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What Attitudes are Moral Attitudes? The Case of Attitude Heritability

Mark J. Brandt[1] and Geoffrey A. Wetherell[1]

Abstract

Variation in the extent an attitude is imbued with moral conviction is a strong predictor of a variety of consequential social judgments; however, the extant literature has not explained variation in moral conviction. The authors predict that some attitudes may be experienced as moral because they are heritable, promoting group survival and firmly rooting people in these attitudes. To test this hypothesis, the authors surveyed two community samples and a student sample (total $N = 456$) regarding the extent participants perceived 20 attitudes as moral attitudes, and compared these ratings to established estimates of attitude heritability. Across all three studies, attitudes with greater previously established heritability estimates were more likely to be experienced as moral, even when controlling for a variety of measures of attitude strength and the extent to which an attitude is associated with one's religious beliefs.

Keywords

morality, attitudes, ethics/morality, hierarchical linear modeling/multilevel modeling, behavior genetics

Much of the research on moral psychology has focused on situations that researchers decide are moral a priori, often focusing on issues of harm or fairness (Haidt & Kesebir, 2010). In an effort to broaden the scope of moral psychology and to discover how the general public reasons about and reacts to a variety of situations relevant to their moral attitudes, researchers have incorporated domains of morality beyond harm and fairness (e.g., domains of community and divinity; Graham, Haidt, & Nosek, 2009; Graham et al., 2011). Others have gone a step further. Rather than defining attitudes and behaviors as falling into a preset number of moral domains, these researchers ask participants to what extent a particular attitude or belief is a part of their core moral values and convictions. A common finding is that a variety of attitudes vary in the extent they are experienced with a sense of moral conviction (Bauman & Skitka, 2009; Skitka, 2010). These attitudes are imbued with an individual's ultimate sense of right and wrong and are experienced as "readily observable, objective properties of situations, or as facts about the world" that motivate and justify behavior (Bauman & Skitka, 2009, p. 342). For some, support or opposition to an idea like nuclear proliferation is a manifestation of their core conception of right and wrong. For others, however, an attitude about nuclear proliferation is firmly rooted in the practical implications of the policy.

The variation in one's subjective sense of moral conviction has been related to a variety of important outcomes (for a review, see Skitka, 2010), including intolerance (Skitka, Bauman, & Sargis, 2005; Wright, Cullum, & Schwab, 2008), perceptions of the legitimacy of authority (Skitka, Bauman, & Lytle, 2009), intentions to vote (Skitka & Bauman, 2008), and perceptions of justice (Skitka, 2002; Skitka & Mullen, 2002). These results are largely independent of a person's position on the attitude as well as other measures of attitude strength (i.e., nonmoral conviction, cf. Abelson, 1995). Despite the robust effects of moral conviction on social judgments, little work has directly attempted to account for *why* some people perceive some attitudes as moral and not others. In order to fully understand attitudinal moral conviction, it is important to understand its source as well as its consequences. The purpose of this article is to explore one potential explanation for variance in moral conviction: attitude heritability.

Attitude Heritability

To determine if a particular trait, characteristic, or attitude has a basis in our genes, behavioral geneticists often use twin studies (for overviews of the promise and pitfalls of this method, see Alford, Funk, & Hibbing, 2005, 2008; Bouchard & McGue,

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2003; Hannagan & Hatemi, 2008). In these studies, data from monozygotic (MZ) and dizygotic (DZ) twins are compared to calculate the variance attributable to genetic and environmental similarity. The resulting heritability estimate (H^2) represents the proportion of variance in an outcome variable attributable to shared genotypes. As with most other traits and characteristics (for a review, see Bouchard & McGue, 2003), individual attitudes can vary to the extent they are heritable, such that some attitudes are more strongly determined by our environment and unique experiences, and others are more strongly determined by our genes (Alford et al., 2005; Eaves, Eysenck, & Martin, 1989; Lewis & Bates, 2010; Olson, Vernon, Harris, & Jang, 2001). For example, Eaves, Eysenck, and Martin (1989) found that variation in agreement or disagreement with the item, ''The death penalty is barbaric and should continue to be abolished,'' is largely determined by genetic variation ($H^2 = .56$), whereas variation in agreement or disagreement with the item, ''Sex relations except in marriage are always wrong,'' is largely due to different environmental and socialization experiences ($H^2 = .04$). This is not to say that people have a specific gene for support or opposition to the death penalty, but rather through complex multidimensional mechanisms (e.g., personality, intelligence, gene–environment interactions) a variety of genes predispose people to fall on one side or the other of some (not all) issues (e.g., Olson et al., 2001; Settle, Dawes, Christakis, & Fowler, 2010).

The Experience of Heritable Attitudes

Attitudes that are determined more by genetic factors (heritable attitudes) are experienced differently than attitudes that are determined more by environmental and socialization factors (nonheritable attitudes). Tesser (1993) asserted that heritable attitudes would be stronger and more resistant to change than nonheritable attitudes because heritable attitudes have a biological basis that gives them greater resiliency. To test these ideas Tesser and his colleagues (1993;Crelia & Tesser, 1996; Tesser & Crelia, 1994; Tesser, Whitaker, Martin, & Ward, 1998) had participants complete a variety of attitude experiments using attitudes with previously established estimates of heritability (Eaves et al., 1989). By comparing the responses of his participants to the previously estimated heritability coefficients, Tesser was able to conclude that heritable attitudes were stronger than less heritable attitudes. For example, across a variety of experimental paradigms, these studies have found that heritable attitudes are more accessible in memory (Tesser, 1993), are more resistant to changing social norms (Tesser, 1993), and are more physiologically arousing (Tesser et al., 1998). Olson and colleagues (2001) conceptually replicated these results using heritability estimates and attitude importance and strength ratings from the same population.

The Current Research

We suggest that heritable attitudes will be experienced with a sense of moral conviction for at least two reasons. First, an evolutionary perspective would expect that the attitudes and traits most likely to benefit the survival of the self and the group would be most effectively transmitted from one generation to another. Several authors have theorized that morality developed in order to promote group fitness (e.g., Haidt & Kesiber, 2010) and sexual selection (e.g., Miller, 2007) leaving humans with moral intuitions that bind groups together and guide moral decision making (Graham et al., 2011). To the extent shared attitudes that are stable within a group across generations (i.e., heritable attitudes) also help bind groups together they may become moralized and help maintain group fitness. Second, the relationship between heritability and morality can also be explained by current circumstances without referring to any ancient environment. Some attitudes may be more likely to be imbued with moral conviction and perceived as objective fact because they are based in biology (i.e., heritability), firmly rooting people in these attitudes. Moral conviction may reaffirm the strong basis of heritable attitudes and protect the heritable attitude from environmental sources promoting change (cf. Tesser, 1993)—a potentially psychologically painful process (Tesser et al., 1998).

There is some initial evidence for the prediction that attitude heritability will be related to moral conviction because moral and heritable attitudes share several characteristics. For example, both moral and heritable attitudes are experienced with a greater sense of importance (Olson et al., 2001; Skitka et al., 2005), encourage quick and intuitive judgments (Haidt, 2001; Tesser, 1993; Wisneski, Lytle, & Skitka, 2009), are resistant to changing social norms and the mandate of social authorities (Skitka, 2010; Tesser, 1993), and are associated with more physiological and emotional arousal when violated (Mullen & Skitka, 2006; Tesser et al., 1998). In summary, the phenomenological experiences of both moral and heritable attitudes share several features.

We expected that the more heritable an attitude was, the more moral the attitude would be perceived to be. We tested our hypothesis in three studies using a university sample and two community samples following a similar research design as Tesser (1993; see e.g., Study 1). In each study, participants gave their opinion and sense of moral conviction for 20 attitudes. These ratings were then compared to previously established heritability estimates of the attitudes (Eaves et al., 1989). To make a stronger case that the experience of morality associated with an attitude is not simply driven by other heritable aspects of attitude strength, we included several measures of attitude strength and attitude-specific religious conviction because attitude strength and religious belief are both correlated with moral conviction (Skitka et al., 2009; Skitka et al., 2005) and are, in part, heritable (Koenig, McGue, Krueger, & Bouchard, 2005; Olson et al., 2001; Tesser, 1993).

Study 1

We first tested our hypothesis in a university sample and included measures of attitude strength, including extremity, centrality, importance, and certainty. We also included a

Table 1. Attitude Items and Heritability Estimates

Items	Heritability
Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be flogged or worse	.62
Men and women have the right to find whether they are sexually suited before marriage	.57
The death penalty is barbaric and should continue to be abolished	.56
The average person can live a good enough life without religion	.55
Birth control, except when recommended by a doctor, should be made illegal	.54
Black people are innately inferior to White people	.50
There is no survival of any kind after death	.46
In taking part in any form of world organization, this country should make certain that none of its independence and power is lost	.45
People suffering from incurable diseases should have the choice of being put painlessly to death	.45
"My country right or wrong" is a saying that expresses a fundamentally desirable attitude	.44
Persons with serious hereditary defects and diseases should be compulsorily sterilized	.21
It is just as well that the struggle of life tends to weed out those who cannot stand the pace	.19
The nationalization of the great industries is likely to lead to inefficiency, bureaucracy, and stagnation	.19
The so-called underdog deserves little sympathy or help from successful people	.15
Capitalism is immoral because it exploits the worker by failing to give him full value for his productive labor	.12
Nowadays, more and more people are prying into matters that do not concern them	.12
People should realize that their greatest obligation is to their family	.11
Refugees should be left to fend for themselves	.11
Sex relations except in marriage are always wrong	.04
It is wrong to punish a man if he helps another country because he prefers it to his own	.01

measure of attitude specific religious conviction. This allowed us to test the robustness of the effect taking into account a variety of measures of attitude strength as well as attitude religiousness—a construct commonly associated with morality (cf. Graham & Haidt, 2010; Mooney, 2001).

Method

Participants and Procedures. Participants (77 men, 120 women, 1 no response; $M_{age} = 20.4$, $SD_{age} = 3.3$) were recruited through the psychology subject pool and received partial course credit for their participation. Participants were primarily White (59.6%) or Latino/Latina (20.7%).

Measures. To measure *attitude heritability*, we used the heritability coefficients calculated by Eaves and colleagues (1989) for 20 attitude items from Eysenck's (1954) public opinion inventory. Eaves and colleagues derived these estimates from a study of 825 twin pairs, a widely accepted method for determining heritability estimates. These are the same heritability estimates used by Tesser and his colleagues (1993; Tesser et al., 1998). The attitudes spanned a range of heritabilities and showed no gender differences. See Table 1 for the list of attitudes and heritability estimates.

For each attitude, participants were asked the extent to which they agreed or disagreed with the issue on a 7-point scale labeled *strongly disagree*, *moderately disagree*, *slightly disagree*, *uncertain/neutral*, *slightly agree*, *moderately agree*, and *strongly agree*. To create an index of attitude *extremity*, or the extent an attitude varies from the scale midpoint, this measure was "folded over" such that options labeled as *strongly* were coded as a 4, *moderately* were coded as 3, *slightly* were coded as 2, and *uncertain/neutral* were coded as 1. *Moral conviction* was measured using an item from Skitka and colleagues (Skitka et al., 2009; Wisneski et al., 2009), which read, "To what extent are your feelings about this issue a reflection of your core moral values and convictions?" Responses were given on a 5-point scale that was labeled *not at all*, *slightly*, *moderately*, *much*, and *very much*.

We also measured attitude centrality, importance, certainty, and religiousness. *Centrality* was measured with the item "How much is this issue related to how you see yourself as a person?" Responses were given on a 5-point scale that was labeled *not at all*, *slightly*, *moderately*, *much*, and *very much*. *Importance* was measured with the item "How important or unimportant is this issue to you personally?" Responses ranged on a 7-point scale labeled *very unimportant, moderately unimportant, slightly unimportant, neutral/uncertain, slightly important, moderately important*, and *very important*. *Certainty* was measured with the item "How certain or uncertain is your position on this issue?" Responses ranged on a 7-point scale with the labels *very uncertain, moderately uncertain, slightly uncertain, neutral/uncertain, slightly certain, moderately certain*, and *very uncertain*. Attitude-specific *religious conviction* (Skitka et al., 2009) was measured with the item "My attitude about this issue is closely connected to my religious beliefs." Responses ranged on a 7-point scale with the labels *strongly disagree*, *moderately disagree*, *slightly disagree*, *uncertain/neutral*, *slightly agree*, *moderately agree*, and *strongly agree*.

Results and Discussion

Analytic Strategy. Our data analytic strategy maps onto Tesser's (1993) strategy to assess the association between attitude

Table 2. Participants as the Unit of Analysis Multilevel Models Predicting Moral Conviction With Attitude Heritability (Study 1)

	b (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)
Heritability	.73 (.08)***	.47 (.07)***	.24 (.06)***	.27 (.07)***	.43 (.07)***	.61 (.08)***
Extremity	–	.45 (.02)***	–	–	–	–
Centrality	–	–	.57 (.02)***	–	–	–
Importance	–	–	–	.42 (.01)***	–	–
Certainty	–	–	–	–	.32 (.02)***	–
Religious conviction	–	–	–	–	–	.25 (.02)***

Each column represents a separate model.
*** $p < .001$.

Table 3. Attitude Items as the Unit of Analysis Multilevel Models Predicting Moral Conviction With Attitude Heritability (Study 1)

	b (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)
Heritability (Level 2)	.73 (.44)$^{+}$	.47 (.35)$^{+}$	.20 (.25)	.28 (.29)	.45 (.33)$^{+}$	.45 (.33)$^{+}$
Extremity	–	.45 (.02)***	–	–	–	–
Centrality	–	–	.61 (.01)***	–	–	–
Importance	–	–	–	.42 (.01)***	–	–
Certainty	–	–	–	–	.31 (.01)***	–
Religious conviction	–	–	–	–		.31 (.01)***

Each column represents a separate model. *p* values are based on one-tailed significance tests.
$^{+}p < .10$.
*** $p < .001$.

heritability and attitude accessibility (i.e., mean reaction times), except we took advantage of modern multilevel modeling techniques. Tesser's first strategy treated the participant as the unit of analysis. For each participant, the correlation between the established heritability estimates and the reaction times were recorded and tested to see if the mean correlation across participants was significantly different from zero. The second strategy treated the attitude items as the unit of analysis by examining the correlation between attitude heritability and the mean reaction times for each attitude item.

We use similar methods, but measured moral conviction rather than reaction times and utilized fixed-effects multilevel models (HLM 6.08, Bryk, Raudenbush, & Congdon, 2004) rather than mean correlations. Instead of averaging correlation coefficients across participants for the first strategy, we treated the data as a two-level multilevel model with attitude items (including heritability estimates and ratings of attitude strength and moral conviction) nested within each participant. Responses were centered on each individual's mean for each predictor variable, so that the resulting coefficients represent the average effect across participants. This approach is consistent with the ideographic approach advocated by moral conviction theorists (see e.g., Bauman & Skitka, 2009).

Consistent with Tesser's second strategy, we treated our data as a two-level multilevel model, but this time nested participants within each attitude item. Reponses were centered on the sample mean for each predictor variable so that the resulting coefficients represent the effect of average levels of the predictor variables on moral conviction across attitude items. We present results using both strategies, but as will be evident, the results are largely consistent.

Finally, for the item as unit analytic strategy, we rely on one-tailed tests because there are only 20 attitude items. Although this may suggest that we are more likely to capitalize on chance, it is important to note that we have clear directional hypotheses and all of the effects across all of the studies are in the same direction. In each study, an initial model was tested using just heritability to predict moral conviction. Following this, additional models were analyzed that subsequently controlled for each of the individual control variables (e.g., extremity).[1] The analytic strategy described here was used in all three studies.

Hypothesis Testing. We expected that more heritable attitudes would be imbued with greater moral conviction than less heritable attitudes and that this relationship would remain after controlling for measures of attitude strength and religious conviction. Tables 2 and 3 contain the results for the multilevel models using heritability, attitude strength, and religious conviction to predict moral conviction. As predicted, attitude heritability was positively associated with moral conviction, though this relationship was marginal when items were the unit of analysis (Table 3). When participants were the unit of analysis (Table 2), the relationship between heritability and moral conviction was resilient to all of the controls of attitude strength

and religious conviction. The results were somewhat more ambiguous when the items were the unit of analysis (Table 3). Heritability remained a marginal significant predictor of moral conviction when controlling for attitude extremity, certainty, and religious conviction; however, the heritability–moral conviction relationship was nonsignificant when controlling for attitude importance and centrality.

Additional analyses. We also tested whether any characteristics of the participants (i.e., age, gender, family income, father's education, mother's education) moderated the relationship between heritability and morality by including cross-level interactions between the participant characteristic and heritability predicting moral conviction with the participant as unit of analysis. None of the potential moderator variables emerged as significant (all *p*s ranged from .07 to .78). Overall, the results of Study 1 found that heritability is associated with moral conviction and that this relationship is largely robust to controls of attitude strength and religious conviction. Moreover, the pattern of results does not significantly differ among a variety of demographic subgroups.

Studies 2 and 3

Despite the robust results with participants as the unit of analysis, the results of Study 1 were more ambiguous when the attitude items were the focus. With this analytic strategy, the results were all in the predicted direction, but they only attained marginal significance. The purpose of the second and third study is to replicate the association between attitude heritability and morality using a sample other than university students. University samples differ in several ways from the general public, including less well-formed attitudes (e.g., Sears, 1986). Because Studies 2 and 3 only differed in respect to the measure of centrality we included in Study 3, we combined the methods and results sections of these two studies.

Method

Participants and Procedures. Participants for Studies 2 (51 men, 95 women, 2 no response; $M_{age} = 29.7$, $SD_{age} = 10.3$) and 3 (44 men, 65 women, 1 no response; $M_{age} = 29.9$, $SD_{age} = 9.2$) were recruited on MTurk, a service that connects people who need short tasks completed (such as a psychological survey) with people who are willing to do short tasks for a small fee (see Buhrmester, Kwang, & Gosling, 2011 for a review of this service for data collection in psychological research). Participants for both studies received $0.10 for their participation, a small reward consistent with past MTurk studies (Buhrmester et al., 2011). Participants in Study 2 were primarily White (73.6%) or African American (8.8%) and spanned a large range of educational achievement (1.4% no degree earned, 32.4% high school or equivalent, 12.2% associate's degree, 44.6% bachelor's degree, and 9.5% master's degree). Similarly, participants in Study 3 were primarily White (74.5%) or Asian or Pacific Islander (9.1%) and also spanned the range of educational achievement (4.5% no degree earned, 28.2% high school or equivalent, 12.7% associate's degree, 43.6% bachelor's degree, 8.2% master's degree, 2.7% doctoral degree).

Measures. The survey for Study 2 contained measures of moral conviction and attitude extremity. The survey for Study 3 contained measures of moral conviction, attitude extremity, and attitude centrality. Attitude heritability, moral conviction, extremity, and centrality were measured in the same way as Study 1.

Results and Discussion

We expected that heritable attitudes would be experienced with a sense of moral conviction. Tables 4 and 5 contain the results from multilevel models using heritability and attitude extremity to predict moral conviction in both samples. Whether the participants (Table 4) or the items (Table 5) were the unit of analysis, heritability was positively and significantly associated with moral conviction across both studies. In Study 2, when controlling for attitude extremity, heritability was still significantly associated with moral conviction when participants were the unit of analysis (Table 4) and heritability was marginally significantly associated with moral conviction when the items were the unit of analysis (Table 5). These relationships were both significant in Study 3. Moreover, the results of the community sample in Study 3 indicate that the heritability–moral conviction relationship is robust to attitude centrality using both analytic strategies (see right-hand side of Tables 4 and 5).

Additional analyses. We again tested for any potential moderation effects of the participants' age, education, and gender (family income was not assessed). In Study 2, there were no significant moderators (all *p*s ranged from .15 to .32). In Study 3, age and education did not significantly moderate the relationship (*p*s = .16 and .85 respectively), though participant gender did result in a significant moderation effect ($b = -.33$, $SE = .13$, $p = .02$). This effect suggests that in Study 3 the link between attitude heritability and moral conviction was stronger for women ($b = 1.09$, $SE = .15$, $p < .001$) than it was for men ($b = .43$, $SE = .22$, $p = .06$); however, consistent with the study's hypothesis, the effects remained and were in the same direction for both men and women.

Overall, the results of this study found that heritable attitudes were more likely to be perceived with a sense of moral conviction and that this relationship remained even when controlling for attitude extremity and centrality. These results confirm the findings from Study 1 by determining that the heritability–moral conviction relationship is robust in community samples.

General Discussion

Past work has found that variations in moral conviction affect social judgments and behaviors in a variety of domains (Skitka, 2010); yet little work has attempted to account for ideographic variation in moral conviction. We suggested that because it

Table 4. Participants as the Unit of Analysis Multilevel Models Predicting Moral Conviction With Attitude Heritability (Studies 2 and 3)

	Study 2		Study 3		
	b (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)
Heritability	.72 (.11)***	.33 (.10)***	.83 (.13)***	.42 (.11)***	.54 (.10)***
Extremity	–	.59 (.03)***	–	.56 (.03)***	–
Centrality	–	–	–	–	.63 (.03)***

Each column represents a separate model.
*** $p < .001$.

Table 5. Attitude Items as the Unit of Analysis Multi-Level Models Predicting Moral Conviction With Attitude Heritability (Studies 2 and 3)

	Study 2		Study 3		
	b (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)
Heritability (Level 2)	.71 (.37)*	.31 (.22)$^{+}$	.86 (.36)*	.37 (.21)*	.51 (.22)*
Extremity	–	.61 (.02)***	–	.67 (.02)***	–
Centrality	–	–	–	–	.69 (.02)***

Each column represents a separate model. *p* values are based on one-tailed significance tests.
$^{+}p < .10$.
* $p < .05$.
*** $p < .001$.

would be advantageous for group survival, and because heritable attitudes are more firmly rooted, heritable attitudes would be associated with moral conviction. Across three studies our hypothesis was supported. This relationship remained using two different analytic strategies in both community and student samples, and, in almost all cases, when controlling for several facets of attitude strength and attitude-specific religious conviction. We also tested the consistency of this effect by examining several potential moderator variables. With one exception, these analyses found that across variations in education, income, age, and gender, attitude heritability was consistently associated with moral conviction preliminarily indicating that moralizing heritable attitudes is a viable strategy for men and women, the educated and uneducated, the rich and the poor, and the old and the young. The results of these studies contribute to the literatures of both moral conviction and attitude heritability by finding a potential underlying predictor of moral conviction.

Whether the association between moral conviction and heritability arose because of evolutionary pressures or a firm rooting in biology, moral conviction may play a specific role for heritable attitudes. Tesser and his colleagues (1993; Crelia & Tesser, 1996) theorized that because heritable attitudes have a biological basis and are thus potentially painful or difficult to change, people adopt a variety of strategies to avoid changing heritable attitudes. By adopting a moral stance around heritable attitudes, people may be able to incorporate these inescapable attitudes into a greater system of moral meaning that reinforces the attitudes' stability and protects the attitudes from change. Consistent with this proposition, people are intolerant of those who do not share their moral attitudes (Skitka et al., 2005; Wright et al., 2008), distrust people who disagree with their moral attitudes (including typically legitimate authorities like the Supreme Court; Wisneski et al., 2009), and engage in behaviors that would promote their moral attitudes (Mahoney et al., 2005; Skitka & Bauman, 2008). Heritable attitudes may be moral attitudes because imbuing an attitude with moral conviction reduces the chance the heritable attitude will be subject to circumstances that would promote change (e.g., interacting with attitudinally dissimilar others). This could enhance group survival by maintaining clear group boundaries and spare people the psychological discomfort of changing a particularly stable attitude.

Limitations and Future Directions

As with any study there are several limitations to the current set of studies. First and foremost, the validity of our results is highly dependent on the validity of the twin study paradigm and the heritability estimates of Eaves and colleagues (Eaves et al., 1989). For example, if MZ twins are treated more similarly than DZ twins and this similarity leads to inflated correlations among MZ twins (cf. Charney, 2008), then the heritability coefficient would be an index of "similarity of treatment" rather than heritability. It is difficult to explain, however, why variation in the extent to which "similarity of treatment" explains variation in an attitude predicts the moral conviction associated with that attitude. Additionally, any error in the heritability estimates—due to problems with the twin study paradigm, the estimate of the coefficients, or the applicability

of the estimates to our current sample—would reduce the chances of establishing the association between heritability and moral conviction suggesting that the actual relationship may be more robust than the current studies indicate. Nonetheless, the current studies did not make use of a twin study design nor any of the more advanced behavioral genetic methods, so we are not able to speculate about the proportion of variation in moral conviction that is heritable nor the specific set of genes responsible for these relations.

Instead, our studies, following an established research paradigm (e.g., Crelia & Tesser, 1996; Tesser, 1993; Tesser et al., 1998; Tesser & Crelia, 1994), find that those attitudes that are more likely to be based in our genetic inheritance are more likely to be perceived with a sense of moral conviction. Rather than providing the definitive answer about heritability and morality, the current study provides a promising first step to understanding the underpinnings of moral conviction. Including items about moral conviction may enhance future behavioral genetic research on the heritability of attitudes and the sources of moral conviction. Additionally, research can extend the current findings by including behavioral measures (e.g., Skitka et al., 2005, Study 3) and examining the role of political ideology. Previous research has found a number of similarities in the effects of moral conviction for people of different ideological stripes (e.g., Skitka & Bauman, 2008); however, the underpinnings of moral conviction for these groups may differ.

Conclusion

This research provides initial evidence that the extent to which an attitude is experienced as moral is associated with the heritability of the attitude. Although we cannot directly test the idea that moral attitudes are heritable per se, the fact that attitude heritability predicted attitude morality when controlling for other instantiations of attitude strength and religious conviction provides strong evidence that heritability is a unique predictor of attitude morality. It may be the case that when researchers say that moral conviction comes from the gut (cf. Haidt, 2001; Wisneski et al., 2009), it may in fact be coming from our genes.

Authors' Note

A version of this work was presented as a poster at the Justice and Morality preconference of the 2011 annual meeting of the Society for Personality and Social Psychology in San Antonio, Texas.

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Note

1. Like past work on moral conviction (e.g., Skitka et al., 2005), the extent a person endorses a particular attitude did not play a role in our results, indicating that a person's sense of moral conviction is independent of their position on an attitude. It is not discussed further.

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