



How is the Big Five related to moral and political convictions: The moderating role of the WEIRDness of the culture

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ABSTRACT

There has been extensive research on how the Big Five personality traits are related to political orientation and endorsement of moral foundations. However, recent findings suggest that these relationships may not be cross-culturally stable. We argue that how much a culture is WEIRD (Western, educated, industrialized, rich, and democratic) could moderate how the Big Five is related to political and moral convictions. In a sample of 7263 participants from 30 countries, our results showed that the level of WEIRDness of the culture moderated (1) the associations of agreeableness and openness with ideology; (2) the associations of extraversion, emotional stability, agreeableness, and conscientiousness with individualizing foundations; and (3) the association of extraversion with binding moral foundations. The results were mixed and some of the interactions were small in magnitude. However, they clearly indicate that the Big Five traits' relationship with moral and political convictions are not cross-culturally stable.

The relationship between the Big Five personality traits and political orientation has been a topic of interest in the past literature. The Big Five theory defines personality through five different traits (John & Srivastava, 1999; McCrae & Costa, 2003) and this conceptualization is considered to be cross-culturally valid (Schmitt, Allik, McCrae, & Benet-Martínez, 2007). *Extraversion* is related to a number of features that increase interpersonal interactions, such as being talkative. *Conscientiousness* is associated with being organized and self-disciplined. *Openness to experience* is related to being open to new ideas, approaches, and experiences, and being curious and imaginative. *Agreeableness* is a type of personality that is related to being docile, reliable, helpful, and warm-blooded. *Neuroticism* is the name given to the personality pattern associated with the tendency to be nervous and anxious and seeing the glass half empty. Although the relationship between these five dimensions and political orientation has been extensively studied, the findings are mixed.

Research has generally found a relationship between right-wing ideologies and conscientiousness (Barbaranelli, Caprara, Vecchione, & Fraley, 2007; Chirumbolo & Leone, 2010; Cooper, Golden, & Socha, 2013; Furnham & Fenton-O'Creevy, 2018; Gerber, Huber, Doherty, & Dowling, 2011; Hirsh, DeYoung, Xu, & Peterson, 2010; Mondak, 2010; Mondak & Halperin, 2008; Schoen & Schumann, 2007) whereas it finds a relationship between openness to experience and left-wing ideologies

(Alford & Hibbing, 2007; Carney, Jost, Gosling, & Potter, 2008; Chirumbolo & Leone, 2010; Cooper et al., 2013; Furnham & Fenton-O'Creevy, 2018; Gerber, Huber, Doherty, Dowling, & Ha, 2010; Hirsh et al., 2010; McCrae, 1996; Mondak, 2010; Mondak & Halperin, 2008; Riemann, Grubich, Hempel, Mergl, & Richter, 1993; Schoen & Schumann, 2007; Van Hiel, Kossowska, & Mervielde, 2000). There are mixed findings on the relation of other dimensions with ideology (e.g., Barbaranelli et al., 2007; Carney et al., 2008; Chirumbolo & Leone, 2010; Cooper et al., 2013; Gerber et al., 2010; Leone, Chirumbolo, & Desimoni, 2012; Mondak, 2010). In a meta-analysis including 73 studies, while having a left-wing ideology was associated with openness to change ($r = 0.018$), having a right-wing ideology was associated with conscientiousness ($r = 0.010$, Sibley, Osborne, & Duckitt, 2012).

The Big Five features are also associated with moral judgments. Moral foundations theory (Graham et al., 2013; Graham, Haidt, & Nosek, 2009; Haidt, 2007), which led to a paradigmatic change in the field of morality, explains the origins of morality based on five evolved intuitions. The *care/harm* is defined as care for a weak group member who is in need of protection or is awaiting care. The *fairness/cheating* is associated with sensitivity to justice in order to identify free-riders within the group. The *loyalty/betrayal* foundation is a dimension associated with patriotism and favoring one's own group member. The *authority/subversion* is defined as the desire to maintain a hierarchical

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structure within the society. The *sanctity/degradation* foundation is a dimension associated with the suppression of carnal pleasures and increased concern for protecting oneself from infection. Graham et al. (2009) called the principles of care and fairness as the “individualizing” foundations and the other three as the “binding” foundations. Those who are politically liberal perceive only individualizing foundations as morally relevant, while those who are politically conservative give relatively equal importance to all five foundations (Graham et al., 2009). In fact, it is thought that this conceptualization is a repackaging of the previous literature on political psychology. For example, Sinn and Hayes (2016) empirically showed in a factor-analytic study that moral foundations can be reducible to the previous concepts used in the political psychology literature such as social dominance orientation (i.e., reversed individualizing foundations) and right-wing authoritarianism (i.e., binding foundations). Likewise, there is some evidence suggesting that personality differences predict differences in moral foundations as well (see Graham et al., 2013).

Studies investigating the relationship between moral foundations and the Big Five traits found a significant positive association between individualizing foundations and openness to experience, and a significant positive association between binding foundations and conscientiousness and extraversion (Lewis & Bates, 2011). In addition, binding foundations are negatively related to neuroticism (Lewis & Bates, 2011). However, there are some contrasting findings. In Hirsh et al.'s (2010) study, there was no relationship between individualizing foundations and openness to change, but a significant negative relationship was observed between openness to change and authority and sanctity foundations (e.g., binding foundations). Furthermore, there was no relation between agreeableness and moral foundations, but when looking at different aspects of the Big Five (i.e., orderliness as an aspect of trait conscientiousness, see DeYoung, Quilty, & Peterson, 2007 for details), some significant associations were observed. As a result, the relationship between the moral foundations and the Big Five traits is not clear in the literature.

The studies outlined above also suffer from certain limitations. The most important of these limitations is that most studies were carried out with small student and/or Western samples (Jonason, 2014). One recent study has examined the relationship between personality and political ideology in 21 different cultures (Fatke, 2017) and it was seen that there is strong cross-cultural variability on this relationship. However, to our knowledge, there is no cross-cultural study examining the relationship between moral foundations and the Big Five traits, though there is enough reason to expect cross-cultural variability on this relationship. Gerber et al. (2010) previously demonstrated that the association between the Big Five traits and endorsement of different moral judgments depends on the ethnic background of the participants. Mondak (2010) also theoretically argued that two people with the same Big Five traits may adopt different moral judgments in different political environments. For example, the association between openness to experience and endorsement of individualizing foundations (care, fairness) might be stronger if the political system encourages freedom of speech. Otherwise, the trait openness might not be related to the value given to care and fairness if the political system is oppressive, and discourages freedom of self-expression (e.g., protest movements). This might suggest that there is a need to test the direction and magnitude of the relationship between the Big Five and moral foundations in different cultural contexts.

One approach to characterize different cultural contexts has been introduced in recent years by Henrich, Heine, and Norenzayan (2010). According to this approach, the majority of the samples used in psychology studies include samples from Western, educated, industrialized, democratic and rich countries (WEIRD), but countries having these five characteristics constitute a very small minority of the world. We predict that the WEIRDness level of the country might determine the direction and magnitude of the relationship between the Big Five traits and moral foundations and political orientation. In this

study, for the first time, we investigated the relationship between the Big Five traits and moral foundations and political orientation in 30 politically diverse countries and examined the potential moderating role of the level of WEIRDness of the countries as a measure of the context. Our analyses were explorative and designed to tap into the level of universality of the relationship between personality and political/moral convictions.

1. Method

1.1. Participants

We retrieved the data from Slate 1 of the Many Labs 2 (<https://osf.io/8cd4r/>; Klein et al., 2018). As the moral foundations questionnaire (MFQ) and one-item ideology questions were not employed in Slate 2, only Slate 1 was included in the analysis. The sample consisted of 7263 participants from 30 countries. There were 5129 participants from WEIRD and 2134 participants from non-WEIRD societies.

1.2. Materials

1.2.1. TIPI

Ten-item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann Jr, 2003) is a shortened version of longer measures of the Big-Five personality traits, namely extraversion, agreeableness, conscientiousness, emotional stability, and openness (Goldberg, 1992; John & Srivastava, 1999). Participants were asked to state how much the listed traits would apply to them on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). There were two items for each trait and one of the items was reverse-coded. For example, “extraverted, enthusiastic” and “reserved, quiet” (reverse-coded) were measuring the level of extraversion. Correlations between the items were not as high as would be desired for extraversion ($r = 0.491$, $p < .001$), agreeableness ($r = 0.147$, $p < .001$), conscientiousness ($r = 0.337$, $p < .001$), emotional stability ($r = 0.421$, $p < .001$), and openness ($r = 0.254$, $p < .001$).¹

1.2.2. Ideology

Participants indicated their political orientation on a 7-point scale (1 = *strongly left-wing*, 7 = *strongly right-wing*).

1.2.3. MFQ

The short version of the moral foundations questionnaire (MFQ; Graham et al., 2011) used in Many Labs 2 includes 15 items, three items for each of the five moral foundations, namely harm, fairness, loyalty, authority, and sanctity. Mean score of harm and fairness foundations are treated as individualizing moral foundations whereas loyalty, authority, and sanctity made up binding moral foundations. Both individualizing ($\alpha = 0.822$) and binding foundations ($\alpha = 0.777$) subscales were found to be reliable.

1.2.4. WEIRDness

In Many Labs 2, WEIRDness scores were computed for each country. Each component of the concept of WEIRD, namely being Western, educated, industrialized, rich, and democratic were separately calculated; and composites of these scores were considered as the WEIRDness score (see Klein et al., 2018 for details). Countries with scores higher than average were considered as WEIRD and those with lower than average scores were considered as non-WEIRD countries in Many Labs 2 (see Table 1; Klein et al., 2018).² Our main analyses were based on

¹ A similar large range of correlations, ranging from 0.28 to 0.61, was also reported by Gosling et al. (2003).

² In our analyses, we treated WEIRDness as a continuous, not a categorical, measure. However, in order to provide a sense of which countries are more or

Table 1
List of the countries and their sample sizes (in alphabetical order).

Non-WEIRD nations		WEIRD nations	
Country	N	Country	N
Brazil	104	Austria	124
China	396	Belgium	110
Costa Rica	103	Canada	602
Hong Kong (China)	173	Chile	156
India	360	Czech Republic	141
Japan	114	France	44
Mexico	144	Germany	92
Serbia	109	Hungary	184
South Africa	74	New Zealand	102
Taiwan (China)	137	Poland	231
Turkey	241	Portugal	36
UAE	92	Spain	54
Uruguay	87	Sweden	115
		Switzerland	113
		The Netherlands	497
		UK	142
		USA	2386

continuous scores for the WEIRDness of each nation.

2. Results

2.1. Bivariate correlations

First, we examined the bivariate correlations between TIPI, ideology, and endorsement of moral foundations. In the aggregate sample, conscientiousness ($r = 0.060$, $p < .001$) and emotional stability ($r = 0.041$, $p < .001$) were positively associated with conservatism whereas openness ($r = -0.145$, $p < .001$) had a negative correlation with it. Extraversion ($r = -0.003$, $p = .826$) and agreeableness ($r = -0.020$, $p = .088$), however, were unrelated to ideology. As for individualizing moral foundations, extraversion ($r = 0.038$, $p < .001$), agreeableness ($r = 0.131$, $p < .001$), conscientiousness ($r = 0.111$, $p < .001$), and openness ($r = 0.138$, $p < .001$) had positive associations whereas emotional stability ($r = -0.022$, $p = .067$) did not have any significant relationship. Extraversion ($r = 0.066$, $p < .001$), agreeableness ($r = 0.040$, $p < .001$), and conscientiousness ($r = 0.109$, $p < .001$) were also positively related to binding foundations while emotional stability ($r = -0.038$, $p = .001$) had a negative association. Openness was not correlated with binding foundations ($r = -0.019$, $p = .114$).³

2.2. Moderation analyses

In Many Labs 2, continuous scores for WEIRDness of each country were provided (Klein et al., 2018). Each country was scored for each component of WEIRDness, namely being Western, educated, industrialized, rich, and democratic; and means of these scores were considered as the WEIRDness score (see Klein et al., 2018 for details). Higher scores in WEIRDness corresponded to cultures that are more typically WEIRD. We included these scores in a series of moderated regression analyses to investigate how the level of WEIRDness

(footnote continued)

less WEIRD, we list them as categorized in Many Labs 2 (Klein et al., 2018) in Table 1. Our only analyses that were based on this categorical distinction are the correlations reported in the Supplementary material.

³ A correlation table is available in the Supplementary material. We also examined the bivariate correlations in WEIRD (those with higher than average WEIRDness scores) and non-WEIRD (those with lower than average WEIRDness scores) samples. The correlation tables for WEIRD and non-WEIRD samples can also be found in the Supplementary material.

moderates the effect of the Big Five on political and moral attitudes. We conducted the analyses using Hayes's PROCESS macro for SPSS (Hayes, 2013) and examined how the effects changed for low (1 SD below the mean), moderate (mean score), and high (1 SD above the mean) WEIRDness scores.

2.2.1. Ideology

For ideology, WEIRDness of the culture did not moderate effects of extraversion ($b = 0.088$, $SE = 0.052$, $t = 1.701$, $p = .089$, 95% CI $[-0.013, 0.190]$), conscientiousness ($b = -0.063$, $SE = 0.057$, $t = -1.097$, $p = .273$, 95% CI $[-0.175, 0.050]$), and emotional stability ($b = -0.033$, $SE = 0.054$, $t = -0.617$, $p = .537$, 95% CI $[-0.139, 0.073]$). There were, however, significant interactions for agreeableness ($b = -0.234$, $SE = 0.063$, $t = -3.738$, $p < .001$, 95% CI $[-0.356, -0.111]$) and openness ($b = -0.184$, $SE = 0.061$, $t = -3.005$, $p = .003$, 95% CI $[-0.303, -0.064]$). In low WEIRDness cultures, the relationship between agreeableness and ideology was not significant. For moderately ($b = -0.026$, $SE = 0.015$, $t = -1.806$, $p = .071$, 95% CI $[-0.055, 0.002]$) and highly WEIRD cultures ($b = -0.074$, $SE = 0.020$, $t = -3.775$, $p < .001$, 95% CI $[-0.113, -0.036]$), on the other hand, higher agreeableness was related to higher conservatism (see Fig. 1). A similar pattern was observed for the effect of openness: In low, the relation between openness and ideology was significant for all low ($b = -0.136$, $SE = 0.019$, $t = -7.039$, $p < .001$, 95% CI $[-0.174, -0.098]$), moderate ($b = -0.178$, $SE = 0.014$, $t = -12.470$, $p < .001$, 95% CI $[-0.206, -0.150]$), and high WEIRDness cultures ($b = -0.216$, $SE = 0.020$, $t = -11.019$, $p < .001$, 95% CI $[-0.254, -0.177]$); however the effect was relatively stronger for moderately and highly WEIRD societies (see Fig. 2).

2.2.2. Individualizing moral foundations

WEIRDness also moderated the effect of extraversion on the endorsement of individualizing moral foundations ($b = -0.083$, $SE = 0.030$, $t = -2.762$, $p = .006$, 95% CI $[-0.141, -0.024]$). The effect was significant for low ($b = 0.046$, $SE = 0.010$, $t = 4.766$, $p < .001$, 95% CI $[0.027, 0.065]$) and moderately WEIRD cultures ($b = 0.028$, $SE = 0.006$, $t = 4.283$, $p < .001$, 95% CI $[0.015, 0.040]$), but not for highly WEIRD ones ($b = 0.011$, $SE = 0.009$, $t = 2.425$, $p = .013$, 95% CI $[-0.006, 0.027]$; see Fig. 3). Accordingly, in countries with low or moderate WEIRDness scores, higher levels of extraversion correspond to higher level of endorsement of individualizing moral foundations. A similar interaction was between emotional stability and WEIRDness ($b = 0.086$, $SE = 0.031$, $t = 2.755$, $p = .006$, 95% CI $[0.025, 0.147]$): The effect of emotional stability on individualizing foundations was significant for low ($b = -0.040$, $SE = 0.010$, $t = -3.909$, $p < .001$, 95% CI $[-0.059, -0.020]$) and moderately WEIRD cultures ($b = -0.020$, $SE = 0.007$, $t = -2.911$, $p = .004$, 95% CI $[-0.033, -0.007]$), but not the highly WEIRD ones ($b = -0.002$, $SE = 0.009$, $t = -0.246$, $p = .806$, 95% CI $[-0.020, 0.015]$; see Fig. 4). Accordingly, in countries with low or moderate WEIRDness scores, higher levels of emotional stability correspond to lower level of endorsement of individualizing moral foundations.

For agreeableness ($b = 0.159$, $SE = 0.036$, $t = 4.479$, $p < .001$, 95% CI $[0.090, 0.230]$) and conscientiousness ($b = 0.068$, $SE = 0.033$, $t = 2.053$, $p = .040$, 95% CI $[0.003, 0.132]$), however, there was an opposite trend: For cultures with moderate ($b = 0.096$, $SE = 0.008$, $t = 11.532$, $p < .001$, 95% CI $[0.080, 0.112]$) and high WEIRDness scores ($b = 0.129$, $SE = 0.011$, $t = 11.441$, $p < .001$, 95% CI $[0.107, 0.151]$), the effect of agreeableness on individualizing foundations was relatively stronger as compared countries with low WEIRDness scores ($b = 0.059$, $SE = 0.012$, $t = 5.184$, $p < .001$, 95% CI $[0.037, 0.082]$; see Fig. 5). Similarly, the effect of conscientiousness on individualizing foundations was relatively stronger in moderately ($b = 0.061$, $SE = 0.007$, $t = 8.204$, $p < .001$, 95% CI $[0.046, 0.075]$) and highly WEIRD cultures ($b = 0.075$, $SE = 0.010$, $t = 7.401$, $p < .001$, 95% CI $[0.055, 0.095]$), as compared to cultures with low WEIRDness scores

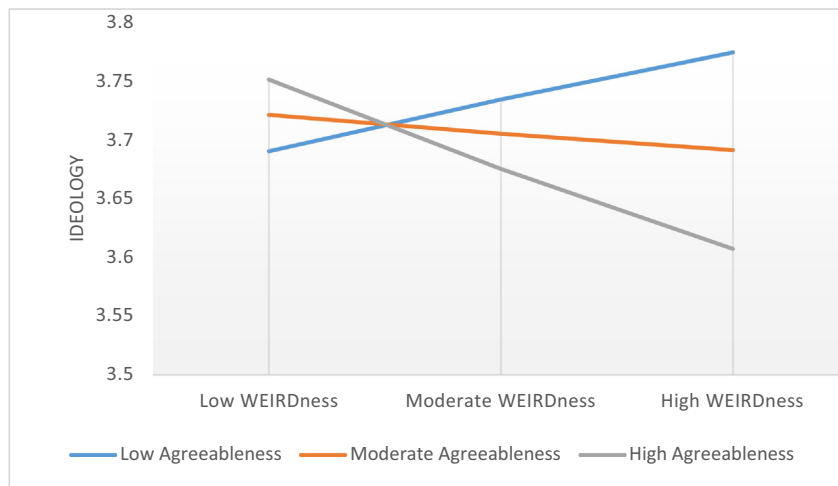


Fig. 1. The effect of agreeableness on ideology for different levels of WEIRDness of the culture. Higher scores in ideology correspond to higher levels of conservatism.

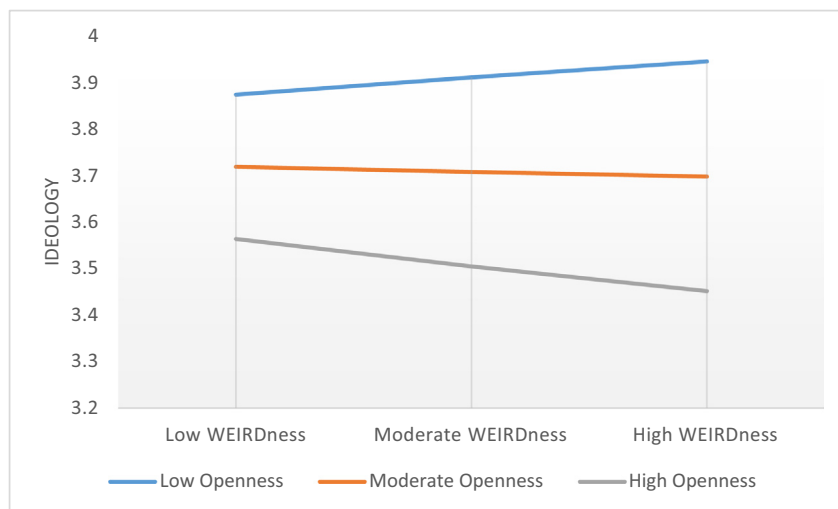


Fig. 2. The effect of openness on ideology for different levels of WEIRDness of the culture. Higher scores in ideology correspond to higher levels of conservatism.

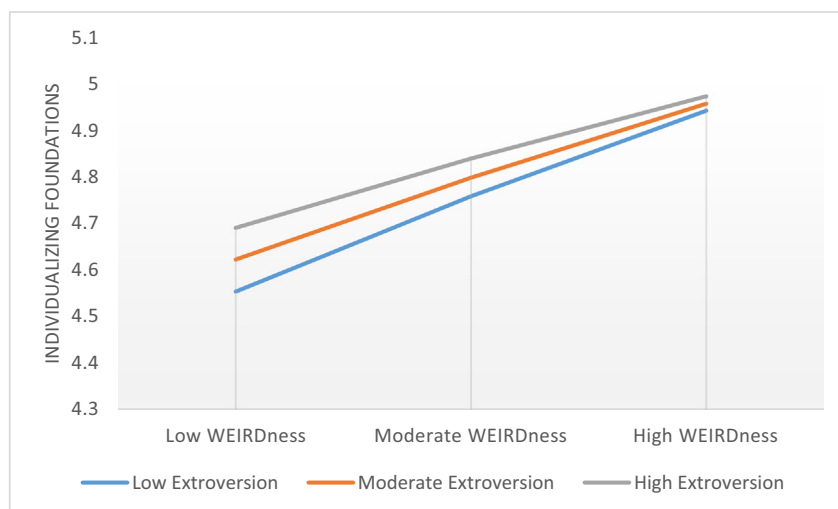


Fig. 3. The effect of extraversion on the endorsement of individualizing moral foundations for different levels of WEIRDness of the culture.

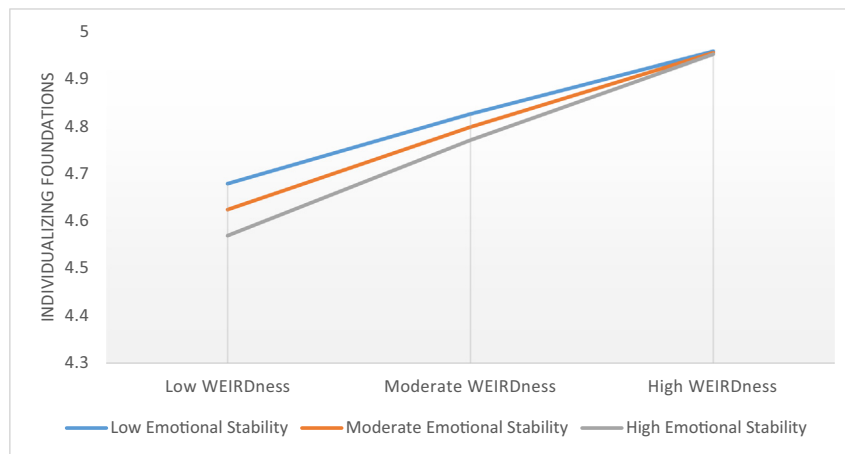


Fig. 4. The effect of emotional stability on the endorsement of individualizing moral foundations for different levels of WEIRDness of the culture.

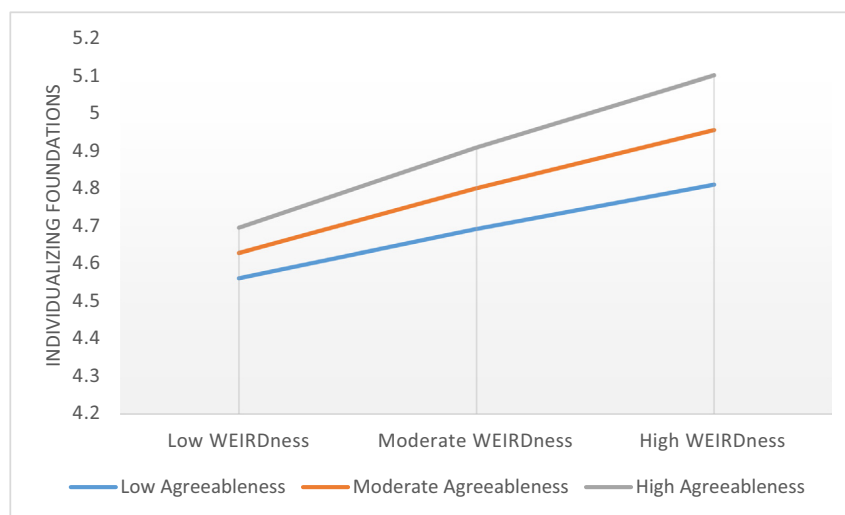


Fig. 5. The effect of agreeableness on the endorsement of individualizing moral foundations for different levels of WEIRDness of the culture.

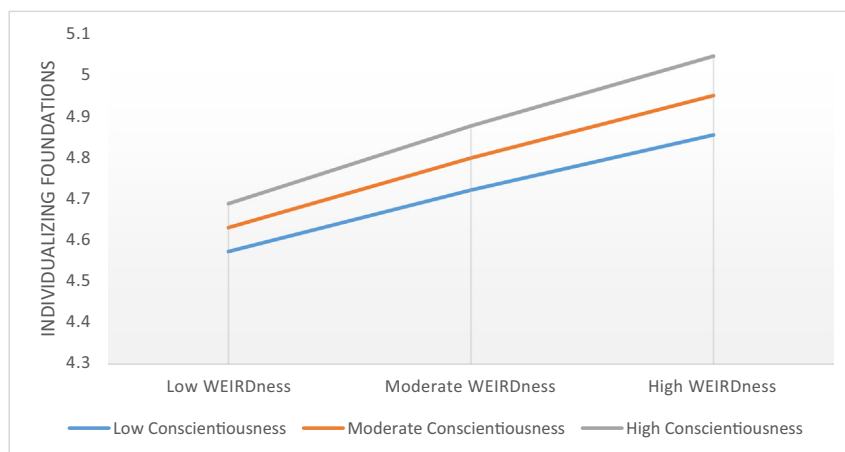


Fig. 6. The effect of conscientiousness on the endorsement of individualizing moral foundations for different levels of WEIRDness of the culture.

($b = 0.045$, $SE = 0.011$, $t = 4.318$, $p < .001$, 95% CI [0.025, 0.066]; see Fig. 6). Accordingly, higher levels of agreeableness and conscientiousness were related to higher endorsement of individualizing foundations in more WEIRD cultures. WEIRDness did not moderate the effect of openness on individualizing foundations ($b = -0.067$, $SE = 0.035$, $t = -1.903$, $p = .057$, 95% CI [-0.137, 0.002]).

2.2.3. Binding moral foundations

WEIRDness did not moderate the effects of agreeableness ($b = 0.018$, $SE = 0.035$, $t = 0.530$, $p = .596$, 95% CI [-0.050, 0.087]), conscientiousness ($b = 0.034$, $SE = 0.032$, $t = 1.065$, $p = .287$, 95% CI [-0.029, 0.096]), emotional stability ($b = 0.040$, $SE = 0.030$, $t = 1.326$, $p = .185$, 95% CI [-0.019, 0.099]), or openness ($b = 0.029$,

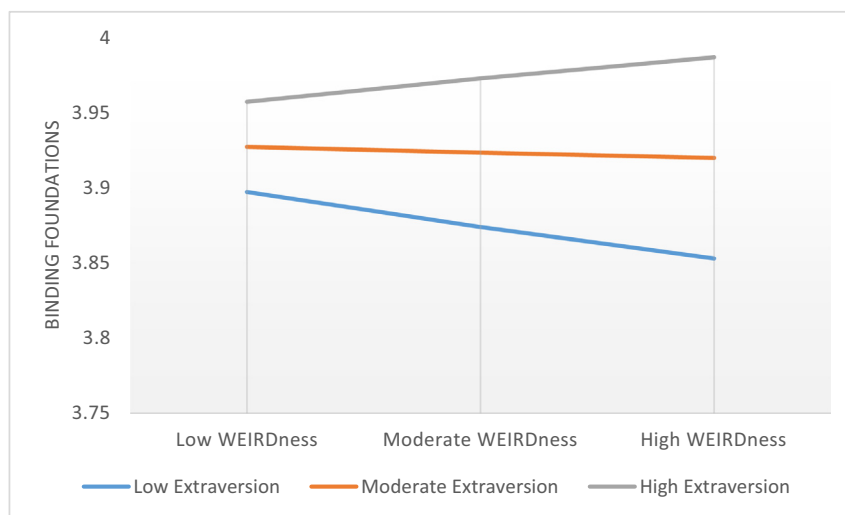


Fig. 7. The effect of extraversion on the endorsement of binding moral foundations for different levels of WEIRDness of the culture.

$SE = 0.035$, $t = 0.836$, $p = .403$, 95% CI $[-0.039, 0.096]$) on binding moral foundations. The effect of extraversion, however, was moderated ($b = 0.058$, $SE = 0.029$, $t = 1.998$, $p = .046$, 95% CI $[0.001, 0.114]$): In low ($b = 0.020$, $SE = 0.009$, $t = 2.160$, $p = .031$, 95% CI $[0.002, 0.039]$), moderate ($b = 0.034$, $SE = 0.006$, $t = 5.388$, $p < .001$, 95% CI $[0.021, 0.046]$), and high WEIRDness cultures ($b = 0.046$, $SE = 0.008$, $t = 5.497$, $p < .001$, 95% CI $[0.029, 0.062]$), higher level of extraversion was related to higher endorsement of binding foundations; but this effect was stronger in highly WEIRD cultures (see Fig. 7).⁴

3. Discussion

This study provides the first cross-cultural investigation of the relationship between the Big Five personality traits, moral foundations, and political orientation. The results demonstrated that openness to experience was negatively associated with right-wing political orientation and positively associated with individualizing, but not binding, foundations. Conscientiousness had a positive association with both individualizing and binding foundations. Agreeableness was also positively related with individualizing foundations. Although there were significant correlations in other dimensions, the magnitudes of the relationships were negligible ($r_s < 0.10$). The results also showed that the level of WEIRDness of the country moderated the relationship between Big Five, moral foundations, and political orientation, and they were generally compatible with the previous cross-cultural investigation which showed cross-cultural variability on the relationship between the Big Five traits and political orientation (Fatke, 2017).

Agreeableness and openness' negative relations to conservatism were more evident in more WEIRD cultures. For individualizing foundations, extraversion's positive and emotional stability's negative associations were stronger in non-WEIRD cultures whereas agreeableness and conscientiousness' positive associations were stronger in WEIRD cultures. Binding foundations were positively related to extraversion, but this relationship was relatively stronger in more WEIRD cultures. These results suggest that the context (as represented by WEIRDness of the country) has a major role in determining the relationship between personality and moral/political attitudes, and support previous

accounts acknowledging the context as a critical factor in this relationship (Fatke, 2017; Funder, 2008; Mondak, 2010). Although providing theory-based explanations for these cultural differences goes beyond the scope of the current research, results indicate that some of the previously found correlations between these constructs might be moderated by cultural factors.

Although this study provided important contributions to the literature by examining the relationship between personality and morality/ideology with data collected from 30 politically diverse societies, it has certain limitations. First, the correlational structure of this study does not allow us to establish a true cause-effect relationship between personality and morality/ideology. There is not yet an agreement in the literature about the direction of the presumed cause-effect relation. Although some researchers argue that the relationship between personality and ideology emerges due to a common genetic variability (Verhulst, Eaves, & Hatemi, 2012), there are longitudinal studies suggesting that personality has a direct effect on ideology (Bakker, 2018). The findings of this study might also suggest that the cultural environment should be taken into account when examining the cause-effect relationship in addition to genetic influences. Second, short forms were used for both the Big Five and the moral foundations questionnaires. However, there are findings showing that the use of short and long forms changes the magnitude of the relationship between personality and ideology (Bakker & Lelkes, 2018). Therefore, future studies should examine the effect of the culture's level of WEIRDness based on more reliable measurement tools using representative samples. Third, it should be noted that some of the relationships were small, albeit statistically significant. For example, WEIRDness moderated the relationship between conscientiousness and individualizing foundations; however, the magnitude of the interaction and slopes for low, moderate, and high WEIRDness were small (all $b_s < 0.10$).

In conclusion, the present study shows that the relationship between personality and morality/ideology is influenced by culture and that the significant associations which were previously reported in the literature might be unique to certain cultural contexts. The current findings provide one more piece of evidence to suggest that it might be problematic to make inferences about human universals in the field of personality by relying substantially on samples from WEIRD cultures.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2019.03.018>.

⁴ We also conducted multiple linear regression analyses to examine the predictive power of each personality traits when controlling for the variance explained by the other traits. We entered extraversion, agreeableness, conscientiousness, emotional stability, and openness into the regression as predictors. Results can be found in the Supplementary material.

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