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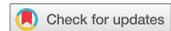
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# Darling I don't know why I go to extremes: a seemingly culturally universal and potentially evolved human tendency to hold extreme preferences and values

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## ABSTRACT

Positive psychologists have observed, based on large cross-cultural data, that “most people are happy” and “life is pretty meaningful.” Evolutionary and behavior genetic considerations suggest, however, that the human tendency to hold “extreme” opinions significantly above or below the scale midpoint may be more universal. Analyses of all relevant questions in the 2014 General Social Survey ( $n = 266$  questions and 2,538 respondents) and Wave 6 of the World Values Survey ( $n = 138$  questions and 79,805 respondents in 59 countries) show that, no matter what question one asks anywhere in the world, humans hold “extreme” opinions in nearly all (94.6%) cases, and the observed effect is both highly statistically significant (mean  $t = 29.44$ ) and large (mean  $d = .80$ ).

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Darling I don't know why I go to extremes  
Too high or too low there ain't no in-betweens

Bill Joel, I Go To Extremes/Storm Front

Positive psychologists have accumulated an impressive amount of empirical knowledge in the past few decades (Diener 2012). Among the most well-established and celebrated of the findings in positive psychology are that “most people are happy” (Diener and Diener 1996) and “life is pretty meaningful” (Heintzelman and King 2014).

On the basis of both longitudinal and cross-cultural data, Diener and Diener (1996) concluded that most people in most places were mildly happy most of the time. This conclusion stemmed from the fact that the mean level of happiness in most national surveys was usually significantly above the neutral scale midpoint, regardless of the social, economic, and political conditions of the society or the individual circumstances of the respondents. In their analysis of data from 43 nations, the mean level of happiness was 6.33, significantly above the scale midpoint of 5 from 0 (mostly unhappy) to 10 (mostly happy).

Similarly, in their review of a large number of studies on purpose and meaning in life, Heintzelman and King (2014) showed that most people perceived significant purpose and meaning in life most of the time. On the scale from 1 to 7 (with 4 as the scale midpoint), the mean purpose in life across 33 studies with 8,069 participants was 5.14, and the mean meaning in life across 122 studies with 27,635 participants was 4.56, both significantly ( $p < .0001$ ) higher than the scale midpoint.

While these empirical conclusions, based on a large number of studies, seem robust and incontrovertible, evolutionary and behavior genetic considerations suggest that these observations may not be specific or limited to happiness and meaning and purpose in life.

### ***Evolutionary biology: directional selections create physical and psychological adaptations***

Physical and psychological adaptations are usually created by directional selection. While not all selection forces are directional—they can be purifying or stabilizing—most adaptations are the results of directional selection (Nettle 2009, pp. 99–125). It means that, for any quantitative trait, organisms are selected to have higher and higher (or lower and lower) levels of the trait, until it reaches an optimal level and the genetic trait goes to fixation. It then becomes a species-typical, universal (physical or psychological) adaptation. Most adaptations are therefore the results of a long history of directional selection for extreme values. During the course of the evolution of the adaptation, individuals with more moderate (less extreme) values were not selected, and, as a result, the currently fixed optimal level of any trait likely represents an extreme value.

It is important to note that a given trait can simultaneously be an evolved adaptation and have some individual differences in its execution (Kanazawa 2010, pp. 283–284; Sosis 2009; pp. 326–327). In fact, most adaptations exhibit individual differences. These are what Tooby and Cosmides (1990) call random quantitative variation on a monomorphic design. “Because the elaborate functional design of individuals [species-typical adaptation] is largely monomorphic [shared by all members of a species], our adaptations do not vary *in their architecture* from individual to individual (*except quantitatively*)” (p. 37, emphases added). Adaptations can simultaneously be universal and species-typical *in their architecture* and exhibit individual differences and thus heritable *in their quantitative performance*.

### ***Behavior genetics: all human behavioral traits are heritable (partly determined by genes) (Turkheimer’s first law of behavior genetics)***

Turkheimer’s first law of behavior genetics (Turkheimer 2000) states that all human behavioral traits are heritable. These include behavioral traits and other phenotypes that emanate from evolved adaptations, and preferences, values, and other internal states are no exceptions. Individual preferences and values often stem from evolved psychological mechanisms or psychological adaptations in their interaction with the environment (Kanazawa 2001). Human preference for sweets and fats (Barash 1982, pp. 144–147), male preference for physically attractive and youthful mates, and female preference for resourceful mates of high status (Buss 1989) all reflect evolved psychological mechanisms. Individual preferences and values (and other internal states) are thus at least partially determined by evolved psychological mechanisms, which were formed by directional selection forces for higher and higher (or lower and lower) levels of a given trait. In other words, individual preferences and values partly stem from directional selection that opted for *extreme values*. As a result, individual preferences and values may themselves exhibit extreme values.

While genes at least *partially* determine individual preferences and values, they do not determine them entirely or exclusively. There are always social and cultural influences on

them as well. In fact, Turkheimer's (2000) third law of behavior genetics states that "A substantial portion of the variation in complex human behavioral traits is not accounted for by the effects of genes or families." Therefore, while the tendency to be extreme may be evolutionarily and genetically determined, the actual contents of individual preferences and values, as well as *to which direction* they lean in their extremes, may be culturally and socially specific. Evolutionary and behavior genetic considerations here do not predict the directions of extreme values.

The partly genetically determined human tendency to hold extreme preferences and values may have adaptive benefits; for example, it may save cognitive resources and allow for quicker decisions. At the same time, it may also be an example of a second-order adaptation (Kanazawa 2015). Such a tendency may not be an adaptation in itself in that it does not directly facilitate survival or reproduction, yet it may *indirectly* do so, by allowing (primary) adaptations to function more efficiently. If aggressiveness was an adaptation, then individuals who were more extremely aggressive may be expected on average to be more reproductively successful than those who were only mildly or moderately aggressive. If sociality was an adaptation, then those who were more extremely social may be expected on average to be more reproductively successful than those who were only mildly or moderately social.

There has been considerable debate in the field of survey research about the existence of extreme response style (Greenleaf 1992). Some argue that the tendency to be extreme on survey questions is just one among many different response styles, and seek to determine the causes and correlates of different response styles in terms of the respondent's personality and other traits or the features of the questions or interviewers (Van Vaerenbergh and Thomas 2013). For example, Meisenberg and Williams (2008) found that less educated and poorer respondents were more likely to exhibit both the extreme and acquiescent response styles.

On the other hand, cross-cultural psychologists contend that there are cultural differences in the tendencies toward extreme or acquiescent response styles (Johnson et al. 2005; van Herk, Poortinga, and Verhallen 2004). In particular, they argue that the extreme response style is more common in individualistic western cultures and the acquiescent (moderate) response style is more common in collectivist East Asian cultures (Hamamura, Heine, & Paulhus 2008; Harzing 2006; Smith and Fischer 2008). To my knowledge, none have argued that the tendency to give extreme responses is universal in all cultures, yet the evolutionary and behavior genetic considerations suggest such a possibility.

The purpose of this paper is to test the evolutionary and behavior genetic hypothesis that the tendency to hold "extreme" preferences and values is universally human, and to determine whether the positive psychologists' observations that "most people are happy" (Diener and Diener 1996) and "life is pretty meaningful" (Heintzelman and King 2014) may be part of a more general evolved human tendency. I define "extreme" preferences and values extremely limitedly in this paper as a sample mean significantly above or below the scale midpoint, because this is how positive psychologists define it when they reach the conclusions that "most people are happy" and "life is pretty meaningful." I tested the evolutionary and behavior genetic prediction with the General Social Survey 2014 in the United States and the Word Values Survey Wave 6 (2010–2012) in 59 countries.

## Study 1: General Social Survey 2014

### Data

The National Opinion Research Center at the University of Chicago has administered the General Social Surveys (GSS), either annually or, more recently, biennially, since 1972. Personal interviews are conducted with a nationally representative sample of non-institutionalized adults over the age of 18 in the United States. I used the latest available survey from 2014 ( $n = 2,538$  respondents).

### Question selection criteria

GSS asks its respondents a wide range of questions about their social attitudes, personal characteristics, and behavior. For my analysis, I included *all* questions asked in 2014 that met the following two criteria. 1. The question referred to subjective preferences, values and other internal states (“How religious are you?”), not to objective, externally observable and verifiable behavior (“How frequently do you attend church?”) 2. The response scale was ordinal (Likert-type), with at least three values. There were 266 questions that met both criteria. They covered a large number of topics, including: politics; economics; religion; immigration; patriotism; science and technology; attitudes toward different ethnic groups; personal finances; sex; attitudes toward the poor; work, colleagues, and supervisors; happiness and satisfaction in various life domains; and levels of trust. The chosen questions had absolutely nothing in common in their substance, other than that they were all measures of subjective, internal states (preferences, values, opinions).

The number of values on the scale varied from 3 to 10. One hundred seventy (63.9%) of the selected questions had odd numbers of values (so that respondents themselves could choose the scale midpoint as their response); 96 (36.1%) had even numbers (so that the scale midpoint fell between two middle values).

### Results

For each of the 266 questions, I performed a one-sample  $t$ -test, with the scale midpoint as the critical value. The results showed that 94.0% of the questions had mean response values that were significantly above or below the scale midpoint at  $p < .05$ ; 93.2% at  $p < .01$ ; and 89.9% at  $p < .001$ . The mean absolute  $t$  statistic was 22.14 ( $SD = 16.95$ ), and the mean absolute effect size was .60 ( $SD = .47$ ). The observed effect was therefore medium to large (Cohen 1992). Questions that had even numbers of response values had significantly higher effect sizes than those with odd numbers (.72 vs. .53,  $t(264) = -3.213$ ,  $p = .001$ ).

### Discussion

Consistent with the prediction from evolutionary and behavior genetic considerations, Americans appeared to hold “extreme” preferences and values significantly away from the scale midpoint in most of the large number of questions asked in GSS. Given the wide

variety and range of topics covered by the questions in GSS, their consistent tendency to hold extreme opinions *regardless* of the topic and substance seems remarkable.

However, despite the large number and wide variety of questions asked, GSS is only an American sample, and thus the results say very little about their cultural universality or a potentially evolved mechanism behind them. I will therefore analyze World Values Survey (WVS) data gathered from a large number of countries in the world.

## **Study 2: World Values Survey Wave 6 (2010–2012)**

### ***Data***

The World Values Survey (WVS) is a large, multiwave international survey of individual values and preferences. It began in 1981 and consists of nationally representative samples from nearly 100 countries, which cover 90% of the world's population; however, not all countries are included in every wave. I used the latest wave (Wave 6), conducted in 2010–2012, which included 59 countries. See [Table 1](#) for the list of countries and national sample sizes.

### ***Question selection criteria***

I used the same criteria for selecting questions from WVS Wave 6 as I did in Study 1 with GSS. There were 138 questions that met both criteria, but a very small number of these were not asked in some countries. Altogether there were 8,023 question-by-country comparisons.

Many of the questions in WVS were similar to those in GSS, and they covered an equally wide range of topics about politics, economics, religion, immigration, trust, fears, attitudes toward different categories of people, and life satisfaction. Sex was the only topic asked in GSS but not in WVS. The number of values on the ordinal scale varied from 3 to 10. In sharp contrast to GSS, a large majority ( $n = 127$ ; 92.0%) of the selected questions had even numbers of response values while a small minority ( $n = 11$ ; 8.0%) had odd numbers.

### ***Results***

For each of the 8,023 question-by-country comparisons, I once again performed a one-sample  $t$ -test, with the scale midpoint as the critical value. The results with WVS were remarkably similar to those in Study 1 with GSS, if slightly stronger; 94.6% of the comparisons had mean response values that were significantly higher or lower than the scale midpoint at  $p < .05$ , 93.0% at  $p < .01$ , and 91.0% at  $p < .001$ . The mean absolute  $t$  statistic was 29.68 (SD = 33.74), and the mean absolute effect size was .81 (SD = .91). The observed effect was therefore large (Cohen 1992). Questions with even and odd numbers of response values did not vary in their effect sizes (.808 vs. .815,  $t(8021) = .185$ ,  $p = .853$ ).

[Table 1](#) presents the mean absolute  $t$ , mean absolute  $d$ , and the proportion of the questions that had means significantly different from the scale midpoint at  $p < .05$ . While there were some variations between countries, the overall pattern was similar in all 59 countries. More importantly, there didn't appear to be any discernible patterns by region,

**Table 1.** Mean absolute  $t$ , mean absolute  $d$ , and % significant at .05 for 138 questions World Values Survey Wave 6 (2010–2012).

Country	$n$	Mean $t$	Mean $d$	% significant
Algeria	1,200	22.35	.67	93.33
Azerbaijan	1,002	27.49	.87	92.75
Argentina	1,030	21.67	.69	91.18
Australia	1,477	30.10	.79	96.32
Bahrain	1,200	22.03	.64	96.15
Armenia	1,100	32.38	.99	95.65
Brazil	1,486	27.52	.72	96.38
Belarus	1,535	23.14	.60	92.70
Chile	1,000	22.99	.74	95.62
China	2,300	35.00	.79	94.89
Taiwan	1,238	26.06	.76	92.75
Colombia	1,512	32.22	.83	96.35
Cyprus	1,100	25.51	.81	91.24
Ecuador	1,202	28.28	.82	92.03
Estonia	1,533	28.21	.73	91.97
Palestine	1,000	23.61	.76	91.11
Germany	2,046	31.38	.70	97.79
Ghana	1,552	43.52	1.11	97.08
Hong Kong	1,000	18.72	.59	94.93
India	1,581	15.19	.39	92.75
Iraq	1,200	30.22	.88	98.52
Japan	2,443	39.15	.85	98.53
Kazakhstan	1,501	25.50	.66	94.16
Jordan	1,200	36.54	1.06	94.81
South Korea	1,200	22.28	.65	92.65
Kuwait	1,303	26.37	.75	98.45
Kyrgyzstan	1,500	26.62	.69	93.43
Lebanon	1,200	15.15	.44	90.37
Libya	2,131	45.69	1.01	96.38
Malaysia	1,300	33.63	.93	95.62
Mexico	2,000	32.58	.73	93.48
Morocco	1,200	29.69	.91	93.28
Netherlands	1,902	36.31	.86	92.75
New Zealand	841	21.94	.78	93.65
Nigeria	1,759	36.77	.88	95.62
Pakistan	1,200	38.64	1.12	95.65
Peru	1,210	24.77	.72	95.62
Philippines	1,200	26.68	.77	93.48
Poland	966	23.83	.78	93.43
Qatar	1,060	50.21	1.55	99.20
Romania	1,503	28.96	.76	97.81
Russia	2,500	31.37	.65	94.89
Rwanda	1,527	37.80	.97	92.03
Singapore	1,972	27.32	.62	97.06
Slovenia	1,069	26.41	.82	96.38
South Africa	3,531	29.64	.51	93.48
Zimbabwe	1,499	30.23	.78	90.51
Spain	1,189	27.51	.81	91.11
Sweden	1,206	29.61	.86	94.20
Thailand	1,200	25.81	.75	95.65
Trinidad & Tobago	999	28.56	.92	97.06
Tunisia	1,205	36.74	1.09	96.30
Turkey	1,605	36.10	.91	95.59
Ukraine	1,500	24.97	.65	90.51
Egypt	1,523	41.15	1.06	95.31
United States	2,232	30.93	.66	96.32
Uruguay	1,000	21.12	.68	94.20
Uzbekistan	1,500	46.97	1.23	95.52
Yemen	1,000	31.82	1.05	96.30

religion, culture, or race of the countries; they appear to be random fluctuations. The mean effect size varied from the lows of .39 in India, .44 in Lebanon, and .51 in South Africa, to the highs of 1.55 in Qatar, 1.23 in Uzbekistan, and 1.12 in Pakistan. Populations of all 59 nations provided mean responses significantly above or below the scale midpoint in at least 90% of the questions.

## Discussion

Consistent with the results from GSS with American respondents in Study 1, the analysis of WVS data suggested that humans everywhere in the world held “extreme” opinions significantly above or below the scale midpoint *regardless* of the question. It is important to note that, while the tendency to hold extreme preferences and values appeared to be culturally universal, the populations of the 59 countries in WVS did not agree on much else. There were a very small number of questions on which populations of all countries significantly deviated from the scale midpoint *in the same direction*; they all agreed that family was important, friends were important, having a democratic political system was very good, and they were very proud to be of their own nationality.

However, these were rare exceptions rather than the rule. On most other questions, populations of some countries were significantly above the scale means, while those of others were significantly below them. Some of these were predictable; for example, populations of western liberal democracies strongly disagreed with the statement “On the whole, men make better political leaders than women do,” while those of Muslim countries equally strongly agreed with it. However, other national differences were unexpected. For example, while populations of most countries agreed that claiming government benefits to which one was not entitled was never justifiable, Taiwanese believed that it was always justifiable; while the populations of most countries agreed that parents beating children was never justifiable, Rwandans believed that it was always justifiable.

Interestingly, these national differences did not always appear to have plausible cultural and social explanations, because sometimes countries that were culturally, economically, and politically very similar had very different values. For example, South Africans believed that it was an essential characteristic of *democracy* that religious authorities ultimately interpreted the laws, while the neighboring Zimbabweans believed it was not; South Koreans had a great deal of confidence in environmental organizations, while the neighboring Japanese had very little. It appeared that there were very few generalizations that one could make about the specific preferences and values of the populations of these 59 nations, or even the directions to which they leaned, *except* that they held extreme views significantly above or below the scale midpoint in almost all cases.

The results presented above strongly contradicted earlier findings from cross-cultural psychology that western populations exhibit the “extreme response bias” and East Asian populations exhibit the “acquiescent response bias” (Hamamura, Heine, and Paulhus 2008; Harzing 2006; Smith and Fischer 2008). China ( $d = .79$ ), Taiwan ( $d = .76$ ), and Japan ( $d = .85$ ) had some of the highest effect sizes, higher than Germany ( $d = .70$ ) and the United States ( $d = .66$ ), although South Korea ( $d = .65$ ) and Singapore ( $d = .62$ ) did not.

## General discussion

When a given pattern of cognition or behavior is culturally universal, it is highly likely (though, strictly speaking, not logically necessary) that it is part of universal human nature and humans have been evolutionarily selected to think or behave in such a way (Buss 1989). The tendency to hold “extreme” preferences and values may be one such example.

In light of the findings above, especially in Study 2, it appears that positive psychologists’ findings that “most people are happy” and “life is pretty meaningful” are just two examples of the universal human tendency to hold “extreme” opinions, significantly above or below the scale midpoint, about everything in all domains of life. Such universal tendency to hold “extreme” opinions may be the result of the fact that most psychological adaptations are formed via directional selection opting for extreme (not moderate) values and the fact that most preferences and values have some genetic components (and are thus heritable).

How do my findings about the seemingly universal tendency to hold “extreme” values compare with positive psychologists’ earlier conclusions that “most people are happy” (Diener and Diener 1996) and “life is pretty meaningful” (Heintzelman and King 2014)? Diener and Diener (1996) conclusion was based on the effect size of  $d = 1.156$ , and Heintzelman and King (2014) was based on the effect size of  $d = 2.78$  for purpose in life and  $d = 1.00$  for meaning in life. So the effect sizes obtained from the GSS and WVS data in Studies 1 and 2 above were slightly smaller than what Diener and Diener (1996) and Heintzelman and King (2014) found.

If robust and generalizable, the finding above of seemingly culturally universal and potentially evolved human tendency to hold extreme preferences and values has significant implications for social and behavioral science research. Among others, any finding of significantly high (or low) opinions in social surveys must be tempered with and interpreted against the background knowledge that humans everywhere hold significantly high (or low) opinions about everything in all domains. Significantly high (or low) opinions may be the statistical norm, rather than rare and notable findings.

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