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Understanding the Diversity and Fluidity of Human Morality through Evolutionary Psychology

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Abstract

Evolutionary psychology promotes a functional conceptualization of human morality. A key insight from evolutionary studies on morality is that natural selection should favor both diversity and fluidity in morality. Moral diversity is evidenced by moral psychological research on within- and cross-society variations in the endorsement of moral concerns. Moral fluidity is exhibited in the conditional expression of moral hypocrisy, situational effects on intuitive versus rational moral processing, and environmental effects on the degree of prosociality. From this perspective, empirical methods and evolutionary models can be combined in future research to better explicate how morality develops and manifests in various environments.

Keywords: environmental conditions; moral diversity; moral psychology; behavioral plasticity; prosociality;

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In *the Descent of Men*, Charles Darwin noted that the evolution of human morality is of "the highest interest" to his grand theory yet is only understood in an "imperfect and fragmentary manner" (Darwin, 1871, p. 158). According to E. O. Wilson (1998), the evolutionary perspective paved the way for empirical examinations of moral phenomena based on biological and psychological adaptations shared by humans and other species. Indeed, the field of the evolution of morality has expanded considerably in the past two decades and leading theorists in moral psychology have widely accepted a functional, rather than transcendental, conception of morality (namely, morality ultimately serves to promote prosocial cooperation and suppress individual selfishness; Haidt, 2012; Krebs, 2015; Tomasello & Vaish, 2013).

A prominent and unique contribution of evolutionary psychology to the study of human morality in the past 25 years might be the recognition that human morality is more diverse and fluid than moral psychologists initially assumed. Such moral diversity and fluidity might stem from the evolutionary equilibrium sustained by conditionally cooperative strategies (Nowak & Sigmund, 2005; Panchanathan & Boyd, 2004). Building on earlier studies on evolutionary game theory (e.g., Axelrod, 1984), a surge of evolutionary theories have been proposed to explicate the viability of prosocial morality based on mechanisms such as indirect reciprocity (Nowak & Sigmund, 2005), competitive altruism (Nesse, 2007), and coordinated punishment of

free-riders (Boyd, Gintis, & Bowles, 2010). Qualitative and quantitative models have indicated that dyadic cooperation or cooperative generation of public goods can be sustained if there are reliable ways to accrue and assess reputation associated with prosocial behaviors (Nowak & Sigmund, 2005), or if there is an alternative strategy to avoid social interactions with non-cooperative individuals (Panchanathan & Boyd, 2004). Other models also demonstrated that the punishment of free-riders or defectors across wide-ranging experimental games or social dilemmas can be sustained when there are individual differences in the preference for equity (Fehr & Schmidt, 1999). However, all these models indicate that unconditional cooperation and altruism cannot prevail by themselves. Rather, natural selection would have in many cases favored the coexistence of diverse strategies within or across populations.

Incorporating this evolutionary perspective on moral diversity and fluidity into moral psychology, we might be able to understand better why people might possess different moral intuitions, and why their moral judgments might disagree with each other or be inconsistent across time and space (Haidt, 2001; Paxton & Greene, 2010). To begin with, moral diversity might be reflected in the differential ranges of issues that people moralize (Haidt & Graham, 2007). For example, online research data across states in the United States showed that people identified as liberals mainly endorse "individualizing" moral concerns consisting of fairness and the avoidance of harm. By contrast, conservatives have a wider range of "binding" moral concerns (including loyalty to ingroups, respect for authorities, and religious sanctity; Graham, Haidt, & Nosek, 2009). In addition, "individualizing" concerns are endorsed to a

greater degree among better-educated individuals, and in states with lower teenage birth rates, whereas loyalty to ingroup is deemed more important by people with higher social classes (Van Leeuwen, Koenig, Graham, & Park, 2014). Other research also found cross-regional and cross-cultural variations in the relative importance of these moral concerns (Graham et al., 2011). Evolutionary accounts are yet to shed light on the distal environmental influences behind these group variations in moral concerns.

There are also cross-cultural variations regarding the moral concern of fairness. Gathering data from 15 diverse populations ranging from foraging societies to farming and industrial societies, Henrich et al. (2010) demonstrated that the emphasis on fairness and the willingness to punish unfair behaviors are greater in more complex societies (e.g., those with higher market integration or larger community size). In another large-scale, cross-cultural study on global economic and social preferences, researchers found that higher latitude and better geographic conditions both predicted more negative reciprocity (punishment of unfair behaviors) and greater trust (assuming good intentions and fair dealings of others; Falk et al., 2018). In other words, complex societies in moderately challenging environments (cooler climate but sufficient resources) seem to be conducive to morality with a greater emphasis on fairness, which can potentially be explained by the cultural evolution of large-scale cooperation (Chudek & Henrich, 2011).

Evolutionary psychology also accounts for moral fluidity based on the notions of behavioral plasticity. This means that the same individual might exhibit different

moral behaviors and judgments depending on the ecological and social environments, rather than displaying a genotypic dichotomy between selfishness and altruism (Fehr & Fischbacher, 2005). Similarly, Monin and Jordan (2009) suggested that individuals' prosociality in moral thinking and behaviors might "fluctuates from moment to moment according to situational influences" (p. 347), moderated by their moral self-concept. More recently, Delton and Robertson (2015) proposed that moral decisions that involve the tradeoff between personal self-interests and the welfare of others (i.e., welfare tradeoffs) are computed in evolved mind using a range of relationship and situational cues.

Empirical studies in the past 25 years are largely in line with moral fluidity as an adaptive social strategy. Research has shown that moral behaviors in the forms of donation or contribution to public goods increases when doing so improves one's reputation (Englemann & Fischbacher, 2009; Sylwester & Roberts, 2013), and that prosocial moral reputation attracts cooperative partners in subsequent interactions (Barclay, 2004; Barclay & Willer, 2007). By contrast, experiments on the phenomenon of moral hypocrisy have shown that participants normally do not reject selfish opportunities, while seeking to appear moral through the use of pseudo-fair procedures (Batson, Kobrynowicz, Dinnerstein, Kampf, & Wilson, 1997). Moreover, without salient moral standards emphasizing prosocial behaviors, participants tended to adopt a low standard and consider self-benefiting behaviors at others' cost as morally acceptable (Batson, Thompson, Seuferling, Whitney, & Strongman, 1999).

Moral fluidity is also reflected in the conflict between intuitive, emotional moral

processing and rational, deliberate moral processing, which often leads to logically inconsistent judgments in response to moral dilemmas (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001). Combining philosophical puzzles with neuroimaging techniques in their pioneering studies, Greene and colleagues exposed participants to moral dilemmas that pit an intuitively more acceptable, "deontological" judgment against a rational but less savory, "utilitarian" solution. They discovered that such dilemmas increased activation in brain regions related to emotional processing (e.g., medial frontal gyrus, posterior cingulate gyrus, and angular gyrus; Greene et al., 2001; Greene, Nystrom, Engell, Darley, & Cohen, 2004). Additionally, utilitarian responses to such dilemmas require longer response latency than deontological responses and recruit brain regions associated with abstract reasoning and cognitive control (e.g., dorsolateral prefrontal cortex, anterior cingulate cortex; Greene et al., 2001, 2004).

However, such a delicate balance between intuition and rationality in moral judgments is influenced by many situational factors and individual differences. Research has shown that the choices between deontological and utilitarian solutions are affected by experimentally induced emotions (Valdesolo & DeSteno, 2006), relative salience of rules versus consequences (Bartels, 2008), reflective versus intuitive thinking style (Paxton, Ungar, & Greene, 2012), mortality salience (Trémolière, De Neys, & Bonnefon, 2012), response time constraints (Suter & Helwig, 2011), cognitive load (Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008), and the domain of moral judgment (Wheeler & Laham, 2016). In addition to

these situational factors, trait individual differences in terms of reflectiveness, empathic concern, and the sensitivity to reward or punishment have also been found to predict individual proclivities toward deontological or utilitarian decisions (Gleichgerrcht & Young, 2013; Moore, Stevens, Conway, 2011; Paxton et al., 2012).

The degree of prosociality (i.e., the moral tendency to benefit others at the expense of one's self-interests) and the intuitiveness/reflectiveness in thinking processes are not jointly examined in these studies. Little is known about how such moral fluidity might be shaped by fitness-affecting environmental forces, such as extrinsic risks and competition. These fitness-affecting environmental forces have been theorized and empirically shown to lead to developmental and behavioral plasticity (e.g., Chang et al., 2019; Ellis, Figueredo, Brumbach, & Schlomer, 2009). Some recent studies sought to address these questions. For example, one survey (Zhu, Hawk, & Chang, 2018, Study 1) found that, in general, experiences of childhood financial insecurity (reflecting extrinsic risks) were linked to less prosocial moral reasoning, whereas the opposite was true for competition in educational and occupational arenas. The association between environmental factors and moral reasoning was mainly mediated by cognitive processing capacities such as future-oriented planning.

In another study, the same authors assessed participants' prosocial moral judgments using two types of moral dilemmas that pit self-interests against others' welfare (Zhu et al., 2018, Study 2). The type of dilemmas serves to induce different moral thinking processes: Some of the dilemmas were emotion-laden and encourage

intuitive responses, whereas other dilemmas involved utilitarian calculations and encourage rational responses. They found that experiences of stressful life events (indicating extrinsic risks) predicted fewer prosocial judgments in the face of rational dilemmas, while educational and occupational competition predicted more prosocial judgments in both intuitive and rational moral dilemmas. Importantly, the relations to rational dilemmas were selectively mediated by cognitive perspective-taking, whereas the relations between environmental factors and intuitive dilemmas were selectively mediated by emotional empathic concerns (Zhu et al., 2018).

Finally, consistent with the view of Delton and Robertson (2015), a series of experimental studies showed that moral behaviors and moral judgments might be affected by situational cues of extrinsic risks and competition (Zhu, Hawk, & Chang, 2019). In two experiments (Studies 1 and 2), participants' resource advantage/disadvantage and situational cues affected their spontaneous moral behaviors (donation and volunteering). In a third experiment (Study 3), participants completed a similar task of intuitive and rational moral dilemmas as described above, after reading scenarios containing different combinations of situational cues of extrinsic risks and competition. The results showed that participants exposed to high-extrinsic-risk cues exhibited fewer prosocial judgments than those exposed to low-extrinsic-risk cues, regardless of the type of dilemmas. Participants exposed to high-competition cues showed more prosocial judgments in the face of rational moral dilemmas than those exposed to low-competition cues. All these findings are consistent with the notion of situationally contingent moral fluidity (Delton &

Robertson, 2015). More importantly, these findings also imply that moral fluidity might constitute conditional strategies (e.g., only help others when having enough resources to spare and in predictable, competitive environments) that are conducive to the sustainability of morality in various kinds of environments.

To conclude, the last quarter of the century has seen impressive progress in the research on the evolution of morality. However, our knowledge about this topic is still largely fragmented. Despite the recognition that human morality derives its origin and function from cooperation, empirical findings of moral psychology and mathematical models of the evolution of cooperation still barely inform each other. Additionally, despite vast amounts of evidence for moral diversity and fluidity, whether in terms of moral domains, intuitive and rational judgment processes, or the degree of prosociality, there is a lack of theoretical explanation for such diversity and fluidity. Little research has focused on developmental or situational environmental influences that might alter the current and future fitness payoffs of moral reasoning, judgments, and behaviors. Eventually, cross-cultural moral diversity, within-cultural moral differences, and within-person moral fluidity might be based on similar evolutionary mechanisms operating on different levels. Knowledge of such evolutionary mechanisms of moral diversity and fluidity should be conducive to more effective ways of mitigating moral conflicts, dispelling moral hypocrisy, and solving real-world social dilemmas. Therefore, it is highly anticipated that future research in evolutionary psychology would continue to explore the diversity and fluidity in moral reasoning, judgment, and behavior.

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