Evolution and Human Behavior xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Evolution and Human Behavior

journal homepage: www.elsevier.com/locate/ens

The cognitive and cultural foundations of moral behavior

Benjamin Grant Purzycki[a,*], Anne C. Pisor[a], Coren Apicella[b], Quentin Atkinson[c,d], Emma Cohen[e,f], Joseph Henrich[g], Richard McElreath[a], Rita A. McNamara[h], Ara Norenzayan[i], Aiyana K. Willard[e], Dimitris Xygalatas[j]

[a] Department of Human Behavior, Ecology, and Culture, Max Planck Institute for Evolutionary Anthropology, Germany
[b] Department of Psychology, University of Pennsylvania, USA
[c] Department of Psychology, University of Auckland, New Zealand
[d] Max Planck Institute for the Science of Human History, Germany
[e] Institute of Cognitive and Evolutionary Anthropology, University of Oxford, UK
[f] Wadham College, University of Oxford, UK
[g] Department of Human Evolutionary Biology, Harvard University, USA
[h] School of Psychology, Victoria University of Wellington, New Zealand
[i] Department of Psychology, University of British Columbia, Canada
[j] Department of Anthropology, University of Connecticut, USA

ARTICLE INFO

Keywords:
Morality
Cross-cultural ethnography
Cognitive anthropology
Evolution of cooperation

ABSTRACT

Does moral culture contribute to the evolution of cooperation? Here, we examine individuals' and communities' models of what it means to be good and bad and how they correspond to corollary behavior across a variety of socioecological contexts. Our sample includes over 600 people from eight different field sites that include foragers, horticulturalists, herders, and the fully market-reliant. We first examine the universals and particulars of explicit moral models. We then use these moral models to assess their role in the outcome of an economic experiment designed to detect systematic, dishonest rule-breaking favoritism. We show that individuals are slightly more inclined to play by the rules when their moral models include the task-relevant virtues of "honesty" and "dishonesty." We also find that religious beliefs are better predictors of honest play than these virtues. The predictive power of these values' and beliefs' local prevalence, however, remains inconclusive. In summary, we find that religious beliefs and moral models may help promote honest behavior that may widen the breadth of human cooperation.

1. Introduction

Many theories hold that socially learned moral norms are the lynchpin for the remarkable breadth of cooperation that humans uniquely exhibit (Bowles & Gintis, 2003; Boyd, 2018; Boyd & Richerson, 2009; Chudek & Henrich, 2011; Richerson et al., 2016). However, there are a few critical outstanding issues that make this view difficult to endorse with a confidence borne out by direct empirical evidence. First, it is not immediately obvious that individuals' and groups' moral prescriptions actually influence the behavior of those who espouse them (e.g., Graham, Meindl, Koleva, Iyer, & Johnson, 2015; Haidt, 2001; Perry, 2017; Smith, Blake, & Harris, 2013). When moral prescriptions and behavior are consistent with each other, moral prescriptions might simply be rationalizations of behavior rather than causes (e.g., Baumard, 2016; Haidt, 2001). Second, despite the fact that so many emphasize (or minimize) the importance of culture for human cooperation, few actually measure its effects directly and model it as a distributed, superordinate property of social life (see Smaldino, 2014). Most empirical studies consider culture indirectly by either a) having participants in economic experiments make an allocation with money and then asking what the appropriate decision was (e.g., Gurven, Zanolini, & Schniter, 2008; Ensminger & Henrich, 2014; Henrich & Henrich, 2014, b) framing experimental introductions in locally salient ways (e.g., Brodbeck, Kugler, Reif, & Maier, 2013; Cohn, Fehr, & Maréchal, 2014; Cronk, 2007; Gerkey, 2013; Lesorogol, 2007; Stagnaro, Arechar, & Rand, 2017), or c) conducting studies across multiple groups, and concluding that cross-cultural variation in behavior reflects underlying variation in culture (e.g., Apicella, Marlowe, Fowler, & Christakis, 2012; Henrich, 2000; Henrich et al., 2004; Roth, Prasnikar, Okuno-Fujiwara, & Zamir, 1991). Third, many cross-cultural studies emphasizing the evolved psychology underlying morality rely heavily on theoretically-motivated scale designs (e.g., Curry, Chesters, & Van

* Corresponding author.
E-mail address: benjamin_purzycki@eva.mpg.de (B.G. Purzycki).

https://doi.org/10.1016/j.evolhumbehav.2018.04.004
Received 12 October 2017; Received in revised form 2 March 2018; Accepted 24 April 2018

Lissa, n.d.; Graham et al., 2011) that a) use items lacking in local relevance, b) are impractical for innumerate and/or nonliterate populations, c) presuppose that samples have the lexical equivalent of "moral," and d) do not link this data to quantitative behavior.

Here, we seek to overcome these limitations by measuring moral culture from a variety of societies and examine whether or not moral values and their distributions actually have an impact on the kind of broader cooperation typified by humans. We first briefly spell out our assumptions and introduce contemporary evolutionary perspectives on moral systems, followed by a more detailed assessment of the aforementioned limitations. We then introduce our two studies. The first consists of an analysis of systematically collected ethnographic data regarding what it means to be "good" and "bad" across eight different field sites. In doing so, we examine cross-cultural moral universals and local particulars. The second study uses this data to examine its contribution to corresponding behavior in an experimental game designed to distinguish dishonest favoritism from impartial, rule-following fairness. We conclude with a discussion of our studies' limitations and comment on avenues for further inquiry.

2. Background

2.1. Defining moral systems

We refer to "moral models" here as the content and structure of individuals' explicit representations of moral norms. If we adopt the view that "culture" is shared, socially transmitted information (cf. Boyd & Richerson, 1988; R. G. D'Andrade, 1981; Sperber, 1996), then moral culture is the shared, socially transmitted units that comprise individual moral models. Defined in this fashion, local prevalence of particular units of socially transmitted information indicates how "cultural" or "normative" those units are. In this view, then, directly assessing whether or not culture influences individual behavior requires 1) detailing individuals' models, 2) assessing how widespread the content of those models is in individuals' social groups, 3) examining the relationship between a behavioral trait and an individuals' models, and 4) examining the relationship between the trait and how prevalent specific informational units are in one's group. The first two requirements are descriptive, ethnographic accounts of moral culture. The latter most two allow us to disambiguate the relative impacts of individual and cultural models of morality on behavior. If moral culture predicts moral behavior, then the prevalence of moral models' constituent units in a group should covary with the target behavior.

We use "moral systems" here to refer to moral models, their psychological underpinnings, behavioral expressions, cultural prevalence, and the causal links between them (cf. Alexander, 1987; Haidt & Kesebir, 2010; Kiper & Sosis, 2014). Classical philosophical and contemporary social psychological views of moral systems emphasize universality and/or the view that morality is associated with abstract notions like "justice" and "rights" (Caton, 1963; Kant, 1997 [1785]; Turiel, 1983, 2006). In contrast, many evolutionary views boil down moral systems to the regulation of cooperative and/or mutualistic endeavors that generate individual- and/or group-level benefits (Alexander, 1987; Baumard, André, & Sperber, 2013; Barrett et al., 2016; Cosmides & Tooby, 2005; Cronk, 1994; Curry, 2016; Darwin, 1871; Greene, 2013; Fehr, Fischbacher, & Gächter, 2002; Haidt & Kesebir, 2010; Machery & Mallon, 2010; Mizzoni, 2009; Sripada & Stich, 2006; Trivers, 1971; Tomasello & Vaish, 2013). However, there is considerable variation in moral systems, variation that many suggest are inconsequential or run counter to such generalist theories (Baumard, 2016; Boehm, 1980; Buchtel et al., 2015; Fessler et al., 2015; Schwartz, 2007; Shweder, Much, Mahapatra, & Park, 1997; Smith, Smith, & Christopher, 2007). As we detail below, piecing together the constituent parts of moral systems in a cross-cultural empirical project remains a major challenge in the evolutionary literature.

2.2. Measuring components of moral systems

2.2.1. Evolutionary psychology of morality

Contemporary evolutionary psychological research focused on mapping the conceptual space of morality typically relies on scale items (Curry et al., n.d.; Graham et al., 2011) with prefabricated materials that are verified externally (i.e., using other scales). For example, seeking to better operationalize the moral domain with attention to cross-cultural validity, the popular "Moral Foundations" literature breaks down the evolutionary and cognitive "foundations" of morality into a few core dimensions. While the rubric itself has evolved (Graham et al., 2013), the most recent iteration includes (1) harm/care; (2) fairness/reciprocity; (3) ingroup/loyalty; (4) authority/respect, and (5) purity/sanctity as foundational to moral reasoning. The more recent "Morality-as-Cooperation" literature (Curry, 2016; Curry et al., n.d.) measures seven types of cooperation treated as the foundations for moral behavior: (1) family values; (2) group loyalty; (3) reciprocity; (4) dominance; (5) deference; (6) fairness; and (7) rights to property.

These rubrics were not designed to assess the relationship between moral culture and behavior. Rather, they seek to identify variation in moral reasoning as indicated by variation in how survey items load onto principal components and how mean values of scales vary across different groups. There are practical and methodological reasons to be reluctant to employ scale-based surveys in populations where they were not designed. First, many traditions lack the lexical equivalent of "morality." Second, some samples struggle with scale-based survey instruments. While convenient for researchers, in practice, scale items can be quite taxing and unintuitive for non-literate and/or innumerate participants (e.g., Gurven, Von Rueden, Massenkoff, Kaplan, & Lero Vie, 2013). Third, such instruments are often limited in local relevance. For example, the "Moral Foundations Questionnaire" (Graham et al., 2011) includes questions about whether or not "being good at math," having "love for one's country," being "denied rights," and "God's approval" are "relevant to [participants'] moral thinking" or to their sense of right and wrong. Such items and the notion of "moral relevance" are simply unintelligible in many contexts. Ideally, scale design in cross-cultural research begins with preliminary ethnographic inquiry to ensure that scale items are actually measuring target constructs (Bernard, 2011; Handwerker, 2001). Indeed, Smith et al. (2007) found that other theory-driven classification schemes inadequately captured the variation in folk-models of what it means to be "good" in seven different communities. Boehm (1980) imported a morality metric to Montenegro, but due to participants' initial off-target responses to the metric, he had to assess features of local moral behavior with open-ended questions.

2.2.2. Cultural evolutionary ecology of moral behavior

Those who emphasize culture's effects on cooperative behavior typically employ economic experimental games as an index of cooperation, but do not directly measure or model "culture." Some appeal to the importance of cultural institutions (i.e., shared pools of norms that constrain human interactions in specific, socially demarcated contexts; see D'Andrade, 2006; North, 1991; Searle, 1995) by manipulating the cultural relevance of experiments' instructions in the form of framing effects (Brodbeck et al., 2013; Cohn et al., 2014; Cronk, 2007; Lesorogol, 2007; Gerkey, 2013). Others conduct experiments and infer that culture contributes to the evolution of cooperation by virtue of statistical divergences between groups in experimental game outcomes (Apicella et al., 2012; Ensminger & Henrich, 2014; Henrich, 2000; Henrich et al., 2004; Roth et al., 1991). A burgeoning literature that actively measures variation in cultural information focuses on religious beliefs (McNamara, Norenzayan, & Henrich, 2016; Johnson, 2016; Purzycki et al., 2016a). This literature typically uses individuals' beliefs in punitive and knowledgeable deities to predict cooperative outcomes. However, the literature ignores the within-group distribution of religious beliefs–that is, groups' religious culture–as a factor in individual behavior.