

## Introduction and Preliminary Analysis of the Chinese Version of the Moral Foundations Dictionary

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### Abstract

Based on Moral Foundations Theory, this study conducted a Chinese revision of the moral dictionary developed by Graham et al. (2009). The five moral foundations (Care, Fairness, Loyalty, Authority, Sanctity) were divided into 10 dimensions according to the two aspects of “virtue” and “vice,” and the correlations among these dimensions were examined. The results demonstrate that the revised Chinese version of the moral dictionary exhibits good reliability, and the 10 moral dimensions are moderately correlated. This study provides a localized research instrument for research in the moral domain; however, future studies should test the factor structure and criterion validity of the 10 dimensions of the moral dictionary.

### Full Text

#### The Chinese Version of the Moral Foundations Dictionary: A Brief Introduction and Pilot Analysis

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**Abstract:** Based on moral foundations theory, this study revised Graham et al.'s (2009) moral foundations dictionary for the Chinese context. According to the “virtue” and “vice” aspects of morality, the five moral foundations (care, fairness, loyalty, authority, and purity) were divided into 10 dimensions, and the correlations among these dimensions were examined. The results demonstrated that the revised Chinese version of the moral foundations dictionary exhibits good reliability, with moderate correlations among the 10 moral dimensions. This study provides an indigenous research tool for morality-related research, though future work should examine the factor structure and criterion validity of the 10 dimensions.

**Keywords:** Social intuition, moral foundations, dictionary, LIWC

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Morality comprises the behavioral norms and standards that govern human co-existence. Haidt and colleagues, building upon the three-dimensional model of morality from evolutionary psychology and cultural anthropology [1-2], further proposed the social intuitionist model and established moral foundations theory. This theory posits that humans have long faced various adaptive challenges in social life, and natural selection has preserved individuals who adhere to norms, adapt effectively, and withstand these challenges. These moral foundation norms include five dimensions: care/harm, fairness/reciprocity, loyalty/betrayal, authority/hierarchy, and purity.

According to moral foundations theory, the five dimensions are as follows: (1) Harm/Care—the motivation to protect and care for vulnerable offspring and kin has led humans to attend to and attempt to reduce suffering and harmful behaviors during evolution; (2) Reciprocity/Fairness—concerns about cooperation outcomes being exploited in interactions with non-kin led to norms for punishing cheaters and subsequently produced a range of moral emotions such as anger and guilt; (3) In-group/Loyalty—during cooperation within groups of two or more individuals, concerns about exploitation of cooperative outcomes heighten vigilance against group betrayers and cheaters while simultaneously requiring commitment to group loyalty; (4) Authority/Rank—maintaining hierarchical group structures and certain privileges for the ruling class, who concurrently bear responsibility for protecting group members; (5) Purity—humans evolved disgust toward disease and pathogens to avoid contact with deadly bacteria and parasites.

Previous measurements of moral foundations have primarily employed Likert scales to assess participants' judgments of moral relevance and agreement with moral statements. However, self-report scales are known to suffer from high social desirability bias, small sample sizes, and high implementation costs. Consequently, with the proliferation of big data analytics, researchers have begun

using LIWC (Linguistic Inquiry and Word Count) to analyze large volumes of ecologically valid textual information. LIWC is a tool in natural language processing (NLP) that quantitatively analyzes text content and calculates the percentage of different categories of words (particularly psychological terms)—such as causal words, emotion words, and cognitive words—within a text. LIWC consists of two main components: the program engine and the dictionary. The dictionary, which defines word categories and word lists, is the core component. The program imports the dictionary and text, compares words in the text against the dictionary, and outputs word frequency results for each category. This raises the issue of dictionary compilation.

Graham and colleagues first established an LIWC-based moral foundations dictionary containing five dimensions: harm/care, reciprocity/fairness, in-group, hierarchy/authority, and purity. They then expanded and refined this dictionary. During the expansion phase, they generated as many associative words, synonyms, and antonyms as possible for each foundational dictionary through dictionary consultation and colleague discussions, which inevitably introduced some inappropriate words. In the compression phase, they eliminated words too distant from core concepts and words irrelevant to morality, ultimately obtaining a dictionary of 295 words and stems [3]. After conducting basic LIWC analyses with this dictionary, they tested which words contributed most to group differences, read them in context to ensure the most influential words supported moral foundations theory, and then validated and scored these words in context. Analysis of the final dictionary revealed that liberals used harm- and fairness-related words more frequently than conservatives, while conservatives used authority- and purity-related words more frequently than liberals; for in-group words, liberals used them more frequently than conservatives.

In this study, we translated and revised Graham et al.'s moral foundations dictionary, compared scores across dimensions, and examined correlations among dimensions.

We recruited 186 university students (93 male, 93 female) aged 18-25 from a Chinese university. Word list validation proceeded in three steps: (1) Two bilingual scholars translated the word list and performed back-translation to ensure linguistic accuracy; (2) Each English original word was expanded using the Oxford English-Chinese Dictionary; (3) Two graduate students rated each word according to operational definitions of moral foundations, retaining only words with complete agreement. This process yielded 590 moral words. The number of words and example items for each dimension are presented in .

Finally, participants rated each word's moral relevance on a 0-5 Likert scale (0 = completely irrelevant, 5 = extremely relevant). The overall scale internal consistency coefficient was .93, and internal consistency coefficients for the 10 dimensions ranged from .97 to .99, indicating good reliability. Higher scores indicated greater moral relevance.

Correlation analysis revealed that mean scores for the five virtue and five vice di-

mensions of moral foundations ranged from 3.76 to 4.38, with significant pairwise correlations ( $r = .25$  to  $.87$ ). Except for weaker correlations between harm and cheating, harm and purity, and cheating and purity, all other inter-dimensional correlations were moderate to strong. See for details.

[Figure 1: see original paper]

Repeated measures ANOVA indicated significant differences among the five virtue dimensions of moral foundations ( $F(4,183) = 25.86$ ,  $p < .001$ ,  $\Delta R^2 = .36$ ). Moral relevance scores from highest to lowest were: fairness, care, loyalty, authority, and purity. Similarly, significant differences emerged among the five vice dimensions ( $F(4,183) = 2.48$ ,  $p < .05$ ,  $\Delta R^2 = .05$ ), with moral relevance scores from highest to lowest: harm, cheating, betrayal, degradation, and subversion. See [Figure 1: see original paper].

Paired-sample t-tests for virtue-vice pairs within each foundation revealed that fairness showed significantly greater moral relevance than cheating ( $t = 3.26$ ,  $p < .01$ ), while purity showed significantly less moral relevance than degradation ( $t = 3.26$ ,  $p < .01$ ). No significant differences emerged between other virtue-vice pairs ( $t = -3.16$ ,  $p < .01$ ). See [Figure 1: see original paper].

This study translated and revised Graham et al.'s moral foundations dictionary in the Chinese cultural context, examining correlations and differences among dimensions. Dividing the five moral foundations into virtue and vice aspects yields 10 dimensions: virtues include fairness, care, loyalty, authority, and purity, with corresponding vices of harm, cheating, betrayal, subversion, and degradation. Results demonstrated that the Chinese version of the moral foundations dictionary exhibits good reliability and high correlations among the 10 dimensions. Additionally, within the five moral foundations, fairness showed significantly greater moral relevance than cheating, while purity showed significantly less moral relevance than degradation.

Grounded in moral foundations theory, this study provides a valuable supplement to the existing English-language moral dictionary and offers an effective, indigenous research tool for future morality research. Future studies should examine the factor structure and criterion validity of the 10 dimensions.

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*Note: Figure translations are in progress. See original paper for figures.*

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