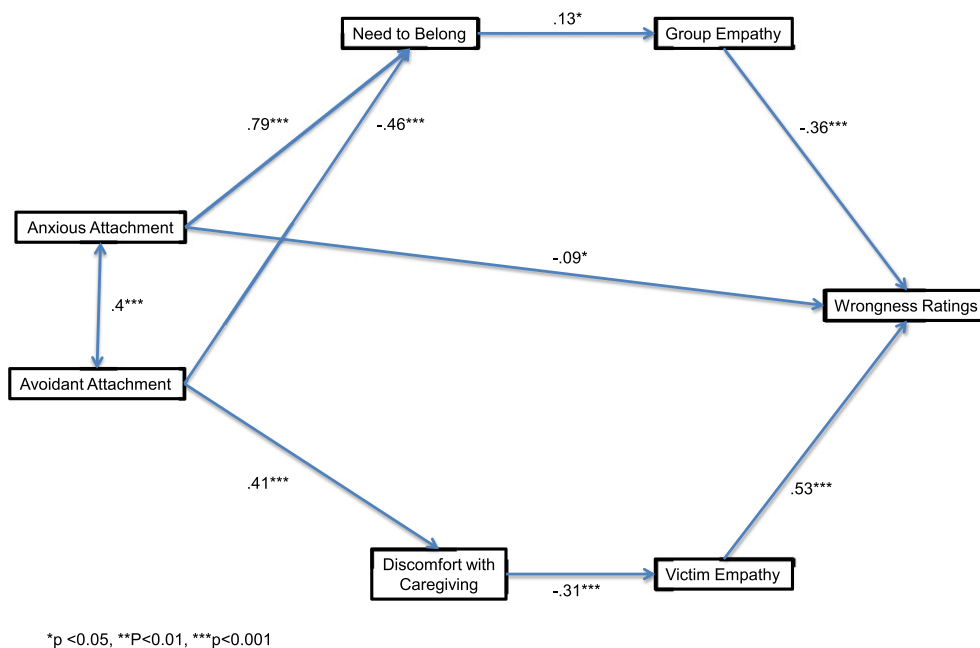


Fig. 3. Study 2 path model predicting wrongness ratings.



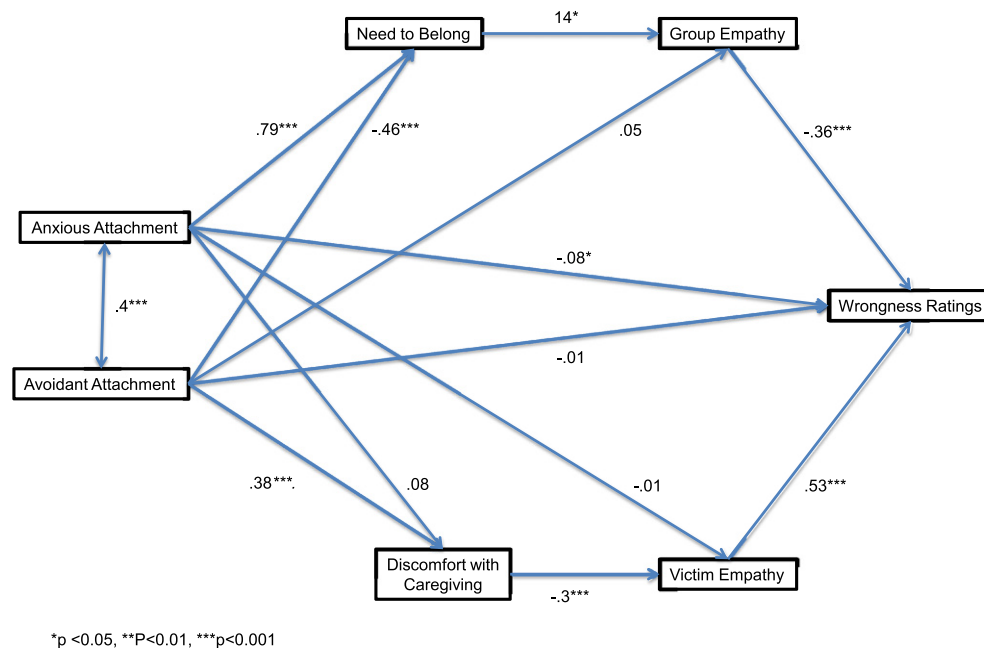


Fig. 4. Study 2 unconstrained path model predicting wrongness ratings.

individual),  $\beta = .13$ ,  $Z = 2.72$ ,  $p = .007$ . This greater emphasis on the group's welfare, was associated with the rating the utilitarian course of action as less wrong,  $\beta = -.36$ ,  $Z = -9.67$ ,  $p < .001$ .

In contrast, increased avoidant attachment predicted greater discomfort with caring for others,  $\beta = .41$ ,  $Z = 9.20$ ,  $p < .001$ . Discomfort with caring for others was associated with lower empathy for the individual being sacrificed,  $\beta = -.31$ ,  $Z = -6.53$ ,  $p < .001$ . Lower empathy for the individual being sacrificed, in turn, predicted lower wrongness ratings for the utilitarian course of action,  $\beta = .53$ ,  $Z = 14.28$ ,  $p < .001$ . Thus, as in Study 1, anxiously and avoidantly attached individuals both favored the utilitarian option, but for distinct reasons.

As in Study 1, we also compared our model in Study 2 to a less constrained model. The unconstrained model fit the data adequately,  $RMSEA = 0.06$ , 90% CI [0.03, 0.09];  $CFI = .98$ . However, a Likelihood Ratio test of the two models suggested that the models fit the data equally well,  $\chi^2(4) = 3.98$ ,  $p = 0.41$ . Thus, as in Study 1, the constrained model is preferred for its parsimony. See Fig. 4.

To summarize, Study 2 replicated Study 1: both anxious and avoidant attachment predicted utilitarian judgment, but via different associations. Anxiously attached individuals reached the utilitarian option by being more focused on the group's welfare, whereas avoidant individuals reached their judgment via reduced empathy toward the victim.

### Study 3

The evidence so far suggests that anxiously attached individuals, due to their strong need to belong, make utilitarian moral decisions not because they care less about the victim's welfare, but because they care more about the group's welfare. By aiding the group (at the expense of one individual), anxiously attached individuals maximize opportunities for approval, gratitude, and acceptance, thereby increasing the likelihood of meeting their belongingness needs. What would happen, however, if anxiously attached people were informed that the group wanted them to choose the sacrificed individual over themselves? Would they continue to follow the wishes of the group?

In Study 3, we manipulated the desires of the group. We hypothesized that if gaining social approval is truly important to anxiously attached people, then when they are informed that the group prefers the utilitarian option, they will endorse it especially strongly, but

when the group prefers the deontological option, they will endorse the utilitarian option less strongly. If anxiously attached people's judgments shifted according to the group's desires, this would suggest that the desire to fulfill the group's wishes is a significant contributor to their moral judgment. Study 3's approach of manipulating a proposed mediator follows Spencer, Zanna, and Fong's (2005) claim that such an approach can helpfully supplement traditional mediational analyses.

## Method

### Participants

Participants were American residents who were recruited through Mechanical Turk. The final sample consisted of 218 individuals (109 males, 108 females, and one participant did not indicate their gender). The average age of participants was 36.68 years ( $range = 19-72$ ). Fifty-seven participants began the survey but did not complete the critical measures and thus could not be included in the analyses. Furthermore, because we have observed an increasing number of rote participants (e.g., those who marked the same response for all questionnaire items), we included three questions designed to identify uninterested participants. When the survey had been completed, participants were asked to rate, using a 5-point Likert Scale (1 = *Strongly Disagree*, 5 = *Strongly Agree*), how strongly they agreed with three statements (1. "I was completely distracted while completing this task" 2. "I answered each question honestly and to the best of my ability" and 3. "I did not take this task seriously at all"). These three items (item #2 reversed scored) showed reasonable reliability,  $\alpha = .67$ , and were aggregated to form an attention check variable. We decided a priori that participants who scored 2 or higher on this variable failed the attention check. Based on this criterion, a total of 37 participants failed the attention check and were removed prior to conducting the analyses.

### Materials and procedure

Participants completed demographics information and the Adult Attachment Scale. Participants then worked on a filler task (word

**Table 6**  
Dilemmas used in Study 3.

Deontological consensus condition	You are the leader of a mountaineering expedition that is stranded in the wilderness. Your expedition includes a family of six that has a genetically caused vitamin deficiency. A few people's kidneys contain large amounts of this vitamin. There is one such person in your party. The only way to save the lives of the six members of this family is to remove one of this man's kidneys so that the necessary vitamins may be extracted from it. The man will not die if you do this, but his health will be compromised. You discuss the situation with the six vitamin-deficient family members. The family members all agree that removing the man's kidney is the wrong thing to do. They tell you that they would feel very upset if you were to commit this act in order to save their lives. The man is opposed to having his kidney removed, but you have the power to do as you see fit.
Utilitarian consensus condition	You are the leader of a mountaineering expedition that is stranded in the wilderness. Your expedition includes a family of six that has a genetically caused vitamin deficiency. A few people's kidneys contain large amounts of this vitamin. There is one such person in your party. The only way to save the lives of the six members of this family is to remove one of this man's kidneys so that the necessary vitamins may be extracted from it. The man will not die if you do this, but his health will be compromised. You discuss the situation with the six vitamin-deficient family members. The family members all agree that removing the man's kidney is the right thing to do. They tell you that they would feel very grateful if you were to commit this act in order to save their lives. The man is opposed to having his kidney removed, but you have the power to do as you see fit.
Control condition	You are the leader of a mountaineering expedition that is stranded in the wilderness. Your expedition includes a family of six that has a genetically caused vitamin deficiency. A few people's kidneys contain large amounts of this vitamin. There is one such person in your party. The only way to save the lives of the six members of this family is to remove one of this man's kidneys so that the necessary vitamins may be extracted from it. The man will not die if you do this, but his health will be compromised. The man is opposed to this plan, but you have the power to do as you see fit.

unscramble—see below) before finally completing the experimental manipulation.

#### Attachment Style Questionnaire

(Feeney et al., 1994). The same scale used in the previous studies was used to assess attachment style. The items measuring anxious attachment showed good internal reliability,  $\alpha = .91$ . The items measuring avoidant attachment also showed good internal reliability,  $\alpha = .87$ .

#### Filler task

Participants then completed a filler task between the questionnaires and the moral dilemma. The purpose of this task was to clear working memory, thereby reducing potential contamination between the Adult Attachment Scale and participants' moral judgments. On this task, participants unscrambled 10 incoherent letter strings into actual words. Participants were given five minutes to complete this task. Whether or not the participant had completed all ten word puzzles, the experiment continued once the five minutes had elapsed. Next, participants were randomly assigned to one of three experimental conditions in which the content of the moral dilemma was altered.

#### Experimental manipulation

Recall that the purpose of this study was to examine whether knowledge of the characters' wishes would influence participants' moral judgments. We therefore created two versions of the "Vitamins" dilemma (Greene et al., 2008). In the "utilitarian consensus" condition, participants read that the group who could be saved wanted the actor to force another individual to make a sacrifice involving extreme bodily harm. ("You discuss the situation with the six vitamin-deficient family members. The family members all agree that removing the man's kidney is the right thing to do. They tell you that they would feel very grateful if you were to commit this act in order to save their lives.") In the "deontological consensus" condition, participants read that the group who could be saved did *not* want the actor to force another individual to sacrifice his kidney. ("You discuss the situation with the six vitamin-deficient family members. The family members all agree that removing the man's kidney is the wrong thing to do. They tell you that they would feel very upset if you were to commit this act in order to save their lives.") The control condition included no information about characters' desires (See Table 6 for the full text of the dilemmas).

After reading the dilemma, participants were asked to respond to two questions: (1) "How wrong would it be to remove the man's kidney resulting in the lives of the vitamin deficient family being saved?" (utilitarian choice) and (2) "How wrong would it be NOT to remove the man's kidney resulting in the deaths of the vitamin deficient family?" (deontological choice). The order of these questions was randomized between participants to minimize any presentation effects. Participants indicated their responses on 6-point scales (1 = *Not wrong at all*, 6 = *Extremely Wrong*). Responses to these two questions were highly reverse-correlated,  $r = -.66$ . Thus, we calculated a single aggregate term (with Question #1 reverse-scored), such that higher scores indicated greater endorsement of the utilitarian course of action.

#### Results

We found that overall the consensus manipulation did not influence participants' judgments ( $R^2 < .01$ ,  $F(2, 215) = .41$ ,  $p = .66$ ,  $M_{\text{Deontological}} = 2.57$ ,  $sd = 1.32$ ;  $M_{\text{Utilitarian}} = 2.75$ ,  $sd = 1.60$ ;  $M_{\text{Control}} = 2.75$ ,  $sd = 1.28$ ).

How, if at all, did participants' responses to the consensus manipulation vary according to their attachment style? To conduct a regression analysis, we created dummy variables for the different experimental conditions. The control group was coded as the reference group. Next, attachment anxiety and attachment avoidance scores were mean centered and all interaction terms were created (West, Aiken, & Krull, 1996). In the first step of a hierarchical regression analysis, we regressed

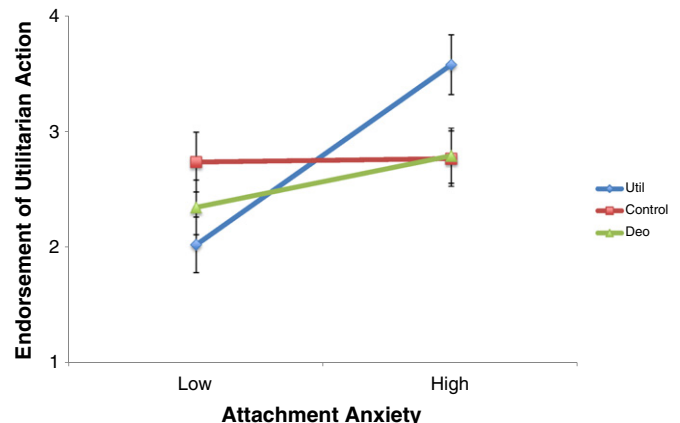


Fig. 5. Consensus condition by anxious attachment interaction.

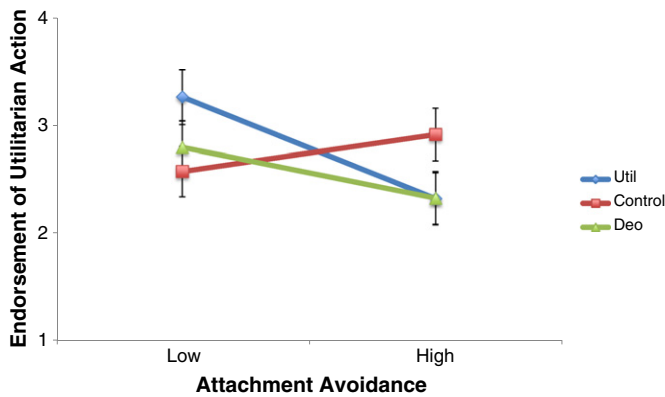


Fig. 6. Consensus condition by avoidant attachment interaction.

aggregate endorsement of the utilitarian course of action on the three main effects (consensus condition, attachment anxiety, and attachment avoidance). This model predicted wrongness ratings,  $R^2 = .05$ ,  $F(4, 213) = 2.49$ ,  $p < .05$ . In the second step we added the two two-way interactions (consensus condition \* attachment anxiety and consensus condition \* attachment avoidance). More variance in endorsement of the utilitarian course of action was accounted for when the interaction terms were added to the model,  $R^2\Delta = 0.05$ ,  $F(4, 209) = 3.46$ ,  $p = .03$ .<sup>2</sup> To test whether the two-way interaction between experimental condition and attachment anxiety was significant, we removed the consensus condition \* attachment anxiety terms from the model calculated in step 2 and observed the change in the  $R^2$  value. This revealed a significant two-way interaction between condition and attachment anxiety,  $R^2\Delta = .04$ ,  $F(2, 209) = 4.36$ ,  $p = .01$ . Using the same method, we also tested whether the two-way interaction between experimental condition and attachment avoidance was significant. The results revealed a significant interaction between experimental condition and attachment avoidance,  $R^2\Delta = 0.03$ ,  $F(2, 209) = 3.22$ ,  $p = .04$ . Next we examined the simple effects for both two-way interactions.

### Anxious attachment

The simple effects were calculated using the method suggested by West et al. (1996). Because attachment anxiety and attachment avoidance were correlated,  $r(216) = .49$ , we included attachment avoidance as a covariate in the model. Furthermore, Yzerbyt, Muller, and Judd (2004) suggested that when including a covariate in a model with a manipulated variable, the interaction term between the manipulated variable and the covariate should also be included in order to prevent a biased estimate. With this suggestion in mind, we included the interaction term between our consensus manipulation and attachment avoidance. See Fig. 5 for a depiction of the experimental condition \* attachment anxiety interaction. Tests of the simple slopes revealed that endorsement of the utilitarian course of action did not vary as a function of attachment anxiety in the deontological consensus condition,  $t(209) = 1.27$ ,  $p = .21$ ,  $d = .18$  or in the control condition,  $t(209) = .08$ ,  $p = .94$ ,  $d = .01$ . Endorsement of the utilitarian course of action did vary significantly as a function of attachment anxiety in the utilitarian consensus condition,  $t(209) = 4.10$ ,  $p < .0001$ ,  $d = 0.58$ . In other words, when the group preferred the utilitarian option (i.e. to remove the man's kidney to save the others), the higher participants' attachment anxiety, the more they endorsed the utilitarian course of action. However, when the group expressed a preference for the deontological option (i.e. not to remove the man's kidney to save the others), participants' degree of attachment anxiety no longer

influenced their judgment. In summary, when the group favored the utilitarian option, anxiously attached participants endorsed that option with enthusiasm. However, when the group favored the deontological option, anxiously attached participants appeared less committed to the utilitarian option.

Examining this effect further, we found that at high levels of attachment anxiety, participants in the utilitarian consensus condition were more likely to endorse the utilitarian option than were participants in the deontological consensus condition,  $t(209) = 2.25$ ,  $p = .03$ ,  $d = .31$ . In contrast, at low levels of attachment anxiety, there was no difference in the endorsement of the utilitarian option between the deontological consensus and utilitarian consensus conditions,  $t(209) = .96$ ,  $p = .34$ ,  $d = .13$ . This pattern is consistent with our suggestion that individuals who are high in anxious attachment make moral judgments that more are sensitive to the group's wishes.

### Avoidant attachment

We next examined the experimental condition \* attachment avoidance interaction (using the same procedure described above) and found a different pattern of results (see Fig. 6). Tests of the simple slopes revealed that endorsement of the utilitarian option did not vary as a function of attachment avoidance in the deontological consensus condition,  $t(209) = 1.24$ ,  $p = .22$ ,  $d = .17$ , or in the control condition,  $t(209) = .97$ ,  $p = .33$ ,  $d = .13$ . Endorsement of the utilitarian course of action did vary significantly as a function of attachment avoidance in the utilitarian consensus condition,  $t(209) = 2.50$ ,  $p = .01$ ,  $d = .35$ , but in the opposite direction of anxiously attached participants. In other words, when the group preferred the utilitarian option, those who were higher in attachment avoidance were more likely to condemn the utilitarian option.

This effect, which exceeded our expectations, may represent a boundary condition to avoidantly attached people's general preference for the utilitarian option (Koleva et al., 2014). These data suggest that avoidantly attached people prefer the utilitarian option unless it is the majority option; in that case, they defect toward the deontological option. This pattern is consistent with findings indicating that avoidant people tend to actively resist influence from others (Overall & Sibley, 2009; Overall, Simpson, & Struthers, 2013) in order to defensively protect of their autonomy (e.g., Simpson, Rholes, Oriña, & Grich, 2002). The present data indicated that avoidantly attached individuals preferred to make more deontological judgments rather than conform to the opinions of the group, potentially because the latter choice poses a threat to their independence.<sup>3</sup>

In summary, the differences between the utilitarian consensus condition and the deontological consensus condition suggests that both anxiously and avoidantly attached people base their judgment at least in part on their view of the group's preference. Whereas anxiously attached participants shifted toward the group's preference, avoidantly attached participants shifted away from the group's preference. The notion that moral decision makers may take into account the wishes of those who are actually in the situation has been largely absent from previous studies on consequentialist reasoning.

### General discussion

Moral reasoning does not occur in a social vacuum. One important interpersonal influence on moral reasoning appears to be attachment style (e.g., Kogut & Kogut, 2013; Koleva et al., 2014). This is not surprising given that attachment style represents a fundamental lens through which adults interpret their social environment (Mikulincer & Shaver,

<sup>2</sup> We also tested the attachment anxiety \* attachment avoidance interaction as well as the three-way interaction and neither were significant predictors of wrongness ratings.

<sup>3</sup> Note that in the control condition, although the correlation between attachment anxiety utilitarian judgment was of similar magnitude as in previous studies ( $r = .11$ ), the effect was not significant. This was most likely because the power was inadequate to detect this small effect; this condition contained only 72 participants whereas our previous studies and Koleva et al. (2014) report samples ranging from  $n = 421$  to  $n = 7533$ .

2007). In the pretest, we found that (a) both anxious and avoidant attachment were associated with decreased wrongness ratings for the utilitarian course of action and (b) this association could not be explained by neuroticism. In Studies 1 and 2 we found that while the moral judgment output was the same for anxious and avoidant people, the pattern of associations differed. Anxious attachment predicted a higher need to belong, which in turn was associated with greater focus on the group as a whole. This translated into wrongness judgments that prioritized the welfare of the group as a whole over the welfare of the sacrificed individual. On the other hand, avoidant attachment was related to discomfort with caring for others, which in turn was associated with less empathy for the individual to be harmed. Lower empathy toward the victim was associated with viewing the act of sacrificing an individual for the good of the group as less wrong. This pattern is consistent with recent results reported by Kogut and Kogut (2013) in which anxiously attached individuals donated more money to identifiable victims than to unidentifiable victims, while avoidant individuals donated equivalent (and lower) amounts of money to identifiable and unidentifiable victims. According to our framework, because anxiously attached individuals are powerfully motivated to seek social acceptance, they are more willing to provide help when there is a possibility of their help being recognized. Similarly, in utilitarian dilemmas, providing help to the larger number of people increases the likelihood of recognition and acceptance.

In Study 3, we demonstrated that the moral judgments of anxiously attached individuals are influenced by what they believe the group desires. When the group desired the utilitarian option, those who were high in attachment anxiety were more likely to endorse the utilitarian course of action. However, when the group desired the deontological option, attachment anxiety played no role in predicting moral judgments. In other words, we removed the effect of attachment anxiety on moral judgments by providing feedback that the group desired a deontological outcome. This pattern suggests that a principal reason why anxiously (and not avoidantly) attached people choose the utilitarian option is that they see that option as a vehicle to social approval. When the utilitarian option does *not* promise to yield such approval, they are less likely to endorse that option.

In contrast, whereas in general avoidant people choose the utilitarian option, in Study 3, when the group desired the utilitarian option, high (but not low) avoidant participants made a point of condemning that option. This reactance-like tendency to actively resist influence from others has been demonstrated in previous work on avoidantly attached individuals (e.g., Overall & Sibley, 2009; Overall et al., 2013)

#### Limitations and future directions

First, it should be noted that although the associations between attachment insecurity and utilitarian judgment were robust and replicable, the effect sizes were small. Nevertheless, we suggest that future researchers may gain a more detailed glimpse into the psychology of moral decision by incorporating a range of interpersonal variables including—but not limited to—attachment style.

Furthermore, much of the evidence presented here is correlational in nature. While the results of Study 1 and Study 2 are suggestive of a potential mechanism linking anxious and avoidant attachment with utilitarian moral judgments, these results must be interpreted in terms of correlations. Future researchers may look to experimentally manipulate constructs in our path models (e.g., need to belong) in order to permit firmer claims about causality.

In addition, if anxiously attached individuals are deeply concerned with social acceptance, why do they not gravitate toward the deontological position by upholding universally cherished societal rules such as “Thou shalt not kill”? Perhaps in Study 3 anxiously attached individuals were not acquiescing to the wishes of the people in the scenario as much as they were conforming to what they presumed was the

consensus choice in society. In other words, in the manner of “intuitive politicians” (Tetlock, 2002), anxiously attached individuals may steer their behavior toward what they believe people in general view with the most approval. This explanation has some merit. Research has demonstrated that anxiously attached individuals are prone to overestimate the similarity between their own opinions and the opinions of others (Mikulincer, Orbach, & Iavnieli, 1998). However, if the desires and wishes of the individuals in the scenario did not matter, we would expect to see them choose the utilitarian course of action regardless of the group’s wishes. This is not what we observed in Study 3. The desires of the individuals involved in the scenario did influence on the judgments of anxiously attached individuals. Nonetheless a fruitful area for future research would be to identify more precisely when moral judgments are influenced by the wishes of the individuals involved in the scenario and when they are not.

Lastly, the studies presented here relied exclusively on participants recruited via Amazon’s Mechanical Turk (AMT) online interface. While some research has supported the notion that AMT offers a useful and reliable source of study participants (Buhrmester, Kwang, & Gosling, 2011; Rand, 2012), other research has pointed out potential weaknesses and reasons to be skeptical of the quality of data that AMT provides (Goodman, Cryder, & Cheema, 2012). We encourage future researchers to attempt to replicate our results via laboratory experimental procedures.

#### Implications for adult attachment research

The present studies build on the findings of Koleva et al. (2014) by unpacking the process through which avoidant attachment leads to utilitarian judgment and, perhaps more importantly, by identifying a second, separate potential pathway to utilitarianism. Because avoidantly attached individuals are uncomfortable with caring for others, their focus is refraining from empathizing with the individual to be sacrificed. In contrast, because anxiously attached individuals are motivated by a pronounced need to belong, their focus is on satisfying the desires of the group.

The finding that attachment style plays a fundamental role in conscious perceptions of right and wrong adds to a growing body of work suggesting that humans’ social relatedness needs are so pervasive that they influence domains that, at first glance, seem to have little to do with relationships (Joel, MacDonald, & Plaks, 2013). There is increasing evidence that working models of self and other play an important role not only in our more intimate relationships, but in a wide range of other life domains, including work performance (e.g., Vasquez, Durik, & Hyde, 2002), consumer choice (e.g., Thomson, Whelan, & Johnson, 2012), and health behavior (e.g., Feeney & Ryan, 1994). The present findings add moral judgment to that list.

We suggest that the wide-reaching effects of attachment style may be understood through a motivated cognition perspective (e.g., Gardner et al., 2000; Higgins et al., 1982). According to this approach, different attachment styles are associated with different interpersonal motivational concerns. These differing motivational concerns, in turn, raise or lower sensitivity to different aspects of interpersonal situations. These differential sensitivities, in turn, help to foster corresponding patterns of decision-making. In the present studies, these differential sensitivities translated into different patterns of moral judgment.

The association between attachment style and moral judgment may have important implications for real-life moral decision-making. For example, securely attached individuals’ more deontological framework—a framework that values individual rights over outcomes—might help to explain their stronger prosocial tendencies (e.g., Gillath et al., 2005). Similarly, avoidantly attached individuals’ more utilitarian framework—a framework that places less value on following rules for their own sake—may help to explain their greater stated willingness to cheat on their romantic partners (DeWall et al., 2011).



### Implications for moral judgment research

Many studies in this literature have focused on identifying the rational versus emotional concomitants of utilitarian versus deontological judgment (e.g., Bartels, 2008; Paxton et al., 2011; Suter & Hertwig, 2011). More recent research has expanded the range of processes associated with each type of judgment. For example, Conway and Gawronski (2013) demonstrated that there are at least two reasons to make a utilitarian moral judgment (i.e. endorsement of utilitarian principles or rejection of deontological principles). The present research extends this line of research by identifying two additional psychological routes to the utilitarian option. Our findings suggest that avoidantly attached individuals' utilitarian judgment is associated with lower empathy for the person who must suffer in the name of the group. Researchers have found similar effects for people who were high in Machiavellianism and psychopathy (Bartels & Pizarro, 2011; Koenigs et al., 2012). In contrast, anxiously attached individuals' endorsement of the utilitarian choice was not associated with coldness toward the victim, but with a desire to meet the needs of the group. This second path to utilitarian judgment suggests that *any* variable that increases the desire for group acceptance may activate utilitarianism, including, for example, higher assimilation needs (e.g., Brewer, 1991). Moreover, given that cultures vary in the degree to which they emphasize conformity (Bond & Smith, 1996), some cultures may show a greater tendency to reach utilitarian judgment through the route that is associated with an increased need to belong and the welfare of the group as a whole, whereas others do so through route that is associated with discomfort caring for others and decreased empathy for the individual sacrificed for the group. We suggest that, moving forward, future researchers should be mindful of this distinction.

In addition, these studies suggest the need to move beyond the dual process theory's assumption that utilitarian judgments are the result of a decrease in emotionality (Greene, 2013; Greene et al., 2001, 2008). Anxious attachment, by definition, implies a high degree of emotionality (specifically, anxiety in regard to interpersonal relationships), yet in the present studies, attachment anxiety consistently predicted selecting the utilitarian option. Thus, these studies begin to identify other variables—beyond “emotion” and “reason”—that may steer people toward saving the group versus saving the individual.

Furthermore, the prevailing dual-process theory of moral judgment (e.g., Greene, 2013; Greene et al., 2008; Koenigs et al., 2007) has until recently tended to be relatively silent regarding the moral decision maker's larger relational context. The present data suggest that different histories of relationship experiences lead to systematic differences in the likelihood of endorsing the utilitarian option. Incorporating this type of information about individuals into our understanding of their moral judgments has important implications for future research.

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.jesp.2014.09.017>.

### References

- Bartels, D. (2008). Principled moral sentiments and the flexibility of moral judgment and decision making. *Cognition*, *108*, 381–417.
- 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.
- Bond, R., & Smith, P.B. (1996). Culture and conformity: A meta-analysis of studies using Asch's (1952b, 1956) line judgment task. *Psychological Bulletin*, *119*(1), 111–137.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Loss*. New York: Basic Books.
- Brewer, M.B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, *17*(5), 475–482.
- Buhrmester, M., Kwang, T., & Gosling, S.D. (2011). Amazon's mechanical turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science*, *6*(1), 3–5.
- Cameron, C.D., & Payne, B.K. (2011). Escaping affect: How motivated emotion regulation creates insensitivity to mass suffering. *Journal of Personality and Social Psychology*, *100*, 1–15.
- 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.
- Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113–126.
- DeWall, C.N., Slotter, E.B., Finkel, E.J., Luchies, L.B., Lambert, N.M., Pond, R.S., et al. (2011). So far away from one's partner, yet so close to romantic alternatives: Avoidant attachment, interest in alternatives, and infidelity. *Journal of Personality and Social Psychology*, *101*(6), 1302–1316.
- DeYoung, C.G., Quilty, L.C., & Peterson, J.B. (2007). Between facets and domains: 10 aspects of the big five. *Journal of Personality and Social Psychology*, *93*(5), 880–896.
- Ennis, E., Vrij, A., & Chance, C. (2008). Individual differences and lying in everyday life. *Journal of Social and Personal Relationships*, *25*, 105–118.
- Feeney, B.C., & Collins, N.L. (2001). Predictors of caregiving in adult intimate relationships: An attachment theoretical perspective. *Journal of Personality and Social Psychology*, *80*, 972–994.
- Feeney, J.A., & Noller, P. (1990). Attachment style as a predictor of romantic relationships. *Journal of Personality and Social Psychology*, *58*, 281–291.
- Feeney, J.A., Noller, P., & Hanrahan, M. (1994). Assessing adult attachment. In M.B. Sperling, & W.H. Berman (Eds.), *Attachment in adults: Clinical and developmental perspectives* (pp. 122–158). New York: Guilford.
- Feeney, J.A., & Ryan, S.M. (1994). Attachment style and affect regulation: Relationships with health behavior and family experiences of illness in a student sample. *Health Psychology*, *13*, 334–345.
- Foot, P. (1967). The problem of abortion and the doctrine of double effect. *Oxford Review*, *5*, 5–15.
- Gardner, W.L., Pickett, C.L., & Brewer, M.B. (2000). Social exclusion and selective memory: How the need to belong influences memory of social events. *Personality and Social Psychology Bulletin*, *26*, 486–496.
- Gillath, O., Shaver, P.R., Mikulincer, M., Nitzberg, R.E., Erez, A., & Ijzendoorn, M.H. (2005). Attachment, caregiving, and volunteering: Placing volunteerism in an attachment-theoretical framework. *Personal Relationships*, *12*, 425–446.
- Goodman, J.K., Cryder, C.E., & Cheema, A. (2012). Data collection in a flat world: The strengths and weaknesses of Mechanical Turk samples. *Journal of Behavioral Decision Making*, *26*, 213–224.
- Graham, J., Haidt, J., Koleva, S., Motyl, M., Iyer, R., Wojcik, S.P., et al. (2013). Moral foundations theory: The pragmatic validity of moral pluralism. *Advances in Experimental Psychology*, *47*, 55–130.
- Greene, J.D. (2013). *Moral tribes: Emotion, reason, and the gap between us and them*. New York: The Penguin Press.
- Greene, J.D., Morelli, S.A., Lowenberg, K., Nystrom, L.E., & Cohen, J.D. (2008). Cognitive load selectively interferes with utilitarian moral judgment. *Cognition*, *107*, 1144–1154.
- 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 (New York, N.Y.).
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*, 511–524.
- Hechter, M., & Opp, K.D. (2001). *Social norms*. New York: Russel Sage Foundation.
- Higgins, E.T., King, G.A., & Mavin, G.H. (1982). Individual construct accessibility and subjective impressions and recall. *Journal of Personality and Social Psychology*, *43*, 35–47.
- Impett, E.A., & Peplau, L.A. (2002). Why some women consent to unwanted sex with a dating partner: Insights from attachment theory. *Psychology of Women Quarterly*, *26*, 360–370.
- Joel, S., MacDonald, G., & Plaks, J.E. (2012). Attachment anxiety uniquely predicts regret proneness in close relationships. *Social Psychological and Personality Science*, *3*(3), 348–355.
- Joel, S., MacDonald, G., & Plaks, J.E. (2013). Romantic relationships conceptualized as a judgment and decision-making domain. *Current Directions in Psychological Science*, *22*, 461–465.
- Kant, I. (1959). In L.W. Beck (Ed.), *Foundation of the metaphysics of morals*. Indianapolis: Bobbs-Merrill (Original work published in 1785).
- Koenigs, M., Kruepke, M., Zeier, J., & Newman, J.P. (2012). Utilitarian moral judgment in psychopathy. *Social Cognitive and Affective Neuroscience*, *7*(6), 708–714.
- Koenigs, M., Young, L., Adolphs, R., Tranel, D., Cushman, F., Hauser, M., et al. (2007). Damage to the prefrontal cortex increases utilitarian moral judgments. *Nature*, *446*, 908–911.
- Kogut, T., & Kogut, E. (2011). Possession attachment: Individual differences in the endowment effect. *Journal of Behavioral Decision Making*, *24*, 377–393.
- Kogut, T., & Kogut, E. (2013). Exploring the relationship between adult attachment style and the identifiable victim effect in helping behaviour. *Journal of Experimental Social Psychology*, *49*, 651–660.
- Kohlberg, L. (1969). Stage and sequence: The cognitive-developmental approach to socialization. In D.A. Goslin (Ed.), *Handbook of socialization theory and research* (pp. 347–480). Chicago: Rand McNally.
- Koleva, S., Selterman, D., Iyer, R., Ditto, P., & Graham, J. (2014). The moral compass of insecurity: Anxious and avoidant attachment predict moral judgment. *Social Psychological and Personality Science*, *5*(2), 185–194.
- Leary, M. R., Kelly, K. M., Cottrell, C. A., & Schreindorfer, L. S. (2005). Individual differences in the need to belong: Mapping the nomological network. *Unpublished manuscript, Wake Forest University*.

- Lickel, B., Hamilton, D.L., Wierzchowska, G., Lewis, A., Sherman, S.J., & Uhles, A.N. (2000). Varieties of groups and the perception of group entitativity. *Journal of Personality and Social Psychology, 78*, 223–246.
- Mikulincer, M., Orbach, I., & Iavnieli, D. (1998). Adult attachment style and affect regulation: Strategic variations in subjective self-other similarity. *Journal of Personality and Social Psychology, 75*(2), 436–448.
- Mikulincer, M., & Shaver, P.R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford Press.
- Mill, J.S. (1861/1998). In R. Crisp (Ed.), *Utilitarianism*. New York: Oxford University Press.
- Moore, A.B., Clark, B.A., & Kane, M.J. (2008). Who shalt not kill? Individual differences in working memory capacity, executive control, and moral judgment. *Psychological Science, 19*(6), 549–557.
- Overall, N.C., & Sibley, C.G. (2009). When accommodation matters: Situational dependence within daily interactions with romantic partners. *Journal of Experimental Social Psychology, 44*, 95–104.
- Overall, N.C., Simpson, J.A., & Struthers, H. (2013). Buffering attachment-related avoidance: Softening emotional behavioral defences during conflict discussions. *Journal of Personality and Social Psychology, 104*, 854–871.
- Paxton, J.M., Ungar, L., & Greene, J.D. (2011). Reflection and reasoning in moral judgment. *Cognitive Science, 36*(1), 163–177.
- Posner, E. (2000). *Law and social norms*. Harvard University Press.
- Rai, T.S., & Fiske, A.P. (2011). Moral psychology is relationship regulation: Moral motives for unity, hierarchy, equality, and proportionality. *Psychological Review, 118*, 57–75.
- Rand, D.G. (2012). The promise of Mechanical Turk: How online labor markets can help theorists run behavioral experiments. *Journal of Theoretical Biology, 299*, 172–179.
- Robinson, J. S. (2012). Development and validation of a scale to measure deontological and utilitarian beliefs. *Unpublished Masters thesis, University of Toronto*.
- Rom, E., & Mikulincer, M. (2003). Attachment theory and group processes: The association between attachment style and group-related representations, goals, memories, and functioning. *Journal of Personality and Social Psychology, 84*, 1220–1235.
- Schimmack, U. (2012). The ironic effect of significant results on the credibility of multiple-study articles. *Psychological Methods, 4*, 551–566.
- Shaver, P.R., Mikulincer, M., & Shemesh-Iron, M. (2010). A behavioral systems perspective on prosocial behavior. In M. Mikulincer, & P.R. Shaver (Eds.), *Prosocial motives, emotions, and behavior: The better angels of our nature* (pp. 73–91). Washington, DC: American Psychological Association.
- Shweder, R.A., Mahapatra, M., & Miller, J. (1987). Culture and moral development. In J. Kagan, & S. Lamb (Eds.), *The emergence of morality in young children* (pp. 1–83). Chicago: University of Chicago Press.
- Simpson, J. A., Rholes, W. S., Oriña, M. M., & Grich, J. (2002). Working models of attachment, support giving, and support seeking in a stressful situation. *Personality and Social Psychology Bulletin, 28*(5), 598–608.
- Simmons, J.P., Nelson, L.D., & Simonsohn, U. (2011). False-positive psychology: Undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science, 22*(11), 1359–1366.
- Slovic, P. (2007). "If I look at the mass I will never act": Psychic numbing and genocide. *Judgment and Decision Making, 2*, 79–95.
- Spencer, S.J., Zanna, M.P., & Fong, G.T. (2005). Establishing a causal chain: Why experiments are often more effective than meditational analyses in examining psychological processes. *Journal of Personality and Social Psychology, 89*, 845–891.
- Suter, R.S., & Hertwig, R. (2011). Time and moral judgment. *Cognition, 119*(3), 454–458.
- Tetlock, P.E. (2002). Social functionalist frameworks for judgment and choice: Intuitive politicians, theologians, and prosecutors. *Psychological Review, 109*, 451–471.
- Thomson, J. (1985). The trolley problem. *Yale Law Journal, 94*(6), 1395–1415.
- Thomson, M., Whelan, J., & Johnson, A.R. (2012). Why brand should fear fearful consumers: How attachment style predicts retaliation. *Journal of Consumer Psychology, 22*, 289–298.
- Turiel, E. (1983). *The development of social knowledge: Morality and convention*. Cambridge, England: Cambridge University Press.
- Uhlmann, E.L., Pizarro, D.A., Tannenbaum, D., & Ditto, P.H. (2009). The motivated use of moral principles. *Judgment and Decision Making, 4*(6), 476–491.
- Vasquez, K., Durik, A.M., & Hyde, J.S. (2002). Family and work: Implications of adult attachment styles. *Personality and Social Psychology Bulletin, 28*, 874–886.
- West, S.G., Aiken, L.S., & Krull, J.L. (1996). Experimental personality designs: Analyzing categorical by continuous variable interactions. *Journal of Personality, 64*(1), 1–48.
- Yzerbyt, V.V., Muller, D., & Judd, C.M. (2004). Adjusting researchers' approach to adjustment: On the use of covariates when testing interactions. *Journal of Experimental Social Psychology, 40*, 424–431.
- Zayas, V., Mischel, W., Shoda, Y., & Aber, J.L. (2011). Roots of adult attachment: Maternal caregiving at 18 months predicts adult peer and partner attachment. *Social Psychological and Personality Science, 2*(3), 289–297.